Appendix 1

REPETITIVE LOSS AREA 1

DRY CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 1
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A1.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 1, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 1 analysis includes properties on Cherry Lane, Dry Creek Road, O Street, Elkhorn Boulevard and 4th Street and is defined by **Figure A1**.

A1.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A1.3 PROBLEM STATEMENT

The location of Area 1 is generally Elkhorn Boulevard east of Rio Linda Boulevard. Floods in the Dry Creek watershed generally occur from October through April. The floods are usually caused by a combination of prolonged rainfall leading to saturated soils, and a short period of one to six hours of intense precipitation associated with frontal convection or severe thunderstorms. The source of flooding was primarily identified as the Dry Creek floodplain (North and South Branch) out of bank flooding in older residential areas constructed prior to NFIP requirements.

Dry Creek and its tributaries have an extensive record of flood conditions,. Damaging floods occurred in December 1955, April 1958, October 1962, December 1964, March 1983 and February 1986. The floods of 1983 and 1986 were the largest and most damaging on record before 1992. Hydrologic studies have shown that the recurrence interval of the March 1983 flood was approximately 10 years and the recurrence interval of the February 1986 flood was from 50 to 100 years, depending on the specific location in the Dry Creek watershed.6 Flood events also occurred in in January 1995, January 1997, February 1998, and December 2005, with the 1995 flood event causing extensive damage.

There are 272 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. Twenty-two (22) properties were acquired and demolished as part of the Hazard Mitigation Grant Program and seven (7) properties were mitigated by elevation.

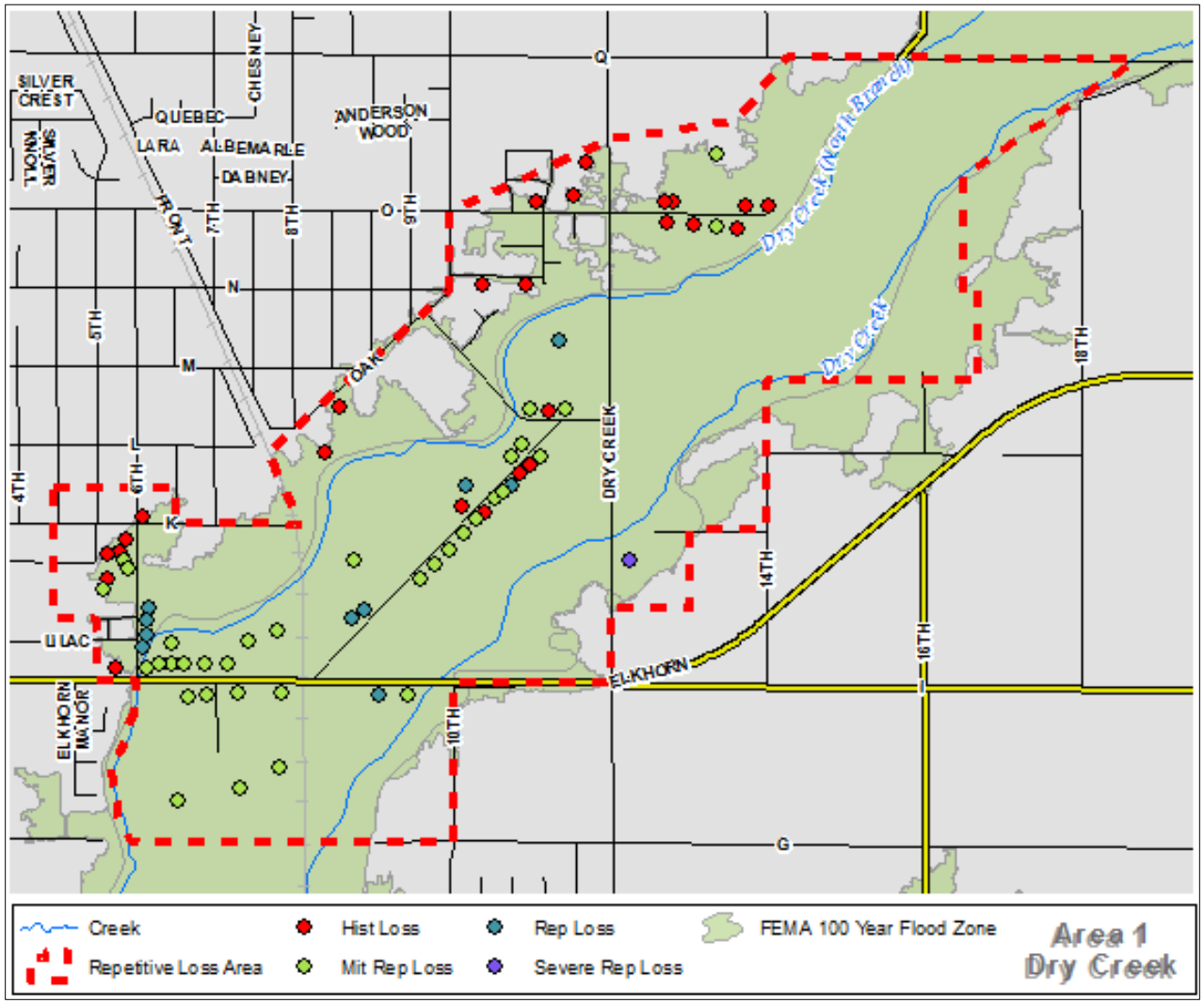
A1.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- Sacramento County Department of Transportation - Bikeway project 2009

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

FIGURE A1
Repetitive Loss Area #1



A1.5 DATA COLLECTION

Sacramento County Plans and studies for the Dry Creek watershed were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- **Analysis of Dry Creek Alternatives to Detention** Prepared By Montgomery Watson May 26, 2000
- **The 1992 Dry Creek Watershed Flood Control Plan** (1992 Plan) and its Update; **Update to the Dry Creek Watershed Flood Control Plan** (2010)

A1.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) all properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when Dry Creek overflows into a floodplain. The Sacramento County Local Floodplain Map does not cover the Dry Creek Shed for this RLA,

A1.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that sixty-nine (69) of the overall 346 properties within the Dry Creek RLA had reported flooding.

A1.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in January 9, 1995, January 9 & 22, 1997, June 15, 1997, February 3, 1998, and June 15 & 16, 1998. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A1.5.4 Types of Foundations

The most common type of foundations within the Dry Creek RLA is slab on grade, which constitutes 79% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A1.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for acquisition of additional properties in Dry Creek Floodway for demolition to restores the natural floodplain. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

DRY CREEK WATERSHED

AREA 1

CHERRY LANE

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**28**
REPETITIVE LOSS PROPERTIES	*10*
HISTORICAL LOSS PROPERTIES	*10*
REPETITIVE LOSS AREA PROPERTIES	*8*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 4
  - SLAB ON GRADE 5
- NO STRUCTURES
  - PRIVATELY OWNED 4
  - PUBLICLY OWNED 2

MITIGATED PROPERTIES

- ACQUSITION & DEMO 10
- AQUSITION – NO STRUCTURE 1
- ELEVATED (RAISED FOUNDATION) 1

AREA 1

O STREET

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**31**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*9*
REPETITIVE LOSS AREA PROPERTIES	*20*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 4
  - SLAB ON GRADE 25
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 2

AREA 1

DRY CREEK ROAD

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**33**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*30*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 9
  - SLAB ON GRADE 13
  - UNKNOWN 2
- NO STRUCTURES
  - PRIVATELY OWNED 6
  - PUBLICLY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 3
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

10TH STREET

16TH STREET

EYE STREET

FRONT STREET

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**16**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*16*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 2
  - SLAB ON GRADE 8
  - UNKNOWN 2
- NO STRUCTURES
  - PRIVATELY OWNED 2
  - PUBLICLY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

FALLON WOODS WAY

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**37**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*35*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 37
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUISITION & DEMO 0
- ACQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

CURVED BRIDGE ROAD

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**9**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*6*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 3
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO 2
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

ELKHORN BOULEVARD

DRY CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**24**
REPETITIVE LOSS PROPERTIES	*9*
HISTORICAL LOSS PROPERTIES	*8*
REPETITIVE LOSS AREA PROPERTIES	*7*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 2
  - SLAB ON GRADE 4
- NO STRUCTURES
  - PRIVATELY OWNED 1
  - PUBLICLY OWNED 3

MITIGATED PROPERTIES

- ACQUSITION & DEMO 1
- AQUSITION – NO STRUCTURE 12
- ELEVATED (RAISED FOUNDATION) 1

AREA 1

JAMIE COURT

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**11**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*11*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 11
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

K STREET

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**25**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*24*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 10
  - SLAB ON GRADE 14
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

VICKREY COURT

VICKIE THERESA LA NE

LINDA LANE

LILAC LANE

14TH STREET

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**17**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*17*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 15
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 1
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

6TH STREET

5TH STREET

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**28**
REPETITIVE LOSS PROPERTIES	*11*
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*15*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 8
  - SLAB ON GRADE 18
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 2

AREA 1

5TH AVENUE

6TH AVENUE

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**10**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*10*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	0
o SLAB ON GRADE	10
• NO STRUCTURES	
o PRIVATELY OWNED	0
MITIGATED PROPERTIES	
• ACQUSITION & DEMO	0
• AQUSITION – NO STRUCTURE	0
• ELEVATED (RAISED FOUNDATION)	0

AREA 1

OAK LANE

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**16**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*14*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 4
  - SLAB ON GRADE 12
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

FALLON PLACE COURT

JC COURT

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**17**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*17*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 17
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

ALVILDE COURT

CASTLE CREEK WAY

Q STREET

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**21**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*21*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 2
  - SLAB ON GRADE 19
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 1

RADALYAC COURT

WOODWRIGHT WAY

DRY CREEK WATERSHED

DATA ANALYSIS SUMMARY

PROPERTIES	**17**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*17*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 13
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 4
- ELEVATED (RAISED FOUNDATION) 0

Appendix 2

REPETITIVE LOSS AREA 2

LAGUNA CREEK

(Inter-basin transfer)

GERBER CREEK

SACRAMENTO COUNTY

APPENDIX 2

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A2.1 REPETITIVE LOSS AREA 2

This Report focuses on Area 2, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 2 analysis includes properties on Bar Du Lane, Bradshaw Road, Carmencita Avenue, Gerber Road, Wildhawk West Drive and Vineyard Road and is defined by **Figure 1**.

A2.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A2.3 PROBLEM STATEMENT

The location of Area 2 is generally Bradshaw Road west of Vineyard Road. The character of the Inter-basin Transfer flow in general, the flow leaving Laguna Creek remains on the east side of Bradshaw Road and ponds behind Bradshaw Road, overtopping the roadway at the lowest crown elevations just south of Gerber Road, once the capacity of smaller roadside ditches are exceeded. Once flow overtops the roadway, the majority of the spill would flow westward overland across the intersection of Gerber Road and across the properties south of Gerber Road. The inundation of properties just south of Gerber Road is significant, as they convey the majority of the Inter-basin Transfer. This Inter-basin transfer has an extensive record of flood conditions.

This RLAA consists of 103 properties which include buildings on FEMA's repetitive loss list and nearby buildings that may have the same or similar flooding conditions. The flood hazard in this area is Laguna Creek inter-basin transfer to Gerber Creek.

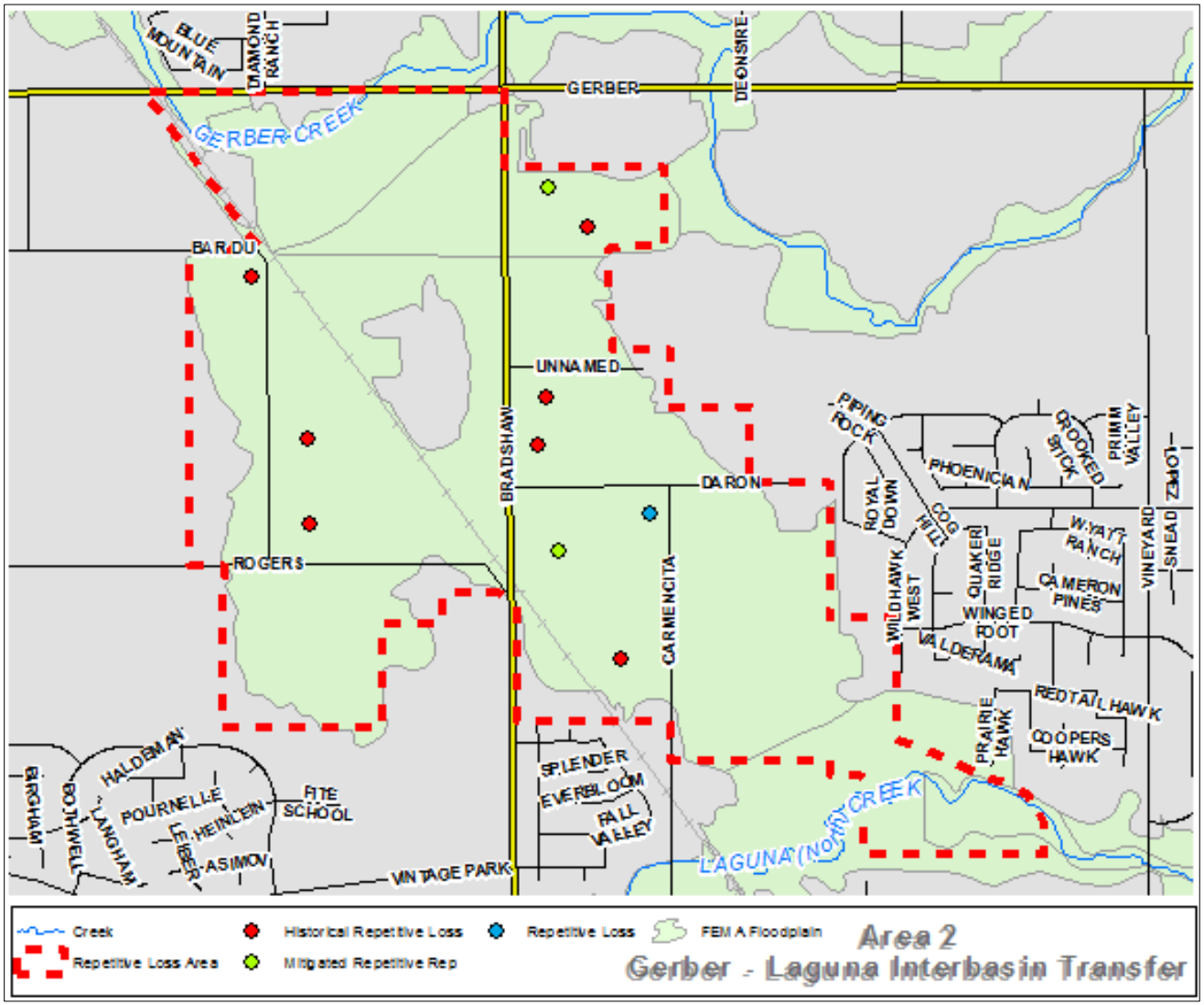
A2.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- The Upper Laguna Creek Drainage Improvement and Trail System (ULCDITS)
- Sacramento County Department of Water Resources' comprehensive drainage improvement plan from Vineyard Road to Calvine Road in southern Sacramento County.
- Southgate Recreation and Park District's construction of a pedestrian/bicycle/equestrian trail system along this portion of Laguna Creek.
- Multi-use flood control detention basin, and three water quality treatment basins
- Flood control detention basin at Triangle Rock's Vulcan pit, west of Folsom South Canal.
- Sacramento County is working on a flood control project (known as Triangle basin).

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

FIGURE A2
Repetitive Loss Area #2



A2.5 DATA COLLECTION

Sacramento County Plans and studies for the Dry Creek watershed were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

A2.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) all properties within the RLA are within the 100-year FEMA floodplain. The flood hazard in this area is Laguna Creek inter-basin transfer to Gerber Creek. The Sacramento County Local Floodplain Map indicates this entire RLA falls within the Local Flood Plain with a flood elevation of 86.83' NGVD 29 or 89.13' NAVD 88,

A2.5.2 Flooding Experiences of Property Owners

Drainage Operation and Maintenance Service Request Tracking System (DOMS-SRTS) indicates that nine of the overall 103 properties within the Laguna Creek (Inter-Basin Transfer) RLA had reported flooding.

A2.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A2.5.4 Types of Foundations

The most common type of foundations within the Laguna Creek (Inter-Basin Transfer) RLA is raised foundations, which constitutes 74% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A2.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for acquisition of additional properties in Dry Creek Floodway for demolition to restores the natural floodplain. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

LAGUNA CREEK to GERBER CREEK
(Inter-Basin Transfer)

AREA 2

BAR DU LANE

LAGUNA CREEK to GERBER CREEK
(Inter-Basin Transfer)

DATA ANALYSIS SUMARY

PROPERTIES	**20**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*18*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 16
  - SLAB ON GRADE 3
  - UNKNOWN FOUNDATION 1
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 2

BRADSHAW ROAD

LAGUNA CREEK to GERBER CREEK
(Inter-Basin Transfer)

DATA ANALYSIS SUMARY

PROPERTIES	**36**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*4*
REPETITIVE LOSS AREA PROPERTIES	*29*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 14
  - SLAB ON GRADE 9
  - UNKNOWN 6
- NO STRUCTURES
  - PRIVATELY OWNED 5

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 1
- ELEVATED (RAISED FOUNDATION) 1

AREA 2

CARMENCITA AVENUE

LAGUNA CREEK to GERBER CREEK
(Inter-Basin Transfer)

DATA ANALYSIS SUMARY

PROPERTIES	**29**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*27*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 18
  - SLAB ON GRADE 8
- NO STRUCTURES 2
-
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 2

ROGERS ROAD

GERBER ROAD

VINEYARD ROAD

WILDHAWK WEST DRIVE

LAGUNA CREEK to GERBER CREEK
(Inter-Basin Transfer)

DATA ANALYSIS SUMARY

PROPERTIES	**26**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*25*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 15
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED 8

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

Appendix 3

REPETITIVE LOSS AREA 3

LOCAL DRAINAGE

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 1

TABLE OF CONTENTS

A3.1 REPETITIVE LOSS AREA 3- Andrew Alan Lane

This Report focuses on Area 3, one of the twenty-eight (28) designated RLAs within the Sacramento County. The subject homes, constructed in 1990, flooded several times due to an unforeseen local shed jump and lack of overland release. Overland release was constructed in the mid1990's and the homes have not flooded since. See **Figure A3**.

A3.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the repetitive loss areas.

A3.3 PROBLEM STATEMENT

The location of Area 3 is Andrew Alan Lane north east of the intersection of San Juan Avenue and Winding Way. The small (two acre) subdivision was constructed in a low area with one storm drain inlet and no overland release. The homeowners filed flood insurance claims in 1995, 1996, and 1997 when the County was hit by a series of significant storms. Once the problem was recognized, an engineered solution was designed and constructed and the homes have not flooded since that time.

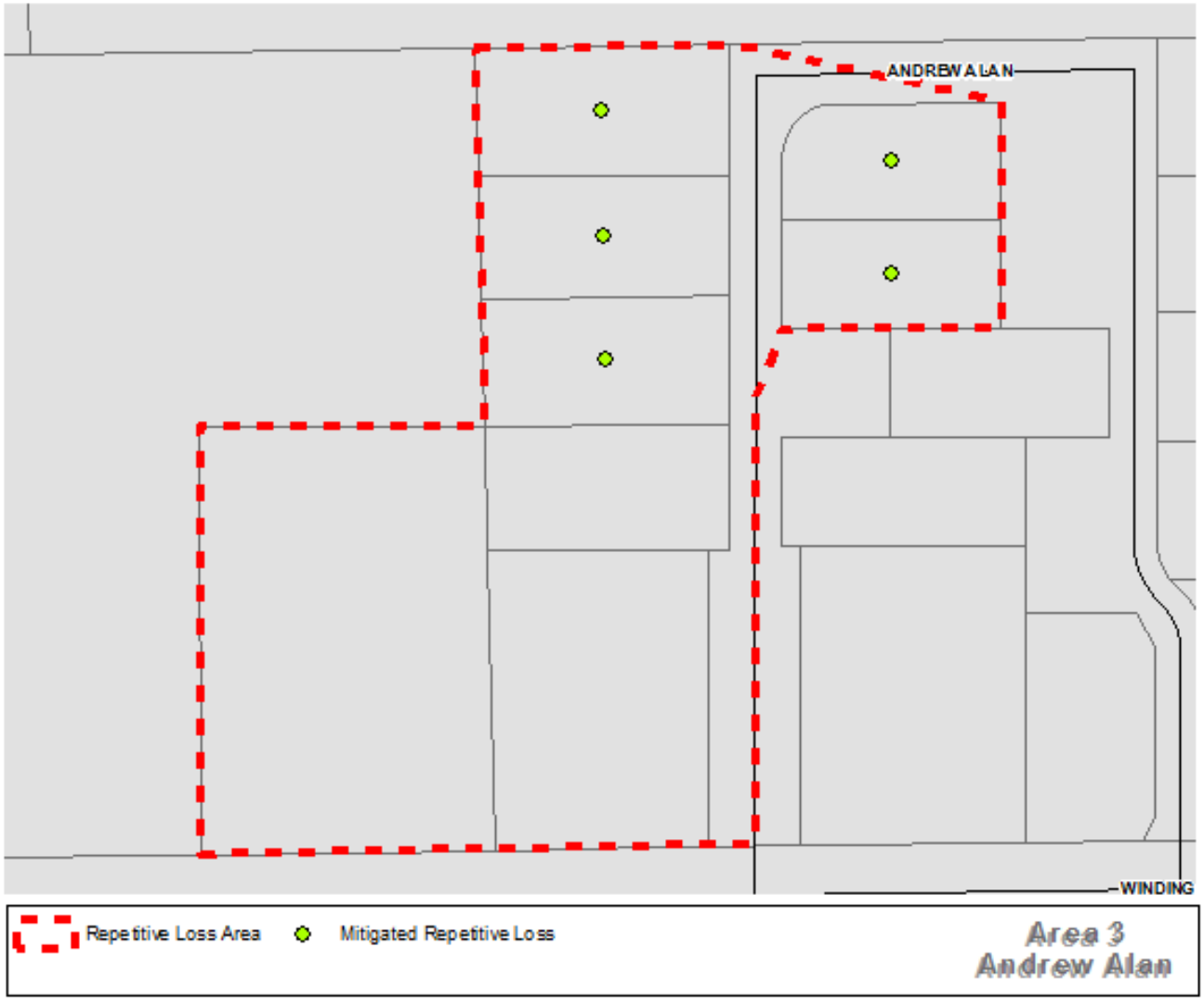
There are two properties included on FEMA's repetitive loss list, one other flood victim that is not listed on the repetitive loss list possibly due to not having flood insurance, and two other homes that would be in jeopardy had the engineered solution not been constructed.

A3.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

> This was a local drainage issue solved by the local agency. No state of federal agencies participated in the flood control solution.
>
> The primary method of property protection is overland release.

FIGURE A3
Repetitive Loss Area #3



A3.5 DATA COLLECTION

The issue was caused by an engineering oversight at the time of development. The error included a misunderstanding of the contributing watershed area. The solution included establishing an overland release path to assure storm water runoff from significant storm events, exceeding the capacity of the piped storm drain system, would safely release downstream. Sacramento County prepared the study and plans and assured construction was completed.

A3.5.1 Flood Insurance and Flood Event Data

Area 3 is in Zone X, on the FEMA Flood Insurance Rate Map 06067C0093H. The local flooding occurred in this area in 1993, 1995, 1996, and 1997. The repair was completed shortly after the 1997 storm event, and the area has not flooded since that time.

A3.5.2 Flooding Experiences of Property Owners

After flooding up to four times in a three year period with these homes were quite new, these property owners have enjoyed seventeen years without any flooding problems. Water Resources Service Request Tracking System (WR-SRTS) shows no complaints or questions after 1997.

A3.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in January 10, 1995. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A3.5.4 Types of Foundations

The most common type of foundations within the Andrew Alan Lane RLA is Slab on Grade which constitutes 100% of the two common foundations found in this RLA within Sacramento

County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A3.6 FUTURE MITIGATION MEASURES

The overland release must be inspected periodically and kept clear. The County does periodic outreach to ten properties in Area 3. The local flooding problem was mitigated by a project constructed under the direction of the County. There is no remaining construction action necessary. The overland release must be kept clear and functioning.

DATA ANALYSIS SUMMARY

ANDREW ALAN LANE LOCAL FLOODPLAIN

AREA 3

ANDREW ALAN LANE

WINDING WAY

ANDREW ALAN LANE LOCAL FLOODPLAIN

DATA ANALYSIS SUMARY

PROPERTIES	**8**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*3*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- OVERLAND RELEASE 5

Appendix 4

REPETITIVE LOSS AREA 4

NORTH AVENUE

East of Mission Avenue

Chicken Ranch Slough Floodplain

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

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A4.1 REPETITIVE LOSS AREA 4 North Ave (Chicken Ranch Slough)

This Report focuses on Area 4, one of the twenty-eight (28) designated RLAs within the Sacramento County. Repetitive loss area #4 has experienced flooding due to Chicken Ranch Slough and ponding water in the street caused by backwater from the high creek level. Two properties protected themselves with an on-site floodwall, one established sideyard overland release.

A4.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the repetitive loss area.

A4.3 PROBLEM STATEMENT

The location of Area 4 is Chicken Ranch Slough upstream of Mission Avenue. The measured water surface elevation in 1986 approximately matched the FEMA flood insurance base flood elevation and the 1995 high water was about 8 inches below the BFE. Flood insurance claims were filed in 1986, 1995, 1996, 1997, 2005; although, some only filed two claims, others filed three or four.

The problem is Chicken Ranch Slough and the fact that the PreFIRM homes were constructed too low.

A4.4 BASIC INFORMATION

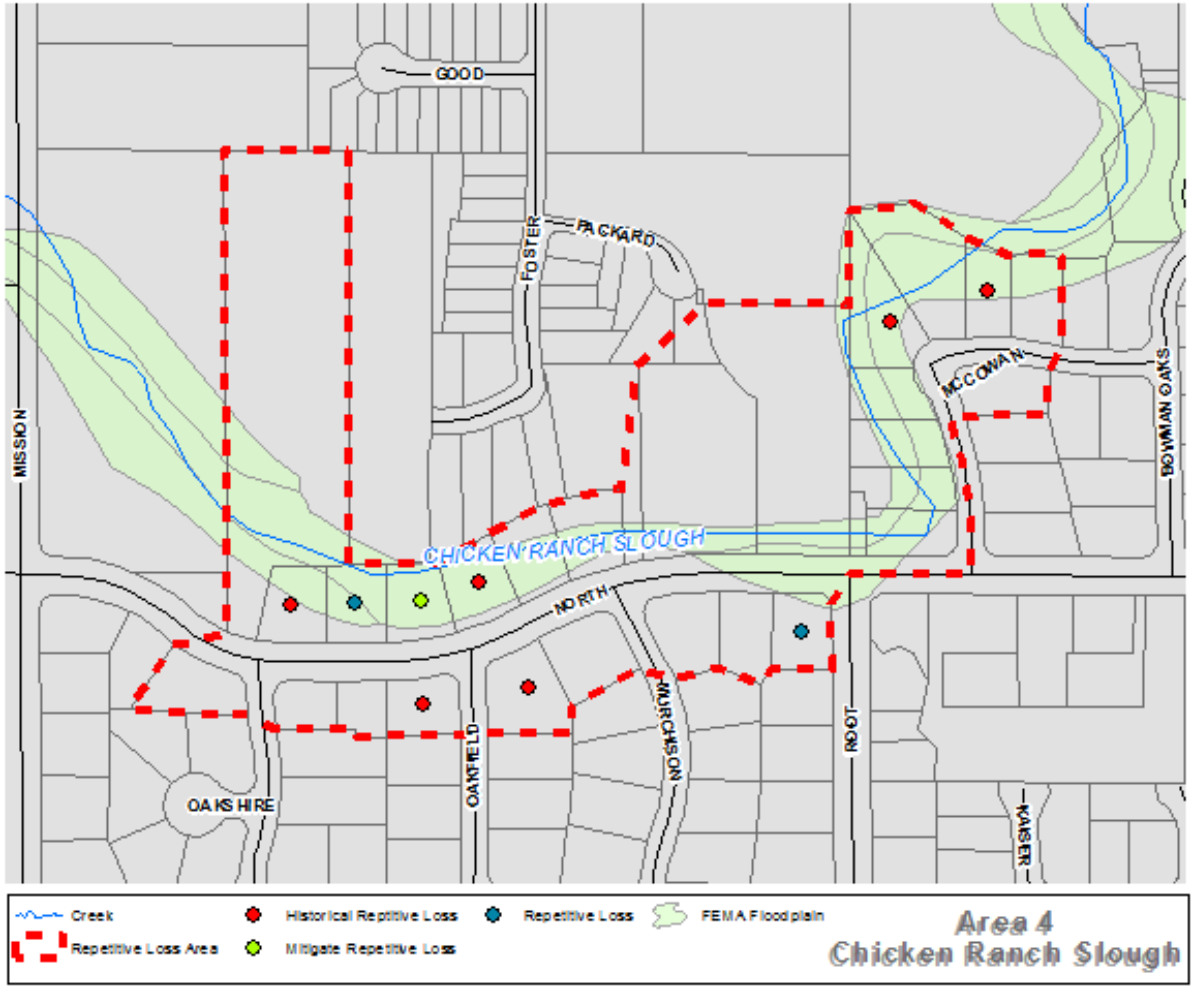
The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

A4.5 DATA COLLECTION

Sacramento County and FEMA flood insurance studies for Chicken Ranch Slough were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the repetitive loss area (RLA):

- FEMA Flood Insurance Rate Map
- Sacramento County 2006 hydrology and hydraulics model
- Sacramento County Drainage Engineering

FIGURE A4
Repetitive Loss Area #4



A4.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) the repetitive loss area properties are affected by the 100-year FEMA floodplain. The flooding occurs when the creek is high, and local storm drains cannot drain water from the street due to that tail-water condition.

A4.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that only a small handful of the overall properties within the Area 4 RLA had reported flooding.

A4.5.3 Structure Inspections

There have been numerous communications between the property owners in the subject area as shown on the SRTS map below. There are only a handful of properties who have filed flood insurance claims. The repetitive loss properties have experienced several floods, but local on-site mitigation may reduce the number of such claims.

FEMA hazard mitigation home elevation program benefit versus cost analyses would not support home elevation due to the depth of flooding. Consequently, it would seem that the on-site floodwalls and overland release are the best solution.

The County drainage engineering staff stands ready to assist property owners with on-site flood protection solutions.

A4.5.4 Types of Foundations

The homes in this area are a mix of slab on grade and raised foundation.

A4.6 FUTURE MITIGATION MEASURES

The most common type of foundations within the Dry Creek RLA is slab on grade, which constitutes 71% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

There does not appear to be an urgent project in Area 4.

- **Responsible Office:** Department of Water Resources through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** FEMA grant

DATA ANALYSIS SUMMARY

Chicken Ranch Slough Floodplain

AREA 4

NORTH AVENUE

CHICKEN RANCH SLOUGH FLOODPLAIN

DATA ANALYSIS SUMARY

PROPERTIES	**17**
REPETITIVE LOSS PROPERTIES	*3*
HISTORICAL LOSS PROPERTIES	*4*
REPETITIVE LOSS AREA PROPERTIES	*10*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	10
o SLAB ON GRADE	3
• NO STRUCTURES	
o PRIVATELY OWNED	2
MITIGATED PROPERTIES	
• OVERLAND RELEASE	
• FLOODWALL *(Slab On Grade)*	1
• ELEVATED (RAISED FOUNDATION)	

AREA 4

MCCOWAN WAY

MURCHISON WAY

OAKFIELD DRIVE

CHICKEN RANCH SLOUGH FLOODPLAIN

DATA ANALYSIS SUMARY

PROPERTIES	**17**
REPETITIVE LOSS PROPERTIES	*3*
HISTORICAL LOSS PROPERTIES	*4*
REPETITIVE LOSS AREA PROPERTIES	*10*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	10
o SLAB ON GRADE	3
• NO STRUCTURES	
o PRIVATELY OWNED	2
MITIGATED PROPERTIES	
• OVERLAND RELEASE	
• FLOODWALL *(Slab On Grade)*	1
• ELEVATED (RAISED FOUNDATION)	

Department of Water Resources
Repetitive Loss Area Analysis

Appendix 5

REPETITIVE LOSS AREA 5

TWIN CITIES ROAD

LOWER COSUMNES RIVER / BEACH-STONE

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

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A5.1 REPETITIVE LOSS AREA 5

This Report focuses on Area 5, one of the twenty-eight (28) designated RLAs within the Sacramento County. Repetitive Loss Area 5 has experienced flooding due to the Cosumnes River and backwater Beach-Stone Lake floodplains as described on the FEMA Flood Insurance Rate Map. Area 5 analysis includes properties on Twin Cities Road and is defined by **Figure A5**.

A5.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the repetitive loss area.

A5.3 PROBLEM STATEMENT

This area is in a FEMA floodplain, the lot sizes and use are typically agricultural throughout this region of the County. The location of Area 5 is outside of the urban stormwater utility; however, the County floodplain management section stands ready to offer technical assistance and hazard mitigation as grant funds are available. Flooding was reported in this area January 1982, February 1986, January 1997.

Post-FIRM structures are constructed safely above the flood hazard elevation; however, some preFIRM structures were not elevated properly.

The one known repetitive loss home was elevated after it flooded in 1997, partially paid by HMGP grant funds.

A5.4 BASIC INFORMATION

See maps an table at the end of this document.

A5.5 DATA COLLECTION

Sacramento County and FEMA flood insurance studies, for the floodplain affecting the area, were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the repetitive loss area (RLA):

- FEMA Flood Insurance Rate Map
- County BFE analysis for unnumbered A-Zone

A5.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) the repetitive loss area properties are affected by the 100-year FEMA floodplain. The flooding occurs when the Cosumnes River breaches its uncertified rural levee system combined with Beach-Stone Lake floodwater and contributions from the Morrison Creek watershed.

FIGURE A5
Repetitive Loss Area #5

A5.5.1 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that only a small handful of the overall properties within the Area 5 RLA reported flooding.

A5.5.2 Structure Inspections

There have been numerous communications between the property owners in the subject area as shown on the SRTS map below. There are only a handful of properties who have filed flood insurance claims. The repetitive loss properties have experienced several floods, but local on-site mitigation may reduce the number of such claims.

FEMA hazard mitigation home elevation program benefit versus cost analyses would not support home elevation due to the depth of flooding. Consequently, it would seem that the on-site floodwalls and overland release are the best solution.

The County drainage engineering staff stands ready to assist property owners with on-site flood protection solutions.

A5.5.3 Types of Foundations

The homes in this area are a mix of slab on grade and raised foundation.

A5.6 FUTURE MITIGATION MEASURES

There is no project proposed.

There does not appear to be an urgent project in Area 4.

- **Responsible Office:** individual property owners must request mitigation
- **Timeline:** not urgent
- **Potential Funding:** FEMA grant

DATA ANALYSIS SUMMARY

Lower Cosumnes River / Beach-Stone

AREA 5

BRUCEVILLE ROAD

FRANKLIN BOULEVARD

TWIN CITIES ROAD

LOWER COSUMNES RIVER / BEACH-STONE

DATA ANALYSIS SUMARY

PROPERTIES	**10**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	
REPETITIVE LOSS AREA PROPERTIES	*9*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 2
  - SLAB ON GRADE 3
  - UNKNOWN 2
- NO STRUCTURES
  - PRIVATELY OWNED 3

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)
- Flood Wall

Appendix 6

REPETITIVE LOSS AREA 6
BROOKTREE CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 6

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A6.1 REPETITIVE LOSS AREA 6

This Report focuses on Area 6, one of the twenty eight (28) designated RLAs within the Sacramento County. Area 6 analysis includes Elsinore Way, Leavitt Way, Northbrook Way, and Southbrook Way as defined by **Figure A6**.

A6.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the repetitive loss areas.

A6.3 PROBLEM STATEMENT

The location of Area 6 is along Coyle Creek, upstream of Madison Avenue.

The source of flooding was primarily identified as the residences being in low lying areas, in some instances adjacent to a creek that is over capacity, and most of the homes having slab-on-grade foundations.

There are 18 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

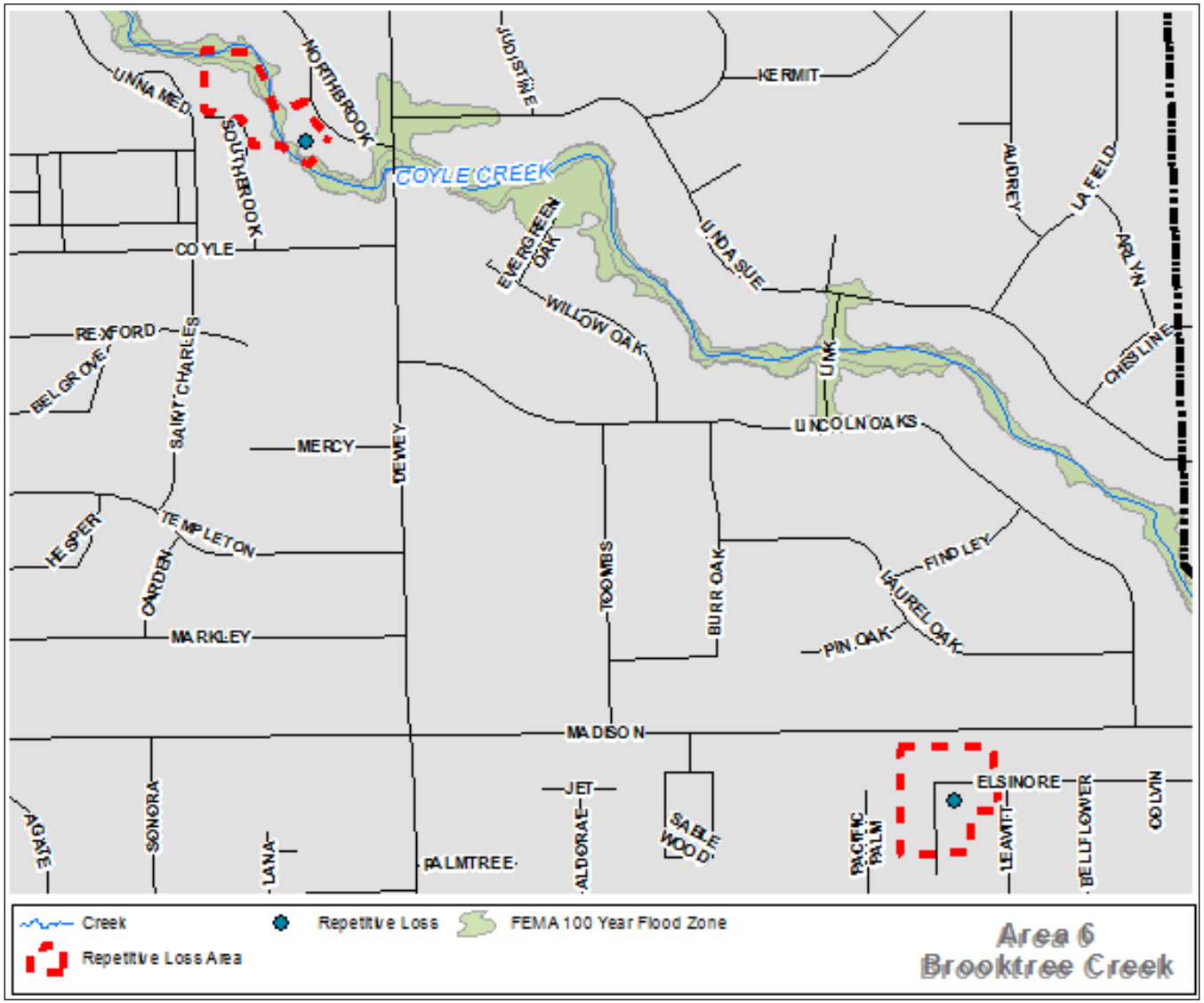
A6.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), plans or studies that could affect the cause or impacts to flooding were not available.

The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.
- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.
- Home Removal – If necessary, it may be recommended that the County purchase the property and remove the home from the lot.

FIGURE A6
Repetitive Loss Area #6



A6.5 DATA COLLECTION

Sacramento County Plans and studies for Brooktree Creek were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- Improvement plans for 5334 Elsinore Way
- Palm Avenue Subdivision
- Orange Estates
- Pacific Palm Estates
- Oak Brook Park
- Oak Brook Park Unit 2
- Oak Brook Park Unit 3
- 6551 – 6599 Coyle Avenue

A6.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012), 7 properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs on Northbrook Way and Southbrook Way when flows exceed the capacity of Coyle Creek. The Sacramento County Local Floodplain on Elsinore Way for this RLA floods due to it being a low lying area.

A6.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 3 of the overall 18 properties within the Brooktree Creek RLA had reported flooding.

A6.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed on February 23, 2015. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.

- High-water marks and debris mark levels

A6.5.4 Types of Foundations

The most common type of foundations within the Dewey Drive RLA is slab-on-grade.

A6.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for future mitigation measures. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

BROOKTREE CREEK
(Overland Release)

AREA 6

ELSINORE WAY

LEAVITT WAY

BROOKTREE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**11**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*10*

- EXISTING STRUCTURES (UNMITIGATED)
  - o RAISED FOUNDATIONS 0
  - o SLAB ON GRADE 11
- NO STRUCTURES
  - o PUBLICALLY OWNED 0

MITIGATED PROPERTIES

- AQUISITION & DEMO 0
- AQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0
- IMPROVED DRAINAGE FACILITIES 1

AREA 6

SOUTHBROOK WAY

NORTHBROOK WAY

BROOKTREE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**7**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*6*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 3
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PUBLICALLY OWNED 1

MITIGATED PROPERTIES

- AQUISITION & DEMO 0
- AQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0
- IMPROVED DRAINAGE FACILITIES

Appendix 7

REPETITIVE LOSS AREA 7

MORRISON CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 7

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A7.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 7, one of the twenty-eight (28) designated RLAs within the Sacramento County. The Area 7 analysis includes a single property as seen in **Figure A7**.

A7.2 ADVICE FOR RESIDENTS

Resident have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A7.3 PROBLEM STATEMENT

The location of Area 7 is in a rural portion of the County with limit improvements. However, for the past two decades intense mining has occurred east of the concerned area, which has provided flood storage.

The source of flooding was primarily identified has high flood waters spreading out over a wide floodplain.

There is one property which includes a building on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. None of the properties have been mitigated.

A7.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- West Jackson Highway – Master Drainage Study (Dated: 2012)

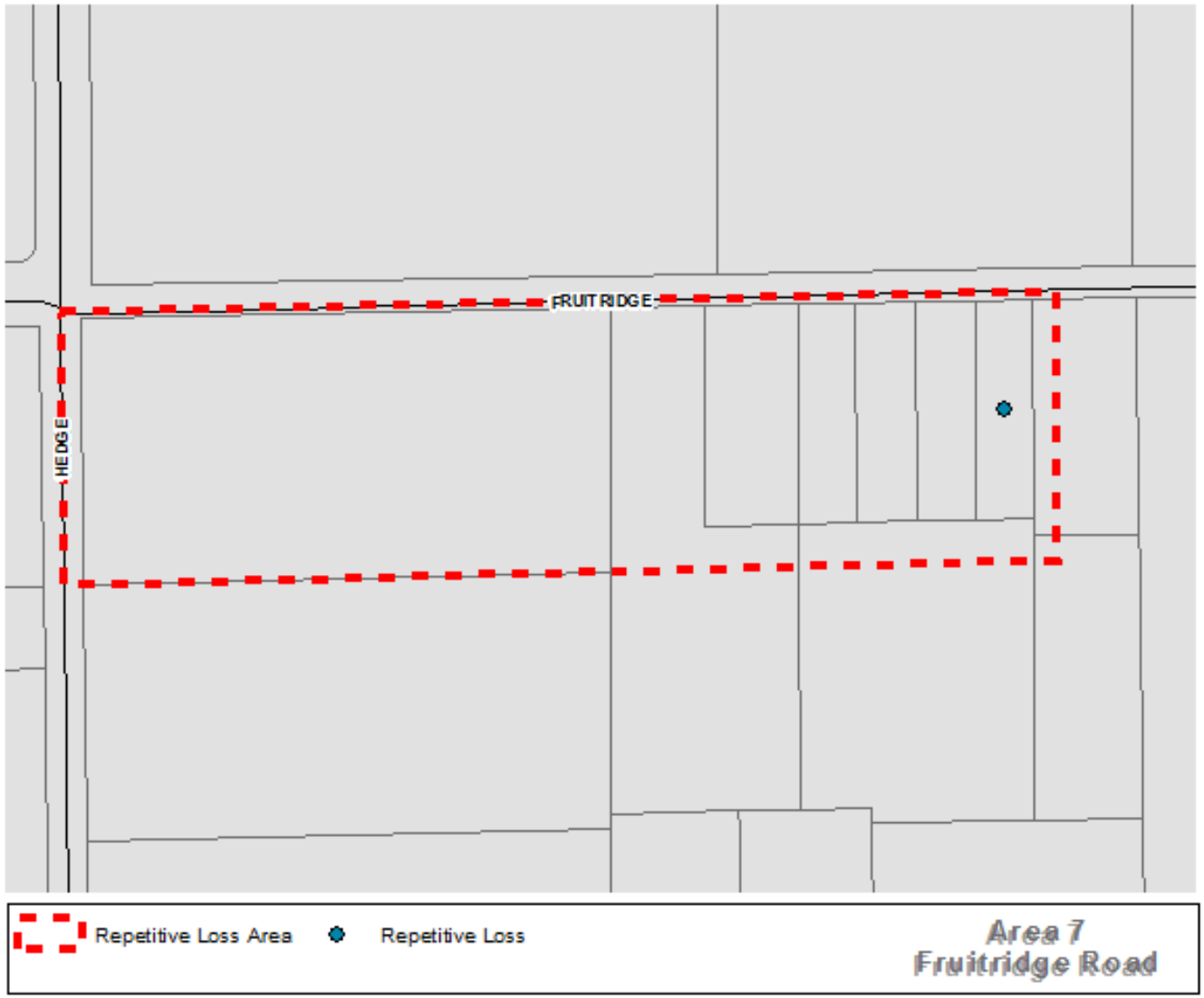
The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

A7.5 DATA COLLECTION

Sacramento County Plans and studies for Morrison Creek were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- West Jackson Highway – Master Drainage Study (2012)

FIGURE A7
Repetitive Loss Area #A7



A7.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) no properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when high stages experienced in Morrison Creek. The Sacramento County Local Floodplain identifies no properties from this RLA.

A7.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that one of the overall eight properties within the Morrison Creek RLA had reported flooding.

A7.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in May 2015. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A7.5.4 Types of Foundations

The most common type of foundations within Area 7 is a slab on grade foundation, which constitutes 100% of the 2 common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A7.6 FUTURE MITIGATION MEASURES

Based on the West Jackson Highway – Master Drainage Study, no further mitigation is required for Area 7.

DATA ANALYSIS SUMMARY

MORRISON CREEK WATERSHED

AREA 7

FRUITRIDGE ROAD

MORRISON CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES

REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*7*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 5
  - SLAB ON GRADE 2
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

Appendix 8

REPETITIVE LOSS AREA 8
COSUMNES RIVER

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 8

TABLE OF CONTENTS

A8.1 REPETITIVE LOSS AREA 8

This Report focuses on Area 8, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 8 analyses include properties on Green Road and Jeffcott Road and are defined by **Figure A8**.

A8.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A8.3 PROBLEM STATEMENT

The location of Area 8 is generally area bounded by Wilton Road to the east, the Cosumnes River to the south, Green Road to the north and along the west side of Jeffcott Road. The source of flooding was primarily identified has been determined to be low lying areas around Cosumnes River. Out of bank flooding may occur in older residential areas constructed prior to NFIP requirements.

There are 33 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

A8.4 BASIC INFORMATION

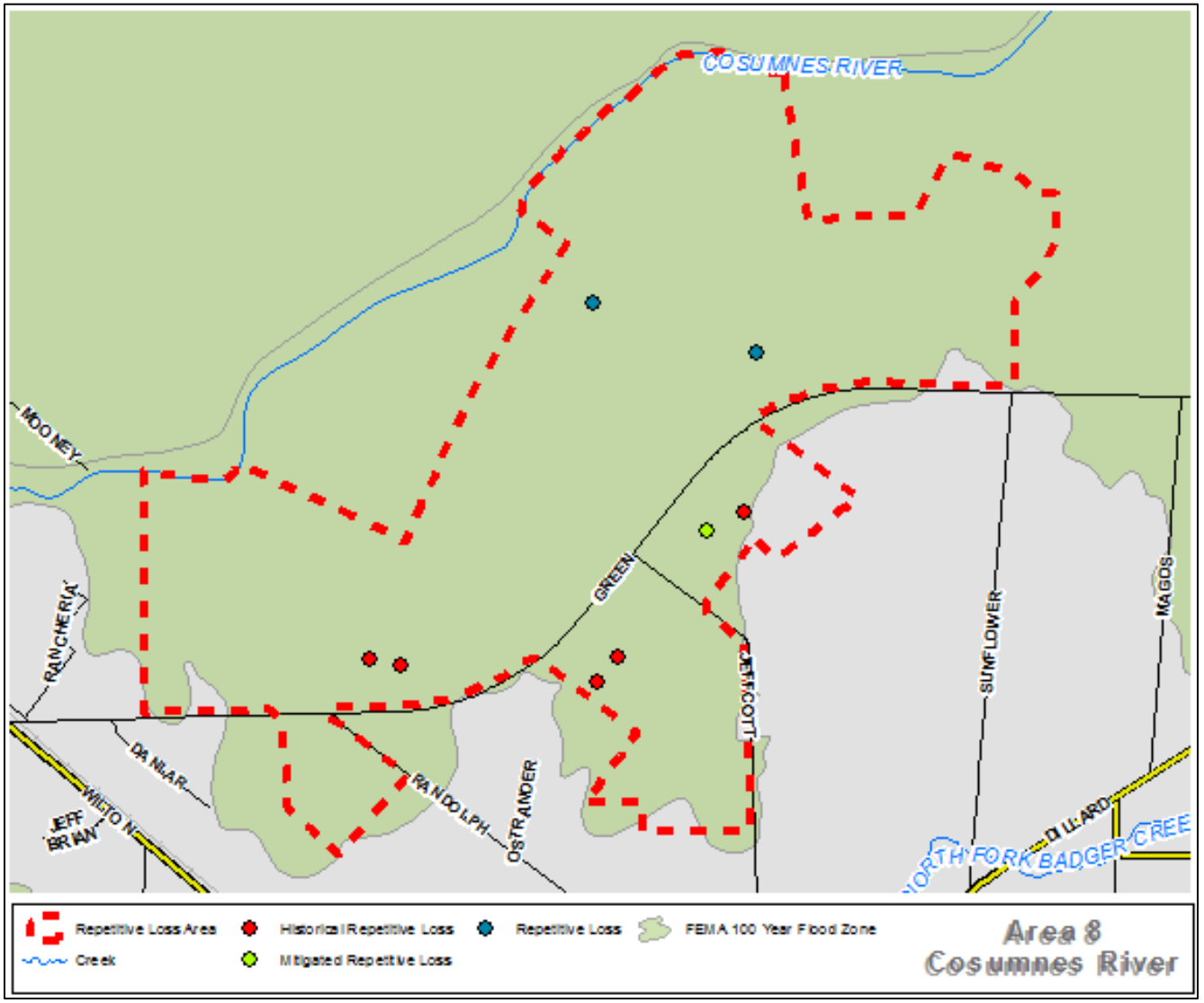
From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- 9500 Jeffcott Road – Rose's Engineering
- 11375 Green Road – Rose's Engineering

The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.
- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.

FIGURE A8
Repetitive Loss Area #8



A8.5 DATA COLLECTION

- Sacramento County Plans and studies for Cosumnes River were utilized in this analysis.

A8.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) thirty-three (33) properties in the RLA are within the 100-year FEMA floodplain. The flooding occurs when low lying areas around Cosumnes River are inundated by out of bank flooding in the older residential areas.

A8.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 2 of the overall thirty-three (33) properties had reported flooding and seven (7) reported to FEMA for insurance purposes are within the Cosumnes River RLA.

A8.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in January 9, 1995, January 9 & 22, 1997. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A8.5.4 Types of Foundations

The most common type of foundations within the Cosumnes River RLA is both raised and slab on grade, which constitutes 71% of the known foundations found in this RLA in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A8.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for elevating homes. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP & FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

COSUMNES RIVER WATERSHED

AREA 8

GREEN ROAD

JEFFCOTT ROAD

COSUMNES RIVER

DATA ANALYSIS SUMARY

PROPERTIES	**33**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*5*
REPETITIVE LOSS AREA PROPERTIES	*26*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 9
  - SLAB ON GRADE 8
  - UNKNOWN 7
- NO STRUCTURES
  - PRIVATELY OWNED 9

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

Appendix 9

REPETITIVE LOSS AREA 9

SOUTH BRANCH
OF
ARCADE CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 9

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A9.1 REPETITIVE LOSS AREA 9

This Report focuses on Area 9, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 9 analysis includes properties on Hoffman Lane, Long Acres Court and Manana Way defined by **Figure A9**.

A9.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A9.3 PROBLEM STATEMENT

The location of Area 9 is generally Hoffman Lane south of Greenback Lane.

The source of flooding has been determined to be South Branch of Arcade Creek in low lying area or low floors with a constrained drainage system. Out of bank flooding may occur in older residential areas constructed prior to NFIP requirements.

There are 21 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. There was one property that was mitigated by elevation.

A9.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- South Branch Arcade Creek Drainage studies were performed as referenced in the approved environmental impact reports for the Gum Ranch and Sheltonham developments. Hydrologic models were developed to analyze development impacts and mitigation measures.

The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.
- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.

FIGURE A9
Repetitive Loss Area #9

A9.5 DATA COLLECTION

Sacramento County Plans and studies for South Branch of Arcade Creek were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- Gum Ranch Drainage Study prepared by Morton & Pitalo, May 2005

A9.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) all properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when Out of bank flooding may occur in older residential areas. The Sacramento County Local Floodplain follows the FEMA floodplain for this RLA,

A9.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that seven of the overall 20 properties within the South Branch of Arcade Creek RLA had reported flooding.

A9.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in June 15 & 16, 1998.. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A9.5.4 Types of Foundations

The most common type of foundations within the South Branch of Arcade Creek RLA is Raised Foundation which constitutes 100% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A9.6 FUTURE MITIGATION MEASURES

The County continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

SOUTH BRANCH OF ARCADE CREEK

AREA 9

HOFFMAN LANE

SOUTH BRANCH OF ARCADE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**10**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*6*
REPETITIVE LOSS AREA PROPERTIES	*4*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 9
  - SLAB ON GRADE
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION) 1

AREA 9

LONG ACRES COURT

MANANA WAY

SOUTH BRANCH OF ARCADE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**11**
REPETITIVE LOSS PROPERTIES	
HISTORICAL LOSS PROPERTIES	*4*
REPETITIVE LOSS AREA PROPERTIES	*7*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 4
  - SLAB ON GRADE 7
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

Appendix 10

REPETITIVE LOSS AREA 10
STRONG RANCH SLOUGH

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 10

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A10.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 10, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 10 analyses include properties on Maple Glen Road, Kubel Circle, Lading Road, Rockwood Drive, Winding Creek Road and Riding Club Lane and are defined by **Figure A10**.

A10.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs.

A10.3 PROBLEM STATEMENT

The location of Area 10 is generally area bounded by Fulton Avenue to the east, Arden Way to the south, El Camino Avenue to the north and Eastern Avenue to the east. The source of flooding was primarily identified has been determined to be low lying areas around Strong Ranch Slough. Out of bank flooding may occur in older residential areas constructed prior to NFIP requirements.

There are 53 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

A10.4 BASIC INFORMATION

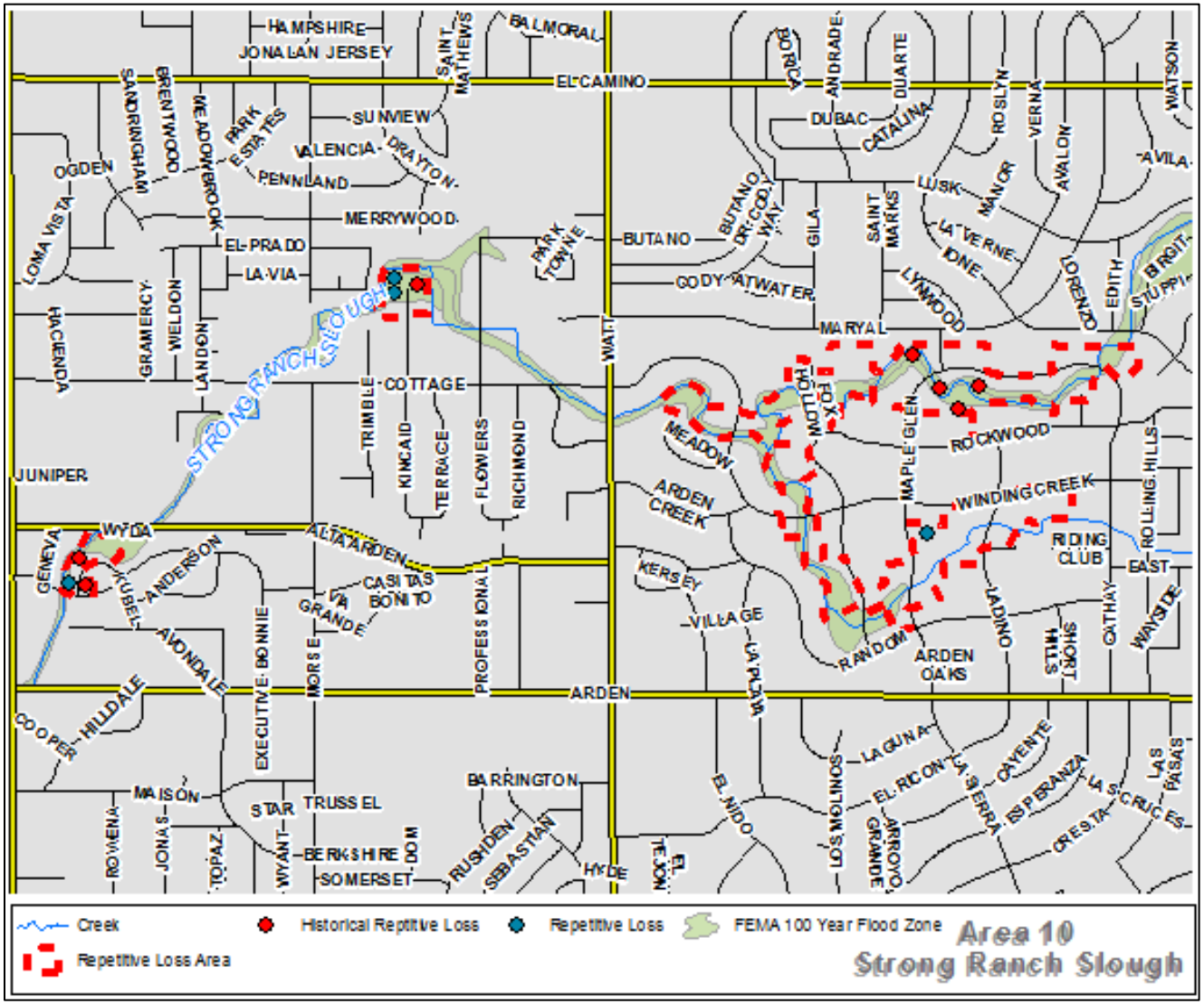
From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- Drainage study was developed by David Ford Engineers

The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.
- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.

FIGURE A10
Repetitive Loss Area #10



A10.5 DATA COLLECTION

Sacramento County Plans and studies for Strong Ranch Slough were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- **Drainage study was developed by David Ford Engineers** for Water Resources in 2006 to analyze flood control alternatives. Staff expanded on the modeling in 2007 and developed a website and flood warning system for the area. The models are used by staff to analyze capital improvement projects.
- Sacramento County **Strong Ranch Slough Flood Prep 100 year Map Book**
- Kincaid Flood Wall Project by Sacramento County Water Resources (CIP).

A10.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) fifty-three (53) properties in the RLA are within the 100-year FEMA floodplain. The remaining twenty-six (26) properties are within the Local Flood Zone. The flooding occurs when low lying areas around Strong Ranch Slough are inundated by out of bank flooding in the older residential areas. The Sacramento County Local Floodplain Map shows the local flooding in Strong Ranch Creek for this RLA,

A10.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 12 of the overall seventy-nine (79) properties and 11 reported to FEMA for insurance purposes are within the Strong Ranch Creek RLA had reported flooding.

A10.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in January 9, 1995, January 9 & 22, 1997. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A10.5.4 Types of Foundations

The most common type of foundations within the Strong Ranch Slough RLA is raised, which constitutes 79.4% of the 79 common foundations found in this RLA in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A10.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for elevating homes . The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

STRONG RANCH CREEK WATERSHED

AREA 10

KINCAID WAY

STRONG RANCH CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**9**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*6*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 3
  - SLAB ON GRADE 1
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)
- Flood Wall 4

AREA 10

KUBEL CIRCLE

STRONG RANCH CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**6**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*3*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 4
  - SLAB ON GRADE 2
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 10

MAPLE GLEN ROAD

STRONG RANCH CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**27**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*23*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 22
  - SLAB ON GRADE 4
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 10

LADINO ROAD

MEADOW LANE

RIDING CLUB LANE

ROCKWOOD DRIVE

STRONG RANCH CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**18**
REPETITIVE LOSS PROPERTIES	
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*16*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 12
  - SLAB ON GRADE 2
- NO STRUCTURES 4
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 10

WINDING CREEK ROAD

STRONG RANCH CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**19**
REPETITIVE LOSS PROPERTIES	*4*
HISTORICAL LOSS PROPERTIES	*4*
REPETITIVE LOSS AREA PROPERTIES	*11*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	13
o SLAB ON GRADE	5
• NO STRUCTURES	
o PRIVATELY OWNED	1
MITIGATED PROPERTIES	
• ACQUSITION & DEMO	
• AQUSITION – NO STRUCTURE	
• ELEVATED (RAISED FOUNDATION)	

Appendix 11

Repetitive Loss Area 11

LINDA CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 11

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A11.1 REPETITIVE LOSS AREA 11

This Report focuses on Area 11, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 11 analysis includes properties on Hazel Avenue. Leever Lane, Nipawin Way, Creek Oaks Lane, Oak Avenue, Eden Oaks Avenue, and Oak Avenue defined by **Figure A11**.

A11.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A11.3 PROBLEM STATEMENT

The location of Area 11 is generally west of Granite Avenue and north of Oak Avenue. Floods in the Dry Creek watershed generally occur from October through April. The floods are usually caused by a combination of prolonged rainfall leading to saturated soils, and a short period of one to six hours of intense precipitation associated with frontal convection or severe thunderstorms. The source of flooding was primarily identified Linda Creek low lying areas around Linda Creek and a constrained drainage system. Out of bank flooding may occur in older residential areas constructed prior to NFIP requirements. There are 44 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

A11.4 DATA COLLECTION

Sacramento County Plans and studies for Linda Creek Remap were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- The Sacramento County Water Agency, and Placer County For Linda Creek Floodplain Mapping Agreement

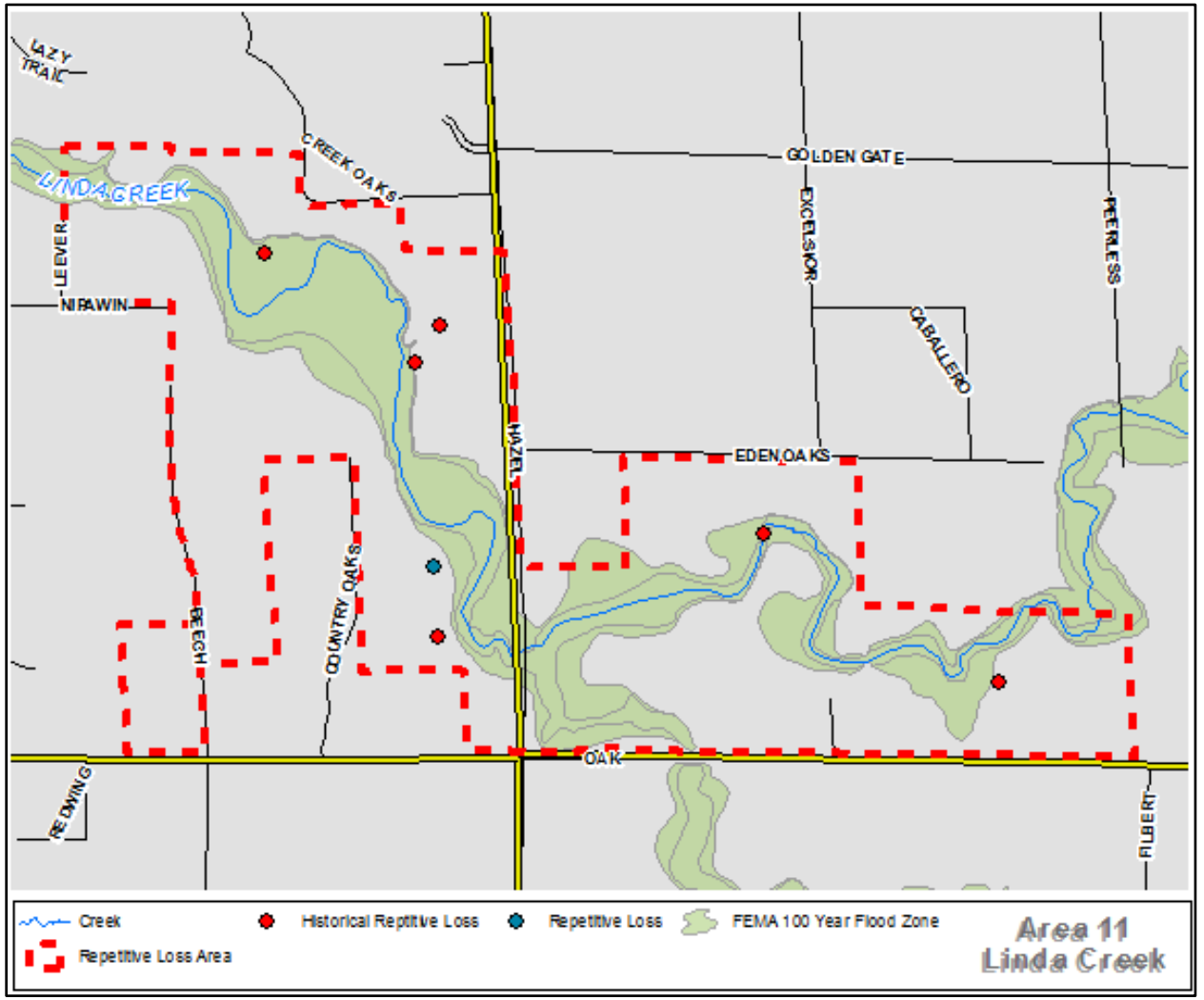
A11.4.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) 37 properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when Linda Creek overtops bank and the constrained drainage system in older residential areas. The Sacramento County Local Floodplain generally follows the existing FEMA floodplain for this RLA,

A11.4.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 4 of the overall 44 properties within the Linda Creek RLA had reported flooding.

FIGURE A11
Repetitive Loss Area #11



A11.4.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in January 9, 1995, April 1, 1996, and February 3, 1998. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A11.4.4 Types of Foundations

The most common type of foundations within the Linda Creek RLA is raised, which constitutes 74.5% of the common foundations found within Repetitive Loss Area 11 in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A11.5 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for elevating structures in this RLA. The County continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

LINDA CREEK

AREA 11

CREEK OAKS LANE

EDEN OAKS AVEVNUE

LINDA CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES		**12**
	REPETITIVE LOSS PROPERTIES	
	HISTORICAL LOSS PROPERTIES	*2*
	REPETITIVE LOSS AREA PROPERTIES	*10*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 9
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 11

HAZEL AVEVNUE

LINDA CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**10**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*6*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 4
  - SLAB ON GRADE 4
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 11

LEEVER LANE

NIPAWIN WAY

OAK AVENUE

LINDA CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**22**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*19*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 16
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED 3

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

Appendix 12

Repetitive Loss Area 12

GRAND ISLAND ROAD

&

VIEIRA'S RESORT

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 12

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A12.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 12, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 12 analysis includes properties on Long Island Road, Grand Island Road, and Vieira's resort as defined by **Figure A12**.

A12.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A12.3 PROBLEM STATEMENT

Area 12 is located in the southern portion of the County on the Sacramento River. The properties located in this area are on the water side of the levee prism. The source of flooding is caused by high stages in the Sacramento River. During 1986 storm event Area 12 experienced high stages from the Sacramento River.

There are 43 properties which include buildings on FEMA's repetitive loss list, historical loss properties or nearby buildings that may have the same or similar flooding conditions. Twenty-one (21) of the properties have Elevation Certificates on file and all but three (3) structures have been mitigated either through government assistance or private funding.

A12.4 BASIC INFORMATION

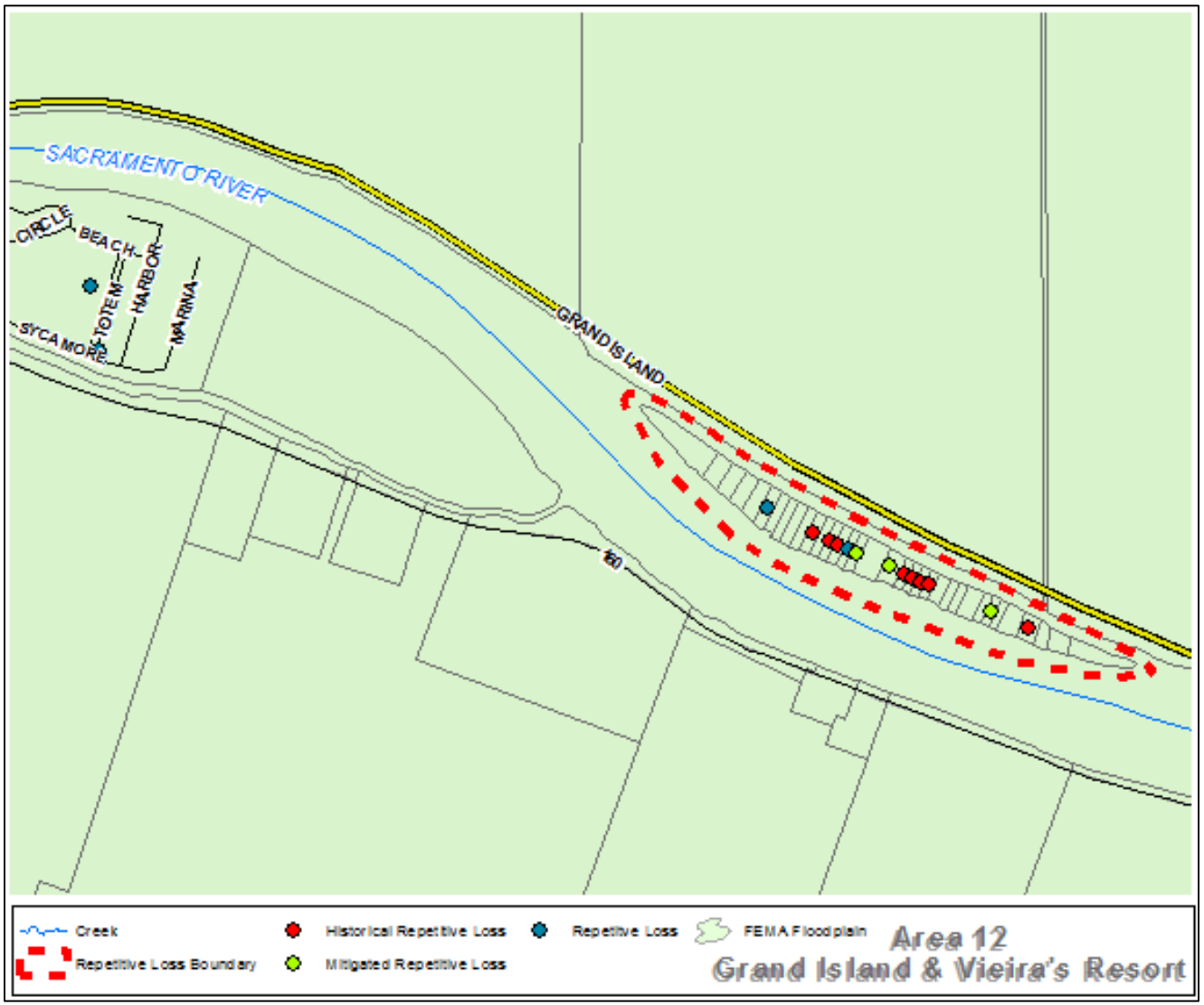
From the agencies or organizations that were contacted (Chapter 2.2), there are no studies or plans to further protect Area 12.

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

A12.5 DATA COLLECTION

The Federal Emergency Management Agency (FEMA) – Flood Insurance Study for the Unincorporated County were utilized in this analysis to establish the base flood elevation.

FIGURE A12
Repetitive Loss Area #12



A12.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) all the properties within the RLA are within the 100-year FEMA floodplain. Area 12 is located between both levees of the Sacramento River and is inundated by the FEMA Effective floodplain.

A12.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that none of the overall 31 properties within the RLA had reported flooding. However, Area 12 is outside the Urban Services boundary and has limited resources to assist in flooding for this area.

A12.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed on February 6, 2015. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes

A12.5.4 Types of Foundations

The most common type of foundations within the RLA is raised foundation, which constitutes 100% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A12.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for home elevations. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

GRAND ISLAND ROAD
&
VIEIRA'S RESORT

AREA 12

LONG ISLAND ROAD

GRAND ISLAND ROAD

SYCAMORE DRIVE

BEACH DRIVE

ANCHOR DRIVE

SACRAMENTO RIVER WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**43**
REPETITIVE LOSS PROPERTIES	*8*
HISTORICAL LOSS PROPERTIES	*13*
REPETITIVE LOSS AREA PROPERTIES	*22*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 26
  - SLAB ON GRADE 3
  - UNKNOWN 6
- NO STRUCTURES
  - PRIVATELY OWNED 3

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 5

Appendix 13

Repetitive Loss Area 13

BADGER CREEK

WILTON

LOCAL FLOODPLAIN

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 13

TABLE OF CONTENTS

A13.1 REPETITIVE LOSS AREA 13

This Report focuses on Area 13, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 13 includes properties in Wilton, California on Collings Road, Davis Road, Haggie Road, Mann Road, and Dillard Road as show on **Figure A13**.

A13.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs.

A13.3 PROBLEM STATEMENT

The location of Area 13 is within the Wilton area, south of Dillard Road generally between Collins Road and Davis Road, and north of Mann Road.

The source of flooding was primarily identified as poor drainage and flat terrain. The local floodplain tends from Dillard Road southeast across Mann Road toward the North Fork Badger Creek FEMA A-Zone floodplain. Damaging floods occurred in January of 1995 and January of 1997.

There are 33 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. The lone repetitive loss property has not been mitigated.

A13.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding:

- none

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

A13.5 DATA COLLECTION

The State of California – Department of Water Resources Central Valley Flood Evaluation and Delineation LiDAR (dated 2008) was utilized in this analysis.

A13.5.1 Flood Insurance and Flood Event Data

Area 13 is in Zone X, on the FEMA Flood Insurance Rate Map 06067C0345H. The flooding is associated with local drainage issues as a result of very flat terrain and limited drainage facilities. The flooding occurs when large storm events back up North Fork Badger Creek. Due to the extremely flat terrain, water ponds through the repetitive loss area.

FIGURE A13
Repetitive Loss Area #13

A13.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) has no record of any calls to report flooding from the properties identified in the repetitive loss area. The only repetitive loss property in the area filed flood claims in January of 1995 and January of 1997. The only historical loss property filed a flood claim in February of 1998.

A13.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed during the storm events causing repetitive flooding of January 1995 and January 1997. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the local flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location;
- Neighborhood topography and flow routes

In addition, visual inspections for each property were made in preparation of this Report.

A13.5.4 Types of Foundations

The most common type of foundations within the Badger Creek RLA is a raised foundation, which constitutes 73% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A13.6 FUTURE MITIGATION MEASURES

The County continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

BADGER CREEK
WILTON
(Local Floodplain)

AREA 13

COLLINGS ROAD

MANN ROAD

BADGER CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**20**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*18*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 16
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 13

HAGGIE ROAD

DILLARD ROAD

DAVIS ROAD

BADGER CREEEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**13**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*12*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 8
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED 2

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

Appendix 14

REPETITIVE LOSS AREA 14
ARCADE CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 14

TABLE OF CONTENTS

A14.1 REPETITIVE LOSS AREA 14

This Report focuses on Area 14, one of the twenty eight (28) designated RLAs within the Sacramento County. Area 14 analyses include Manzanita Avenue, Peppermill Court, Sycamore Avenue, and Winding Way as defined by **Figure A14**.

A14.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAs.

A14.3 PROBLEM STATEMENT

The location of Area 14 is made up of six subareas. The area is bounded by Pasadena Avenue, Winding Way and College Oak Drive. The second subarea is generally bounded by Arcade Creek, Valhalla Drive, and Winding Way. The third subarea is adjacent to Brooktree Creek.

The source of flooding was primarily identified as the residences being in low lying areas, in some instances adjacent to a creek that is over capacity, and most of the homes having slab-on-grade foundations.

There are 71 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

A14.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following plans or studies that could affect the cause or impacts to flooding are:

- Drainage Study for 4950 Hackberry Lane

The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.
- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.

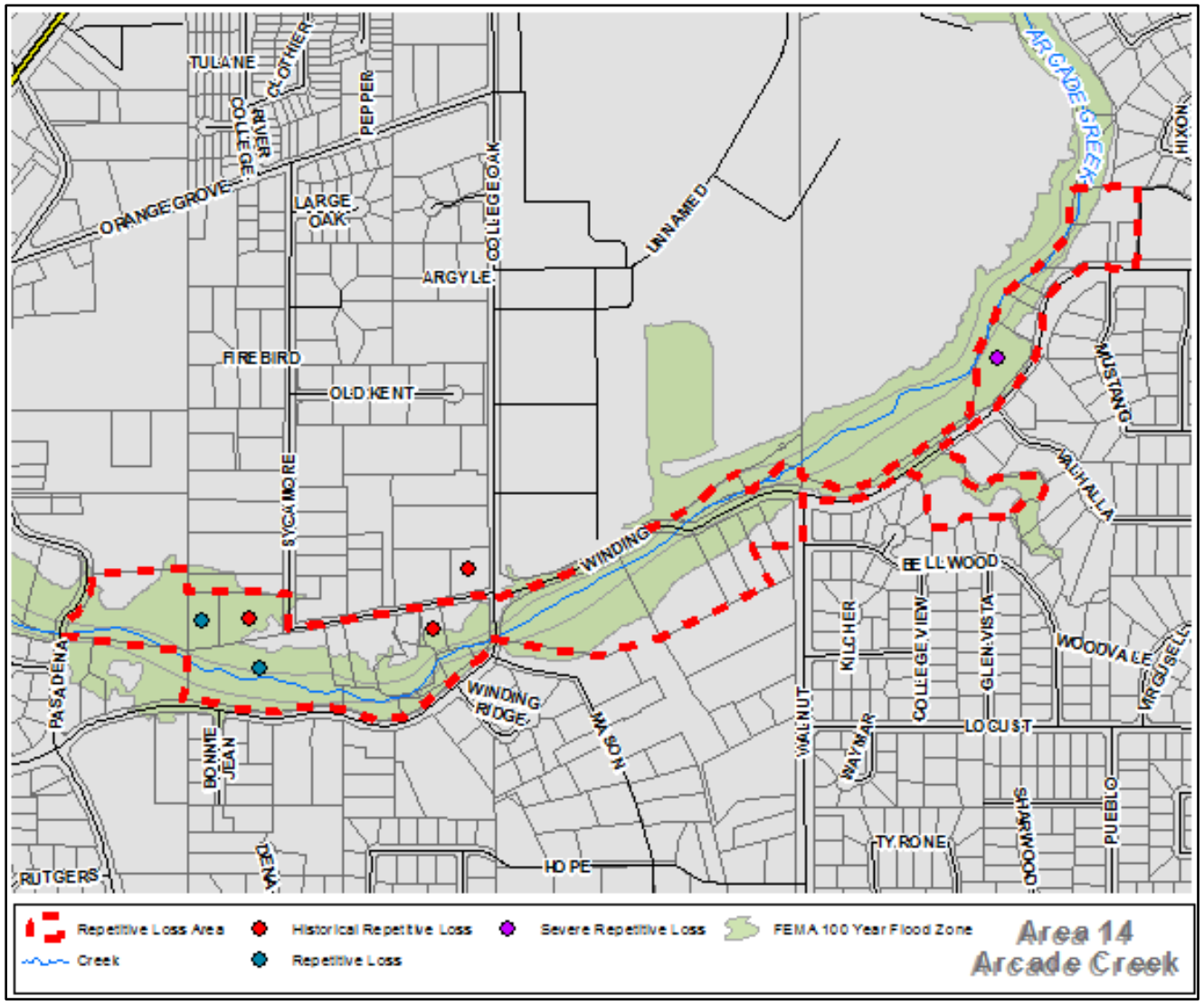
- Home Removal – If necessary, it may be recommended that the County purchase the property and remove the home from the lot.

A14.5 DATA COLLECTION

Sacramento County Plans and studies for Manzanita Avenue were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- Sycamore Avenue Drainage Project
- Del Paso Vale
- Oakvale No. 2
- Oakvale No. 3
- Oak Creek Estates Unit 2
- Hackberry Estates
- 5990 Devecchi Avenue

FIGURE A14
Repetitive Loss Area #14



A14.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) 26 properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when flows exceed the capacity of Arcade Creek, and Brooktree Creek. The Sacramento County Local Floodplain on Sycamore Avenue for this RLA floods due to it being a low lying area.

A14.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 8 of the overall 47 properties within the Arcade Creek RLA had reported flooding.

A14.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in March of 2015. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A14.5.4 Types of Foundations

The most common type of foundations within the Manzanita Avenue RLA is slab-on-grade.

A14.6 FUTURE MITIGATION MEASURES

The County continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

ARCADE CREEK

AREA 14

MANZANITA AVENUE

ARCADE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**10**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*9*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 10
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES 0

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 14

SYCAMORE AVENUE

ARCADE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**12**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*11*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 4
  - SLAB ON GRADE 7
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES 0

- ACQUISITION & DEMO 0
- ACQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 14

PEPPERMILL COURT

ARCADE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**22**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*22*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 22
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 14

PASADENA AVENUE

WINDING WAY

ARCADE CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**25**
REPETITIVE LOSS PROPERTIES	
SEVERE REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*6*
REPETITIVE LOSS AREA PROPERTIES	*18*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 3
  - SLAB ON GRADE 5
  - UNKNOWN 4
- NO STRUCTURES
  - PRIVATELY OWNED 13

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

Appendix 15

REPETITIVE LOSS AREA 15

DILLARD RD/BERRY RD

Wilton

Local Floodplain

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 15

TABLE OF CONTENTS

A15.1 REPETITIVE LOSS AREA 15

This Report focuses on Area 15, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 15 includes properties in Wilton, California on Apple Road, Berry Road, Cherry Road, Currant Road, Dillard Road, Early Times Road, Live Oak Road, and Orange Road as shown on **Figure A15**.

A15.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A15.3 PROBLEM STATEMENT

The location of Area 15 is within the Wilton area, east of Dillard Road generally between Apple Road and Orange Road, and east of Berry Road.

The source of flooding was primarily identified as backwater caused by the inverted siphon crossing at Folsom South Canal. During large storm events, the siphon is overwhelmed and backs up the unknown creek that runs north to south through the RLA. Damaging floods occurred in February of 1986, January of 1995, February of 1998, and February of 2000.

There are 40 properties which include buildings on FEMA's repetitive loss list, historical loss properties, and nearby buildings that may have the same or similar flooding conditions. One property contains two structures with different addresses, so there are a total of 41 structures within the RLA. None of the repetitive loss, severe repetitive loss, or historical repetitive loss properties have been mitigated.

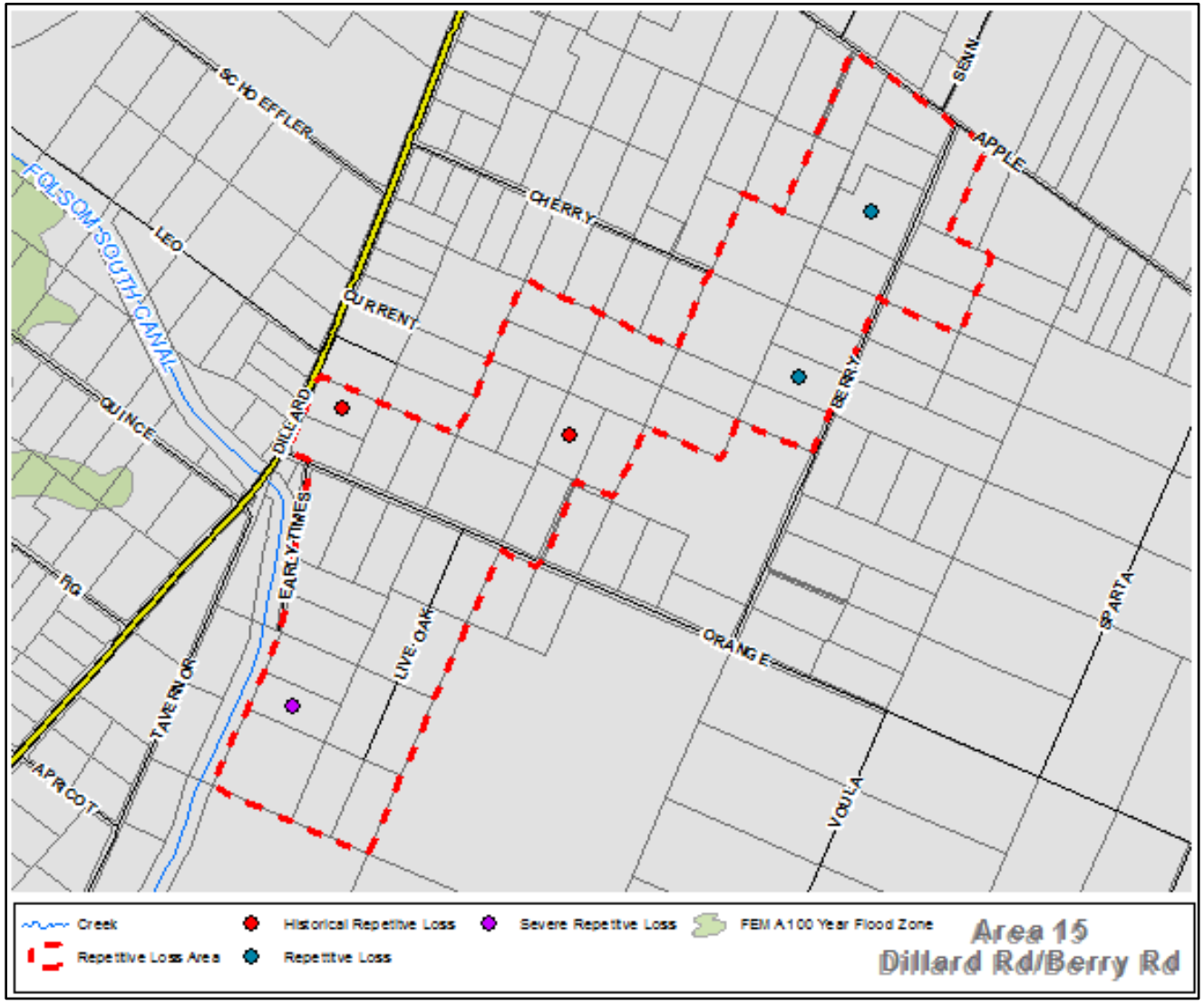
A15.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- **US Bureau of Reclamation Folsom South Canal Design Drawings – Reach 2**

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

FIGURE A15
Repetitive Loss Area #15



A15.5 DATA COLLECTION

The State of California – Department of Water Resources Central Valley Flood Evaluation and Delineation LiDAR (dated 2008) was utilized in this analysis. In addition, the US Bureau of Reclamation Design Plans for Folsom South Canal were reviewed and used in the analysis.

A15.5.1 Flood Insurance and Flood Event Data

Area 15 is in Zone X, on the FEMA Flood Insurance Rate Map 06067C0375H. The flooding is associated with local drainage issues as a result of backwater created by the inverted siphon crossing at Folsom South Canal. The flooding occurs when large storm events overwhelm the capacity of the siphon. The unknown stream that crosses the Folsom South Canal runs north to south through the RLA. The properties located adjacent to the creek experience the localized flooding.

A15.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that five (5) of the overall 4 properties within the Dillard Rd/Berry Rd RLA had reported flooding. The severe repetitive loss property, repetitive loss properties, and historic loss properties in the area filed flood claims as indicated in the Data Analysis Summaries at the end of this Appendix.

A15.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed during the storm events causing repetitive flooding of February 1986, January 1995, February 1998, and February 2000. These inspections were performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the local flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location;
- Neighborhood topography and flow routes

In addition, visual inspections for each property were made in preparation of this Report.

A15.5.4 Types of Foundations

The most common type of foundations within the RLA is a raised foundation, which constitutes 66% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A15.6 FUTURE MITIGATION MEASURES

The County continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

In addition, the County could explore a regional improvement project to increase the capacity of the inverted siphon crossing at Folsom South Canal.

DATA ANALYSIS SUMMARY

DILLARD RD/BERRY RD
Wilton
(Local Floodplain)

AREA 15

APPLE ROAD

BERRY ROAD

DATA ANALYSIS SUMARY

PROPERTIES	**12**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*10*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	8
o SLAB ON GRADE	2
• NO STRUCTURES	
o PRIVATELY OWNED	2
MITIGATED PROPERTIES	0
• ACQUSITION & DEMO	0
• AQUSITION – NO STRUCTURE	0
• ELEVATED (RAISED FOUNDATION)	0

AREA 15

CHERRY ROAD

CURRANT ROAD

DILLARD ROAD

CONSUMNES RIVER WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**12**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*11*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 6
  - SLAB ON GRADE 5
- NO STRUCTURES 0
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES 0

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 15

EARLY TIMES ROAD

LIVE OAK ROAD

CONSUMNES RIVER WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**11**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*10*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	9
o SLAB ON GRADE	2
• NO STRUCTURES	0
o PRIVATELY OWNED	0
MITIGATED PROPERTIES	0
• ACQUSITION & DEMO	0
• AQUSITION – NO STRUCTURE	0
• ELEVATED (RAISED FOUNDATION)	0

AREA 15

ORANGE ROAD

CONSUMNES RIVER WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**10**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*5*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	6
o SLAB ON GRADE	2
• NO STRUCTURES	
o PRIVATELY OWNED	2
MITIGATED PROPERTIES	0
• ACQUSITION & DEMO	0
• AQUSITION – NO STRUCTURE	0
• ELEVATED (RAISED FOUNDATION)	0

Appendix 16

REPETITIVE LOSS AREA 16
ROBLA CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 16

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A16.1 REPETITIVE LOSS AREA 16

This Report focuses on Area 16, one of the twenty eight (28) designated RLAs within the Sacramento County. Area 16 analyses include properties on C Street, E Street, 16th Street, 20th Street, and 21st Street and are defined by **Figure A16**.

A16.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAs.

A16.3 PROBLEM STATEMENT

The location of Area 16 is generally bounded by Dry Creek Road, C Street, 22nd Street, and G Street.

The source of flooding was primarily identified as being due to capacity exceedance of Robla Creek and Rio Linda Creek.

There are 51 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

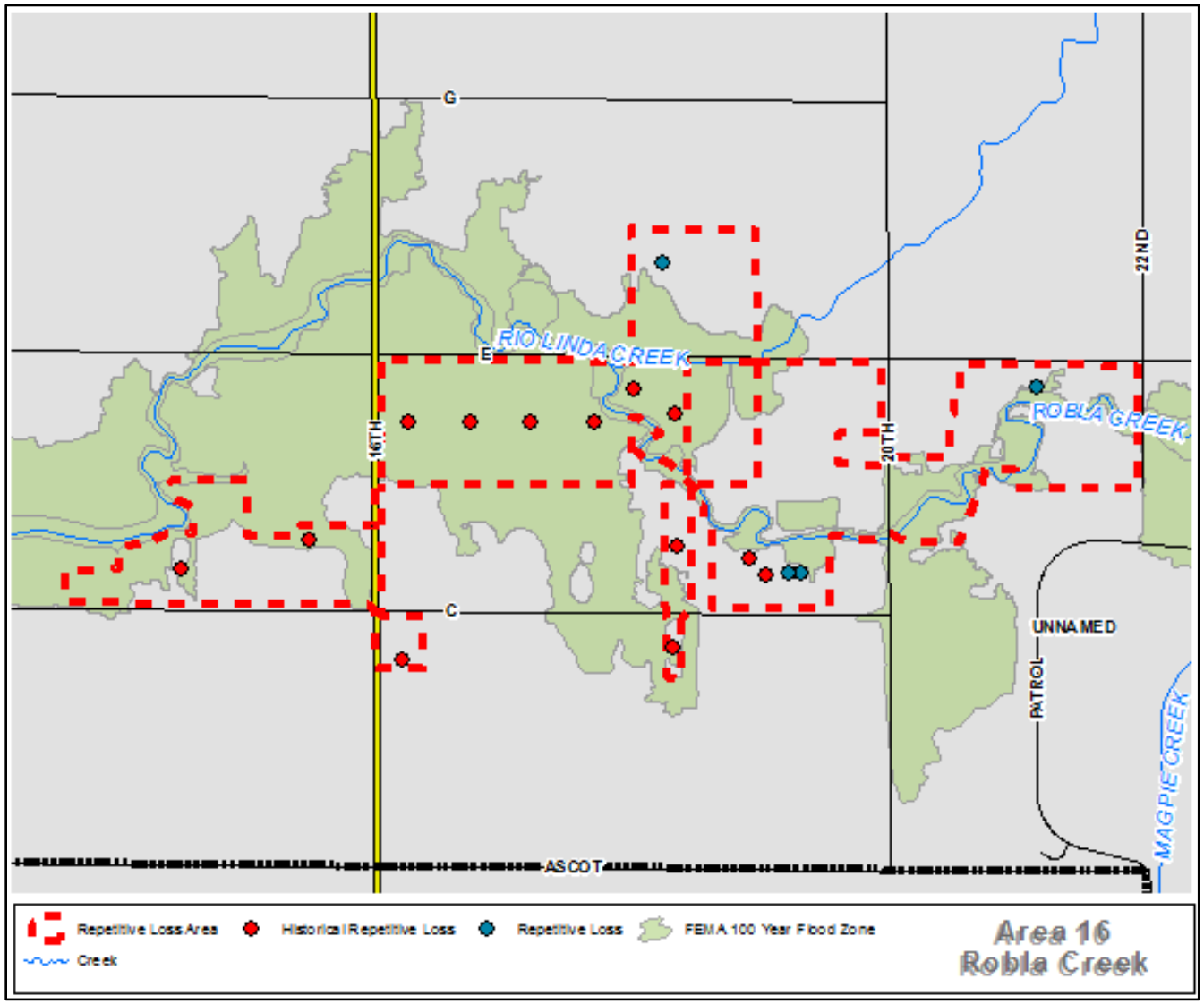
A16.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), plans or studies that could affect the cause or impacts to flooding were not available.

The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.
- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.
- Home Removal – If necessary, it may be recommended that the County purchase the property and remove the home from the lot.

FIGURE A16
Repetitive Loss Area #16



A16.5 DATA COLLECTION

Sacramento County Plans and studies for Robla Creek were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- Rio Linda Subdivision No. 5

A16.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) 41 properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when flows exceed the capacity of Robla Creek and Rio Linda Creek. The Sacramento County Local Floodplain at the intersection of E Street and 20th Street for this RLA floods due to it being a flat and low lying area.

A16.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 7 of the overall 45 properties within the Dry Creek RLA had reported flooding.

A16.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in March of 2015. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A16.5.4 Types of Foundations

The most common type of foundation within the Robla Creek RLA is slab-on-grade.

A16.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for future mitigation measures. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

ROBLA CREEK WATERSHED

AREA 16

C STREET

ROBLA CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**16**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*5*
REPETITIVE LOSS AREA PROPERTIES	*9*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 5
  - SLAB ON GRADE 10
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES 0

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 16

16TH STREET

20TH STREET

ROBLA CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**14**
REPETITIVE LOSS PROPERTIES	
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*12*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 10
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 16

E Street

Robla Creek

DATA ANALYSIS SUMARY

PROPERTIES	**21**
REPETITIVE LOSS PROPERTIES	*2*
HISTORICAL LOSS PROPERTIES	*5*
REPETITIVE LOSS AREA PROPERTIES	*14*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 9
  - SLAB ON GRADE 11
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 1

Appendix 17

Repetitive Loss Area 17

GARDEN HIGHWAY

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 17

TABLE OF CONTENTS

A17.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 17, one of the twenty-seven designated RLAs within the Sacramento County. Area 17 analysis includes properties primarily along Garden Highway and is defined by **Figure 1**.

A17.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A17.3 PROBLEM STATEMENT

The location of Area 17 is located adjacent to the Sacramento River. According to information from the County of Sacramento – County Clerk Office, development of along the Sacramento River in Area 17 first began in the 1850's and is continuing to develop. The majority of homes was built prior to 1975 and is considered Pre-FIRM. These homes were built with no FEMA guidelines for proper construction in flood prone areas.

The Sacramento River Basin is approximately 27,000 square miles which drains the northern central valley into the Sacramento – San Joaquin Delta. Several hydrologic and hydraulic studies have been conducted on the Sacramento River system to understand the flooding potential at various locations. These models were calibrated to the large storm events that occurred in 1986, 1997, and 2005. Based on these models, Area 17 is susceptible to high flood stages in the Sacramento River. This is caused by tidal influences, American River, Feather River, Sacramento River, and Natomas Cross Canal converging around Area 17.

The source of flooding is caused by high stages in the Sacramento River. The FEMA Effective FIRM indicates that these parcels are inundated by the 100-year storm. Additionally, the U.S. Army Corps of Engineers (USACE) Common Features and the State of California Central Valley Flood Evaluation and Delineation hydraulic models confirmed this area is flood prone.

There are 300 properties which include buildings on FEMA's repetitive loss list, historical loss properties or nearby buildings that may have the same or similar flooding conditions. Of the total homes in Area 17, three (3) homes have been elevated and one (1) home was demolished.

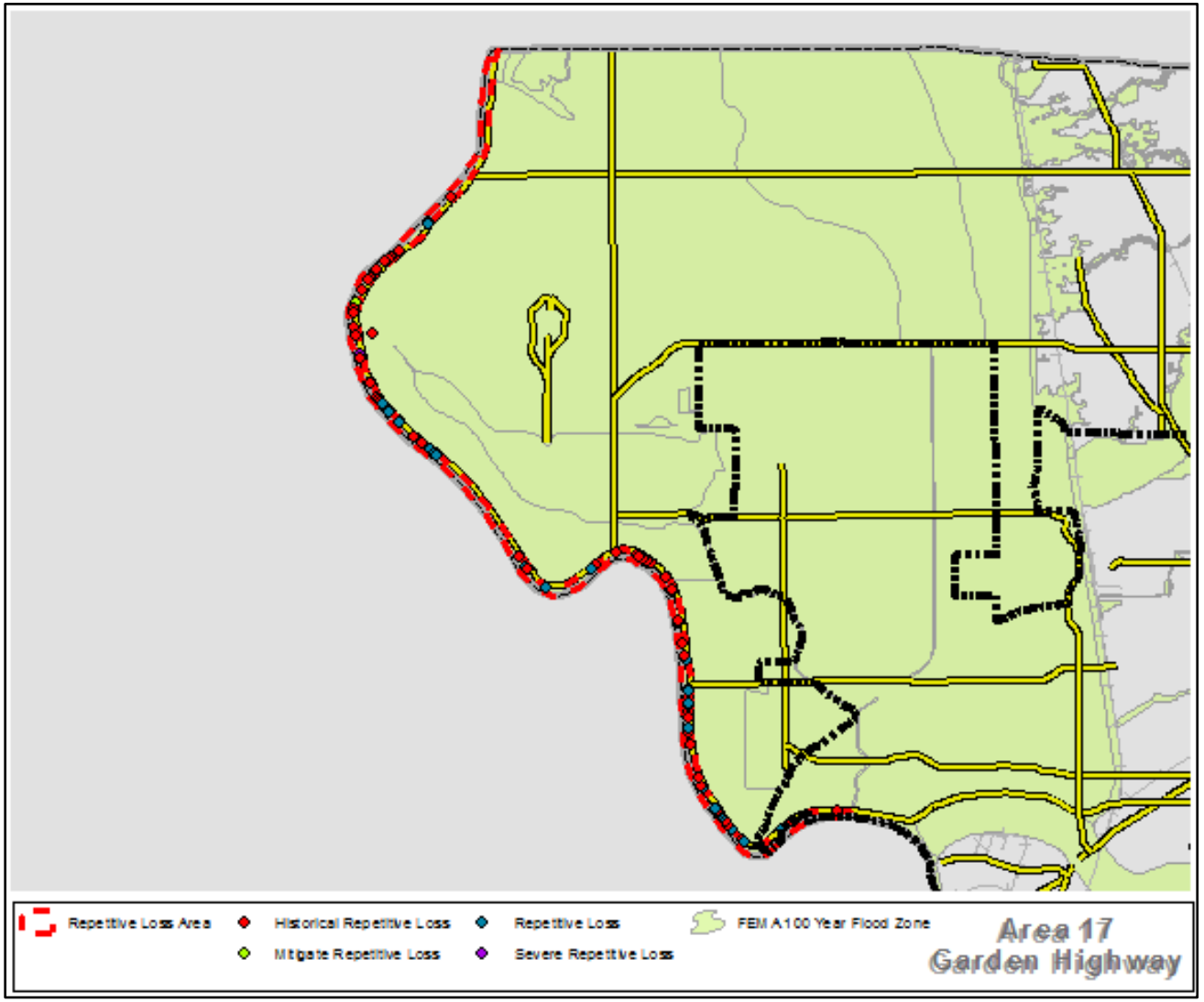
A17.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- SAFCA and USACE – Sacramento Levee Improvement Project
- USACE and Bureau of Reclamation – Folsom Dam Joint Federal Project (Completion 2017)
- State of California – Fremont Weir Expansion (Planning Stage)

The primary method of protection is to inform the public about flood risks of living in flood prone areas, especially for homes on the waterside of a levee. Additionally, all of the homes in Area 17 are identified in the County's building permit database. These homes are required to be in compliance with the local Floodplain Management Ordinance which describes how to safely build in areas that are within a FEMA Effective Floodplain and Local Floodplain.

FIGURE A17
Repetitive Loss Area #17



A17.5 DATA COLLECTION

Plans and studies have been conducted for the Sacramento River system and were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- FEMA Effective Flood Insurance Study
- SAFCA and USACE – Sacramento River Levee Improvement Project
- Central Valley Flood Evaluation and Delineation Project
- USACE and Bureau of Reclamation – Joint Federal Project
- State of California – Fremont Weir Expansion Project

A17.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) all properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when the Sacramento River reaches flood stages. Additionally, the Sacramento County Local Floodplain is included for the RLA.

A17.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that forty (40) of the overall 327 properties within the Sacramento River RLA had reported flooding.

A17.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed during large storm events which caused the Sacramento River to reach flood stages and for the purposes of preparing this document. These inspections were performed from both the public right-of-way, when staff was not allowed onto the property. As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- High-water marks and debris mark levels

A17.5.4 Types of Foundations

The most common type of foundations within the Sacramento River RLA are raised foundations, which constitutes 89% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A17.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for land acquisition and home elevations. The Federal and State governments have taken a strong interest in the Natomas area and have starting funding projects to strengthen and build setback levees protecting the area. Additionally, the Federal and State governments' area conducting off-site projects to decrease flood stages in the Sacramento River. Lastly, the County further continues to encourage home owners to raise their structures above the flood hazard.

- SAFCA and USACE – Sacramento River Levee Improvement Project
- Central Valley Flood Evaluation and Delineation Project
- USACE and Bureau of Reclamation – Joint Federal Project
- State of California – Fremont Weir Expansion Project
- County - Raise Home Elevations

DATA ANALYSIS SUMMARY

SACRAMENTO RIVER WATERSHED

AREA 17

GARDEN HIGHWAY

SACRAMENTO RIVER WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**300**
REPETITIVE LOSS PROPERTIES	*24*
SEVERE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*53*
REPETITIVE LOSS AREA PROPERTIES	*222*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 181
  - SLAB ON GRADE 22
- NO STRUCTURES
  - PRIVATELY OWNED 41
  - PUBLICALLY OWNED 51

MITIGATED PROPERTIES

- DEMO 2
- NO STRUCTURE
- ELEVATED (RAISED FOUNDATION) 3

Appendix 18

REPETITIVE LOSS AREA 18
LEONA CIRCLE

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 18

TABLE OF CONTENTS

A18.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 18, one of the twenty-eight (28) designated RLAs within the Sacramento County. The Area 18 analysis includes properties on Leona Circle as defined by **Figure A18**.

A18.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A18.3 PROBLEM STATEMENT

The location of Area 18 is located is located Natomas off of El Centro between Arena Boulevard and San Juan Road. East of Leona Circle is West Drainage Canal which is designed to take local drainage to the Sacramento River. The topography is this area is relatively flat and is generally sloping east towards the canal. Additionally, Area 18 is located in a rural portion of the County which depends on ditches and culverts to provide positive drainage.

The source of flooding for Area 18 is caused by local drainage. Runoff from the adjacent areas collects in ditches and is conveyed toward the canal. During large storm events the ditches are overtopped and the drainage starts to sheet flow causing a wide floodplain. However, the floodplain is shallow.

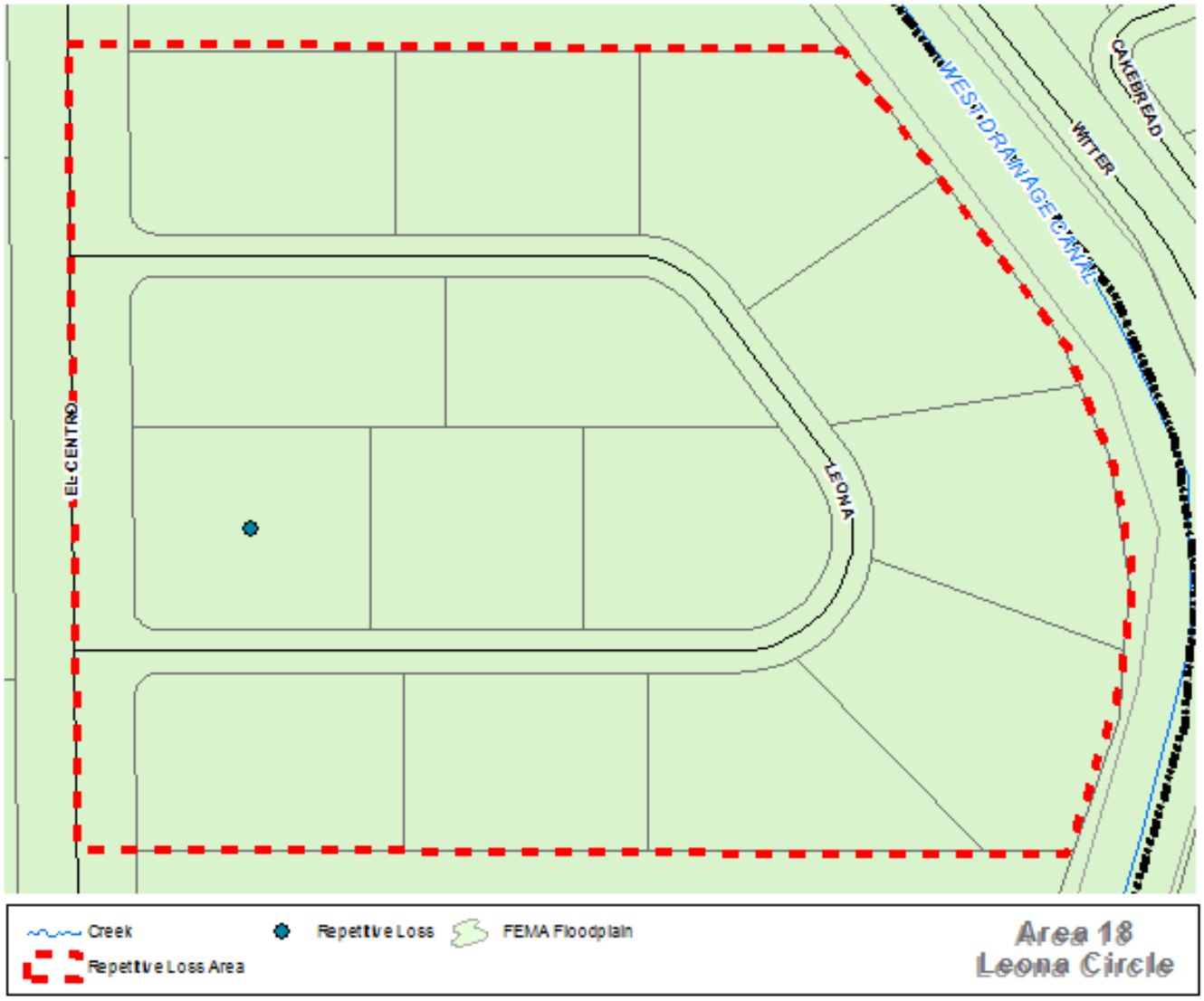
There are 14 properties which include buildings on FEMA's repetitive loss list, historical loss properties or nearby buildings that may have the same or similar flooding conditions. No properties have been acquired as part of the Hazard Mitigation Grant Program (HMGP).

A18.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), there are no projects to improve this area. However, private land developers have submitted a Planning Application seeking to redevelop this area.

The primary methods of property protection are to elevate structures above existing grades or damage prone components, dry flood proof, wet flood proof portions of the building, or acquire and demolish structures at grade.

FIGURE A18
Repetitive Loss Area #18



A18.5 DATA COLLECTION

The Sacramento County study for Repetitive Loss for Area 18 was utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- Sacramento County - Repetitive Loss documentation (2009)

A18.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) thirteen (13) properties are within the RLA are within the 100-year FEMA floodplain. The levees surrounding Natomas have been decertified by US Army Corps of Engineers (USACE) and de-accredited by FEMA. The resulting FEMA floodplain is the maximum stage in the Sacramento or American River project across Natomas. However, US Congress has authorized the USACE to improve the levees, which result in a FEMA floodplain zone change from Zone AE to Zone A99.

A18.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that none of the overall 13 properties within Leona Circle RLA had reported flooding.

A18.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed for the preparation of this report. This inspection was performed from public right-of-way. As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.

A18.5.4 Types of Foundations

The most common type of foundations within the Leona Circle RLA is slab on grade, which constitutes 80% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A18.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for acquisition of properties and further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources through FMA and property owners to elevate homes.
- **Timeline:** As opportunities and funding becomes available
- **Potential Funding:** State and/or Federal Grants

DATA ANALYSIS SUMMARY

NATOMAS BASIN

AREA 18

LEONA CIRCLE

NATOMAS BASIN

DATA ANALYSIS SUMARY

PROPERTIES	**14**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*13*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 2
  - SLAB ON GRADE 8
- NO STRUCTURES
  - PRIVATELY OWNED 4

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

Appendix 19

REPETITIVE LOSS AREA 19
TANGERINE AVENUE

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 19

TABLE OF CONTENTS

A19.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 19, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 19 analysis includes properties on Persimmon Avenue and Tangerine Avenue as defined by **Figure A19**.

A19.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A19.3 PROBLEM STATEMENT

Area 19 is located in South Sacramento between Florin and Elder Creeks. Flooding in this area generally occurs between October and April during the rainy season. During large storm events the drainage system becomes overwhelmed and begins to discharge onto the streets, which eventually drains to the creek. However, according to the best available topographic data and staff observations, the parcels experiencing flooding are built lower than the roadway. Therefore, street flooding is spilling onto the parcels in the RLA.

There are three (3) properties which include buildings on FEMA's repetitive loss list, historical loss properties or nearby buildings that may have the same or similar flooding conditions. None of the properties in Area 19 have been mitigated for flooding.

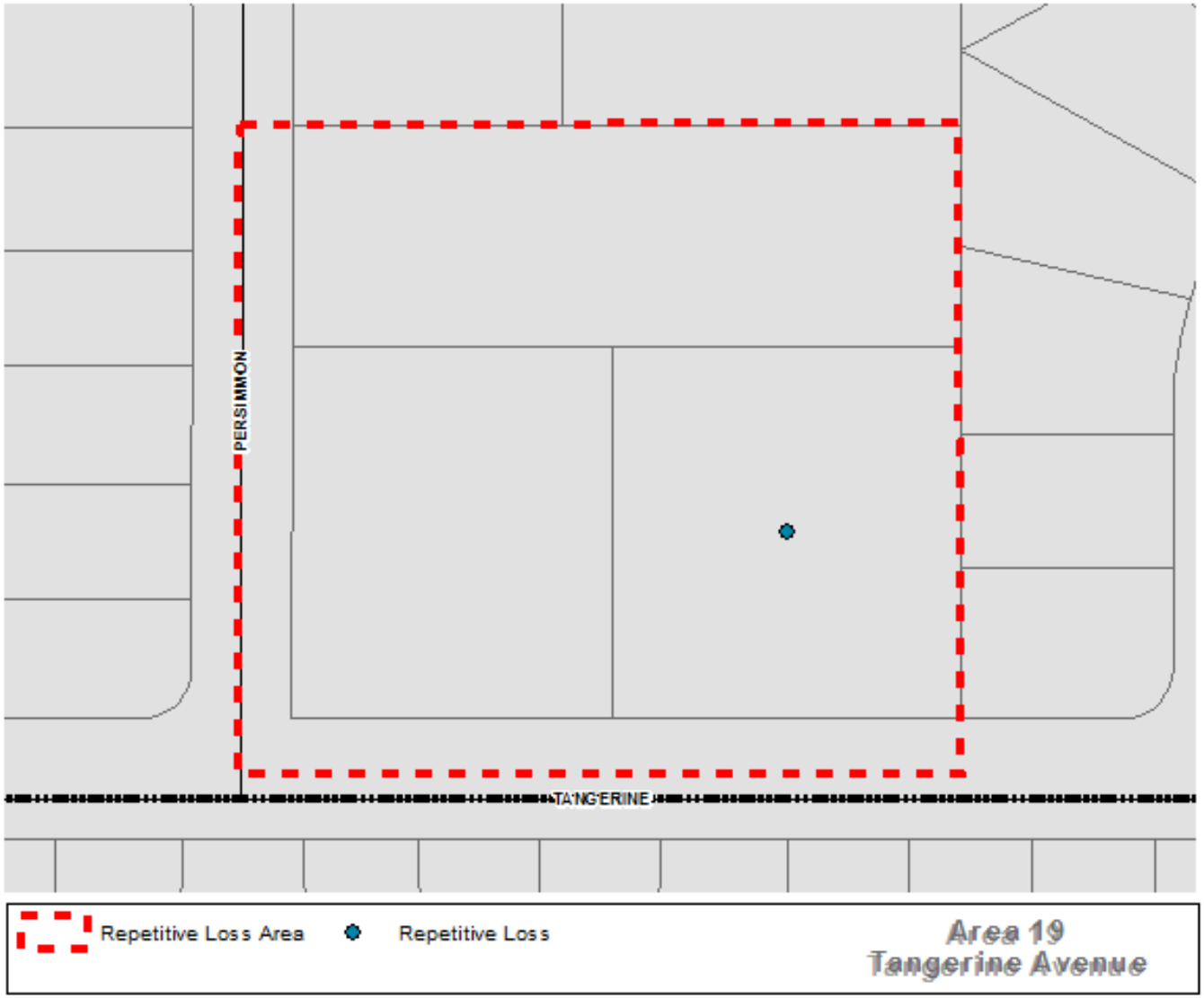
A19.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- SAFCA – Franklin-Boyce Detention Basin

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

FIGURE A19
Repetitive Loss Area #19



A19.5 DATA COLLECTION

The State of California – Department of Water Resources Central Valley Flood Evaluation and Delineation LiDAR (dated 2008) was utilized in this analysis.

A19.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) none of the properties in Area 19 are within the 100-year FEMA floodplain.

A19.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that two (2) of the overall three (3) properties are within Area 19.

A19.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed by County staff. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A19.5.4 Types of Foundations

The most common type of foundations in Area 19 is a slab on grade foundation, which constitutes 100% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A19.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for acquisition of flood prone properties. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

FLORIN AND ELDER CREEK WATERSHEDS

AREA 19

PERSIMMON AVENUE

TANGERINE AVENUE

FLORIN AND ELDER CREEK WATERSHEDS

DATA ANALYSIS SUMARY

PROPERTIES	**3**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*2*

- EXISTING STRUCTURES (UNMITIGATED)
  - o RAISED FOUNDATIONS 0
  - o SLAB ON GRADE 3
- NO STRUCTURES
  - o PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

Appendix 20

REPETITIVE LOSS AREA 20
TREEHOUSE LANE

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 20

TABLE OF CONTENTS

A20.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 20, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 20 analysis includes twelve (12) parcels as defined by **Figure A20**.

A20.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A20.3 PROBLEM STATEMENT

The location of Area 20 is located north of the American River between Eastern Avenue and Watt Avenues. The subdivisions built in this area occurred between the 1940's to the 1990's, with the majority of the development taking place around the 1950's. During this time, it was a very common practice to direct drainage to the natural flow path, which included drainage pipes between parcels, drainage pipes discharging overland and re-entering into drainage pipes, drainage pipes decreasing is size downstream to regulate flow, and variety of other unique schemes.

The source of flooding was primarily caused by large storm events that overwhelmed the drainage system and begins to discharge onto the surface, which eventually drains between parcels. The structures in Area 20 are adjacent to the overland release and are built low enough for potential flooding. Reported damages occurred in 1994 and 1995.

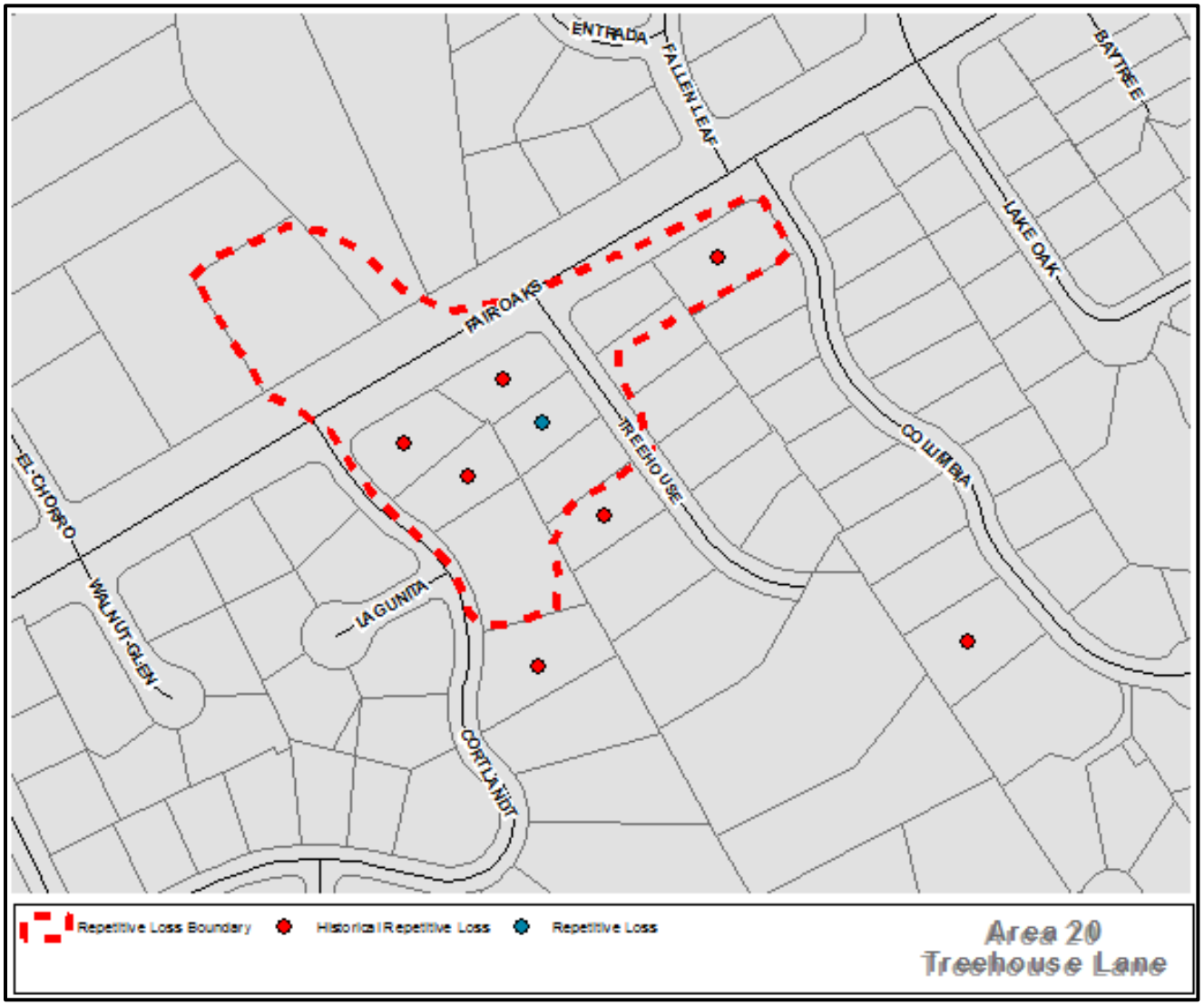
There are twelve (12) properties which include buildings on FEMA's repetitive loss list, historical loss properties or nearby buildings that may have the same or similar flooding conditions. No properties have been mitigated in Area 20.

A20.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), no projects are proposed that would impact flooding in Area 20.

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

FIGURE A20
Repetitive Loss Area #20



A20.5 DATA COLLECTION

The State of California – Department of Water Resources Central Valley Flood Evaluation and Delineation LiDAR (dated 2008) was utilized in this analysis.

A20.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) none of the properties in Area 20 are within the 100-year FEMA floodplain.

A20.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that seven (8) of the overall twelve (12) properties within Area 20 have reported flooding.

A20.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in 1994 and 1995. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A20.5.4 Types of Foundations

The most common type of foundations within Area 20 is slab on grade, which constitutes of 100% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A20.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for acquisition of flood prone properties. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

HAGGINBOTTOM WATERSHED

AREA 20

COLUMBIA DRIVE

CORTLANDT DRIVE

FAIR OAKS BOULEVARD

TREEHOUSE LANE

AMERICAN RIVER WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**12**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*7*
REPETITIVE LOSS AREA PROPERTIES	*4*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 12
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

Appendix 21

REPETITIVE LOSS AREA 21
RIO LINDA DRY CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 21

TABLE OF CONTENTS

A21.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 21, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 21 analysis includes properties on U Street and 24th Street in Rio Linda defined by **Figure A21**.

A21.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A21.3 PROBLEM STATEMENT

The location of Area 20 is generally south of U street and along 24th Street.

A strong frontal system moved from the Pacific Ocean through California from January 4 through 15. This storm caused damages throughout the state. It was particularly severe in Sacramento County where the slow, west to east movement of the frontal system temporarily stopped, positioning the front over and in line with the American River in Sacramento County. While the front stalled, the rain-producing flow along the front from the southwest continued to dump moisture in roughly the same area, resulting in extraordinary rainfall depths in the area.[1]

The source of flooding was primarily identified Dry Creek out of bank flooding in older residential areas constructed prior to NFIP requirements.

There are 19 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. Three of the properties were mitigated by elevating the structures.

A21.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- Sacramento Area Flood Control Agency (SAFCA) Flood Control Program
- Dry Creek Parkway Project

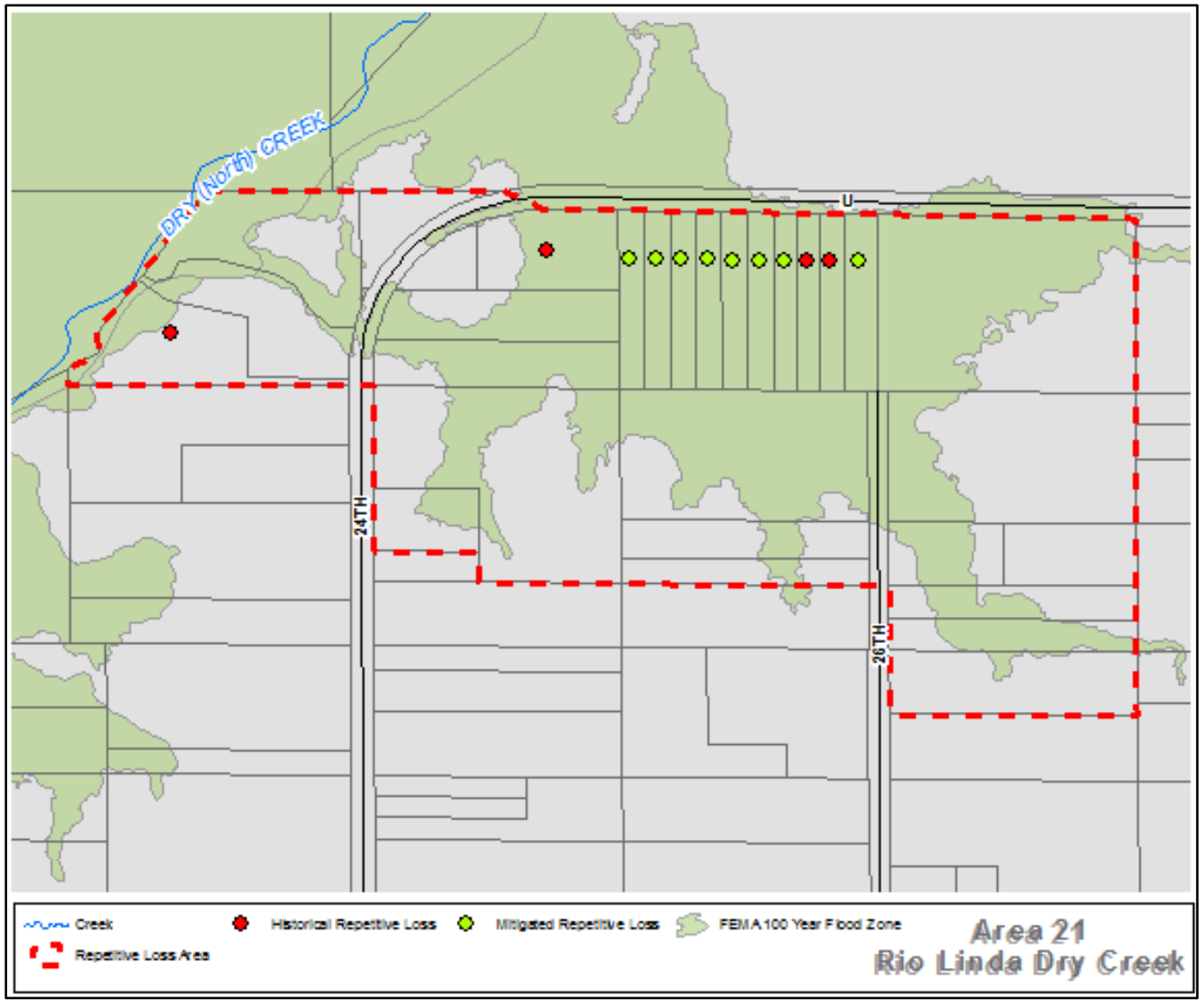
The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.

[1] District Engineer, Placer County Flood Control and Water Conservation District, 11444 B Avenue, Auburn CA, 95603

- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.

FIGURE A21
Repetitive Loss Area #21



A21.5 DATA COLLECTION

Sacramento County Plans and studies for Dry Creek were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- 2003 Dry Creek Watershed Coordinated Resources Management Plan (DCC, HLA, Swanson, ECORP)
- Dry Creek Watershed Plan Update

A21.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) XXX properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when when Out of bank flooding may occur in older residential areas. The Sacramento County Local Floodplain does not cover this RLA,

A21.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 10 of the overall 19 properties within the Dry Creek RLA had reported flooding.

A21.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A21.5.4 Types of Foundations

The most common type of foundations within the Rio Linda Dry Creek RLA is raised, which constitutes 83% of the two common foundations found in this Sacramento County RLA (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A21.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for HMGP The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

RIO LINDA DRY CREEK

AREA 21

24TH STREET

U STREET

RIO LINDA DRY CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**19**
REPETITIVE LOSS PROPERTIES	*3*
HISTORICAL LOSS PROPERTIES	*9*
REPETITIVE LOSS AREA PROPERTIES	*7*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 7
  - SLAB ON GRADE 3
- NO STRUCTURES
  - PRIVATELY OWNED 1

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION) 8

Appendix 22

REPETITIVE LOSS AREA 22

NORTH NATOMAS
EAST MAIN DRAIN CANAL

(NEMDC Tributaries)

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 22

TABLE OF CONTENTS

A22.1 REPETITIVE LOSS AREA 22

This Report focuses on Area 22, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 22 analyses includes properties on 2nd Street, 4th Street, 6th Street, Burr Avenue, E. Levee Road, El Modena Avenue, M Street, Marysville Boulevard, Q Street, Rio Linda Boulevard, Schandoney Avenue, Sorento Road, Straugh Road, and W Street as defined by **Figure A22**.

A22.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A22.3 PROBLEM STATEMENT

The location of Area 22 is located east of the Natomas East Main Drainage Canal (NEMDC) and north of Elkhorn Boulevard to the County boundary. Floods in this watershed generally occur from October through April. The floods are usually caused by a combination of prolonged rainfall leading to saturated soils, and a short period of one to six hours of intense precipitation associated with frontal convection or severe thunderstorms. The source of flooding was primarily identified as the North NEMDC Tributary floodplain are caused by high stages exceeding the channel banks and flooding older residential areas constructed prior to NFIP requirements.

NEMDC Tributary Canal has an extensive record of flood conditions. Damaging floods occurred in December 1955, April 1958, October 1962, December 1964, March 1983 and February 1986. The floods of 1983 and 1986 were the largest and most damaging on record before 1992. Hydrologic studies have shown that the recurrence interval of the March 1983 flood was approximately 10 years and the recurrence interval of the February 1986 flood was from 50 to 100 years, depending on the specific location in the watershed. Six flood events also occurred in in January 1995, January 1997, February 1998, and December 2005, with the 1995 flood event causing extensive damage.

There are 99 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. One property has been elevated as part of the Hazard Mitigation Grant Program.

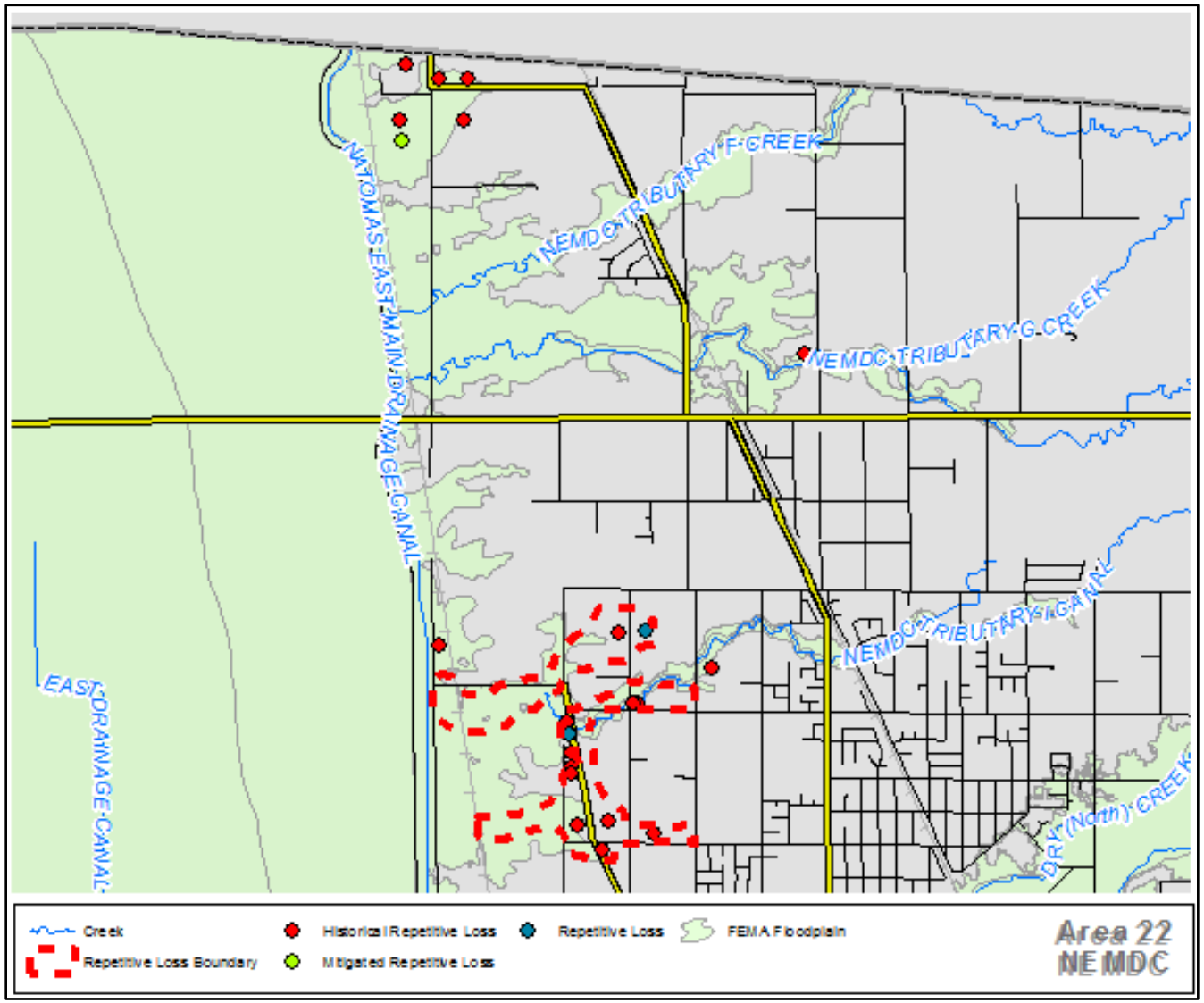
A22.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- SAFCA and USACE – Sacramento Levee Improvement Project
- USACE and Bureau of Reclamation – Folsom Dam Joint Federal Project (Completion 2017)
- State of California – Fremont Weir Expansion (Planning Stage)

The primary method of protection is to inform the public about flood risks of living in flood prone areas, especially for homes on the waterside of a levee. Additionally, all of the homes in Area 22 are identified in the County's building permit database. These homes are required to be in compliance with the local Floodplain Management Ordinance which describes how to safely build in areas that are within a FEMA Effective Floodplain and Local Floodplain.

FIGURE A22
Repetitive Loss Area #22



A22.5 DATA COLLECTION

Plans and studies have been conducted for the Sacramento River system and were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- FEMA Effective Flood Insurance Study
- SAFCA and USACE – Sacramento River Levee Improvement Project
- Central Valley Flood Evaluation and Delineation Project
- USACE and Bureau of Reclamation – Joint Federal Project
- State of California – Fremont Weir Expansion Project

A22.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) the majority of properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when the American River reaches flood stages and the NEMDC streams are under backwater conditions. Additionally, the Sacramento County Local Floodplain is included for the RLA.

A22.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 8 of the overall 98 properties within the North NEMDC Tributary RLA had reported flooding.

A22.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in January 9, 1995, January 9 & 22, 1997, June 15, 1997, February 3, 1998, and June 15 & 16, 1998. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A22.5.4 Types of Foundations

The most common type of foundations within the North NEMDC Tributary RLA is a raised foundation, which constitutes 41% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A22.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for acquisition of additional properties in North NEMDC floodplain for demolition to restores the natural floodplain. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

NORTH NATOMAS
EAST MAIN DRAIN CANAL
(NEMDC Tributaries)

AREA 22

BURR AV

E LEVEE RD

EL MODENA AV

North NEMDC Tributaries

DATA ANALYSIS SUMARY

PROPERTIES	**15**
REPETITIVE LOSS PROPERTIES	
HISTORICAL LOSS PROPERTIES	
REPETITIVE LOSS AREA PROPERTIES	*15*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 3
  - SLAB ON GRADE 7
- NO STRUCTURES
  - PRIVATELY OWNED 5

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 22

MARYSVILLE BOULEVARD

North NEMDC Tributaries

DATA ANALYSIS SUMARY

PROPERTIES	**15**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*10*
REPETITIVE LOSS AREA PROPERTIES	*4*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 5
  - SLAB ON GRADE 10
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 22

RIO LINDA BOULEVARD
SCHANDONEY AVENUE
SORENTO ROAD
STRAUGH ROAD

North NEMDC Tributaries

DATA ANALYSIS SUMARY

PROPERTIES	**16**
REPETITIVE LOSS PROPERTIES	
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*4*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 3
  - SLAB ON GRADE 4
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 22

M STREET

WEST M STREET

North NEMDC Tributaries

DATA ANALYSIS SUMARY

PROPERTIES	**20**
REPETITIVE LOSS PROPERTIES	
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*17*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	8
o SLAB ON GRADE	8
• NO STRUCTURES	
o PRIVATELY OWNED	4
MITIGATED PROPERTIES	
• ACQUSITION & DEMO	
• AQUSITION – NO STRUCTURE	
• ELEVATED (RAISED FOUNDATION)	

AREA 22

Q STREET

WEST Q STREET

North NEMDC Tributaries

DATA ANALYSIS SUMARY

PROPERTIES	**12**
REPETITIVE LOSS PROPERTIES	
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*11*
• EXISTING STRUCTURES (UNMITIGATED)	
o RAISED FOUNDATIONS	7
o SLAB ON GRADE	5
• NO STRUCTURES	
o PRIVATELY OWNED	
MITIGATED PROPERTIES	
• ACQUSITION & DEMO	
• AQUSITION – NO STRUCTURE	
• ELEVATED (RAISED FOUNDATION)	

AREA 22

2ND STREET

WEST 2ND STREET

4TH STREET

WEST 4TH STREET

WEST 6TH STREET

North NEMDC Tributaries

DATA ANALYSIS SUMARY

PROPERTIES	**21**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*4*
REPETITIVE LOSS AREA PROPERTIES	*16*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 11
  - SLAB ON GRADE 7
- NO STRUCTURES 2
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

Appendix 23

REPETITIVE LOSS AREA 23

MORRISON CREEK

Sacramento

FEMA Floodplain

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 23

TABLE OF CONTENTS

A23.1 REPETITIVE LOSS AREA 23

This Report focuses on Area 23, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 23 includes properties in Sacramento, California on Bradshaw Road and Mayhew Road as shown on **Figure A23**.

A23.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs.

A23.3 PROBLEM STATEMENT

The location of Area 23 is just south of highway 16 on the west side of Bradshaw Road and east of Mayhew Road.

The source of flooding is the Morrison Creek floodplain that runs directly through the RLA. The 100-year floodplain escapes the banks of the creek and floods the adjacent properties in the area. Damaging floods occurred in January of 1995 and 1997.

There are 24 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. Two (2) properties were purchased for purposes of mining by private owners and all structures were demolished as a part of the mining operations. Most of the properties located within the repetitive loss area are actively being mined. As such, the mining pits will be filled with flood water in the events where the creek banks are exceeded.

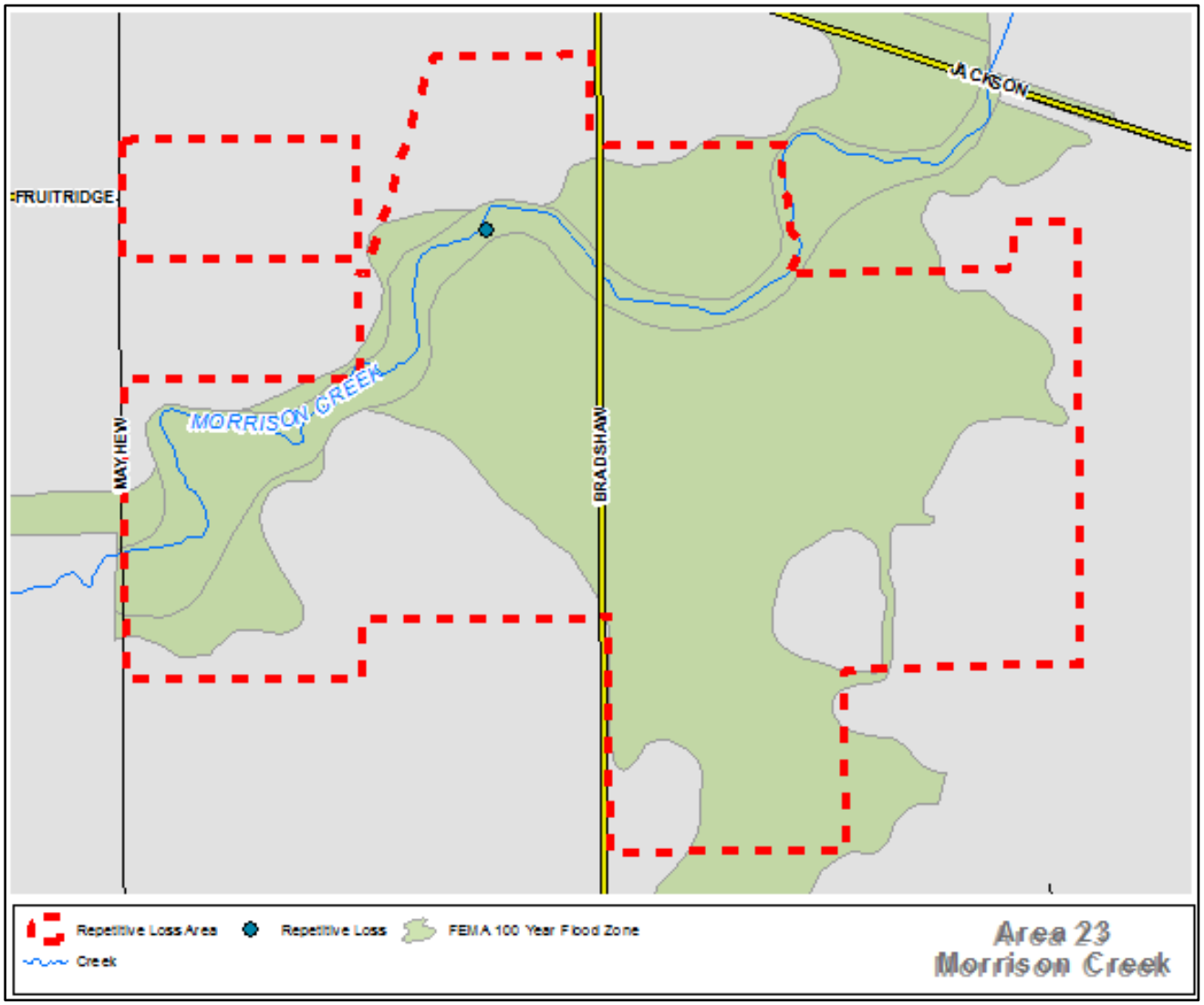
A23.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- West Jackson Highway – Master Drainage Study (Dated: 2012)

The primary methods of property protection are: demolition/relocation, elevate structure or damage prone components such as furnace or ac unit, dry flood-proof (so water cannot get in), wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

FIGURE A23
Repetitive Loss Area #23



A23.5 DATA COLLECTION

Sacramento County Plans and studies for Morrison Creek were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- West Jackson Highway – Master Drainage Study (2012)

The State of California – Department of Water Resources Central Valley Flood Evaluation and Delineation LiDAR (dated 2008) was also utilized in this analysis.

A23.5.1 Flood Insurance and Flood Event Data

Area 23 is in Zone AE, on the FEMA Flood Insurance Rate Map 06067C0215H (August 2012). Based on the FIRM all twenty-four (24) properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when low lying areas around Morrison Creek are inundated by out of bank flooding resulting from the large watershed contributing to Morrison Creek.

A23.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 2 of the overall 24 properties within the Morrison Creek RLA had reported flooding. Both of these properties no longer have structures on them.

A23.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed on January 9, 1995 and January 22, 1997 during record storm events. In addition inspections were conducted in May 2015. These inspections were performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location;
- Neighborhood topography and flow routes; and
- High-water marks and debris mark levels.

A23.5.4 Types of Foundations

The most common type of foundations within the Morrison Creek RLA is a raised foundation, which constitutes 71% of the two common foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A23.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for acquisition of additional properties in Morrison Creek floodplain for demolition to restores the natural floodplain. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

Further, a weir along Morrison Creek is planned to be constructed upstream of highway 16 at an aggregate mine that should control flooding and help reduce some of the structural flooding that has been experienced in the past. Flooding could still be experienced in existing and future mining areas that are below the flow line of the creek.

DATA ANALYSIS SUMMARY

MORRISON CREEK

AREA 23

BRADSHAW ROAD

MORRISON CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**20**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*19*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 5
  - SLAB ON GRADE 2
- NO STRUCTURES
  - PRIVATELY OWNED 11

MITIGATED PROPERTIES

- ACQUSITION & DEMO 2
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 23

MAYHEW ROAD

MORRISON CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**4**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*4*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 0
- NO STRUCTURES
  - PRIVATELY OWNED 4

MITIGATED PROPERTIES

- ACQUSITION & DEMO 0
- AQUSITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

Appendix 24

REPETITIVE LOSS AREA 24

ARCADE CREEK
AT
PARK ROAD

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 24

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A24.1 REPETITIVE LOSS AREA 1

This Report focuses on Area 24, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 24 includes the floodplain associated with Arcade Creek in the vicinity of Park Road as shown in **Figure A24**.

A24.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A24.3 PROBLEM STATEMENT

The location of Area 24 is generally on Park Road, adjacent to Del Paso Park downstream of Auburn Boulevard. The source of flooding is due to Arcade Creek overtopping.

The five structures within Area 24 reside on FEMA's repetitive loss list, have experienced historical flooding, or are nearby buildings that may have the same or similar flooding conditions. Three of the five structures have been mitigated through elevation.

A24.4 BASIC INFORMATION

Due to the severity and nature of the flooding, the primary method of property protection in this area is home elevation.

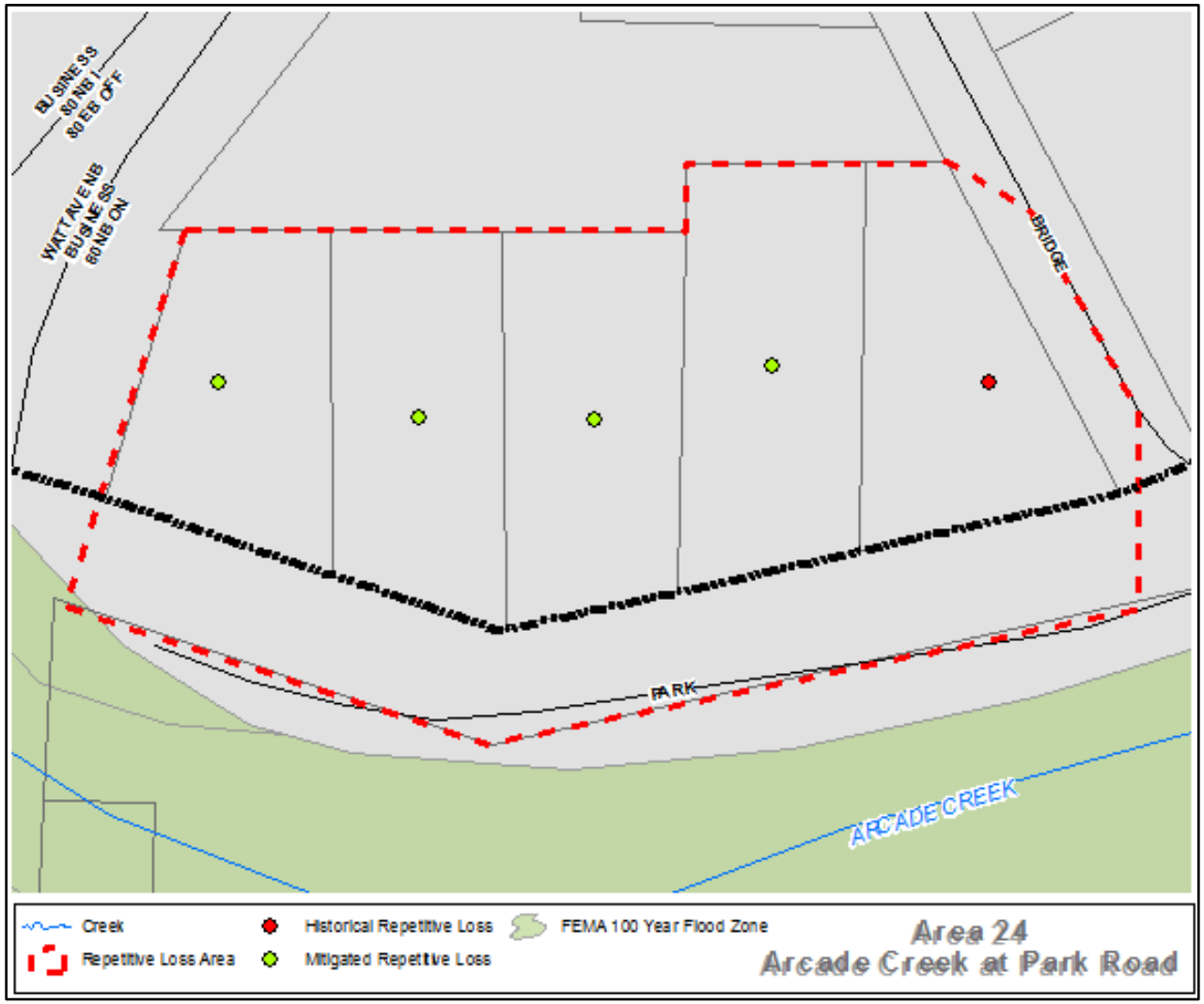
A24.5 DATA COLLECTION

Sacramento County Plans, high water information, homeowner testimony, and studies for the Arcade Creek watershed were utilized in this analysis. The structures located within this area were reviewed by DWR staff as part of the Hazard Mitigation Grant Program and Flood Mitigation Assistance Program.

A24.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) no properties within the RLA are within the 100-year FEMA floodplain although the flooding occurs when Arcade Creek overflows its banks. This is because Arcade Creek water surface elevations have exceeded those in the Flood Insurance Study, notably during the 1982, 1983, 1986, and 1995 storm events. Sacramento County DWR is currently in the process of having Arcade Creek remapped in this area to reflect a higher base flood elevation.

FIGURE A24
Repetitive Loss Area #24



A24.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that more than one of the five properties within the Area 24 RLA had reported flooding, but the records are to remain confidential by request of the homeowners.

A24.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed as part of the Hazard Mitigation Grant Program and the Flood Mitigation Assistance program. The inspections were performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A24.5.4 Types of Foundations

The most common type of foundations within the Area 24 RLA is raised foundations although one home has a slab foundation (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A24.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for home elevations. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Sacramento County Department of Water Resources
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

ARCADE CREEK AT PARK ROAD

AREA 24

ARCADE CREEK AT PARK RD.

ARCADE CREEK WATERSHED

DATA ANALYSIS SUMARY

PROPERTIES	**5**
REPETITIVE LOSS PROPERTIES	*3*
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS
  - SLAB ON GRADE 1
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION) 4

Appendix 25

REPETITIVE LOSS AREA 25

MADISON AVENUE AT ROLLINGWOOD

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 25

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A25.1 REPETITIVE LOSS AREA 25

This Report focuses on Area 25, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 25 comprises the local floodplain area as shown in **Figure A25**.

A25.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A25.3 PROBLEM STATEMENT

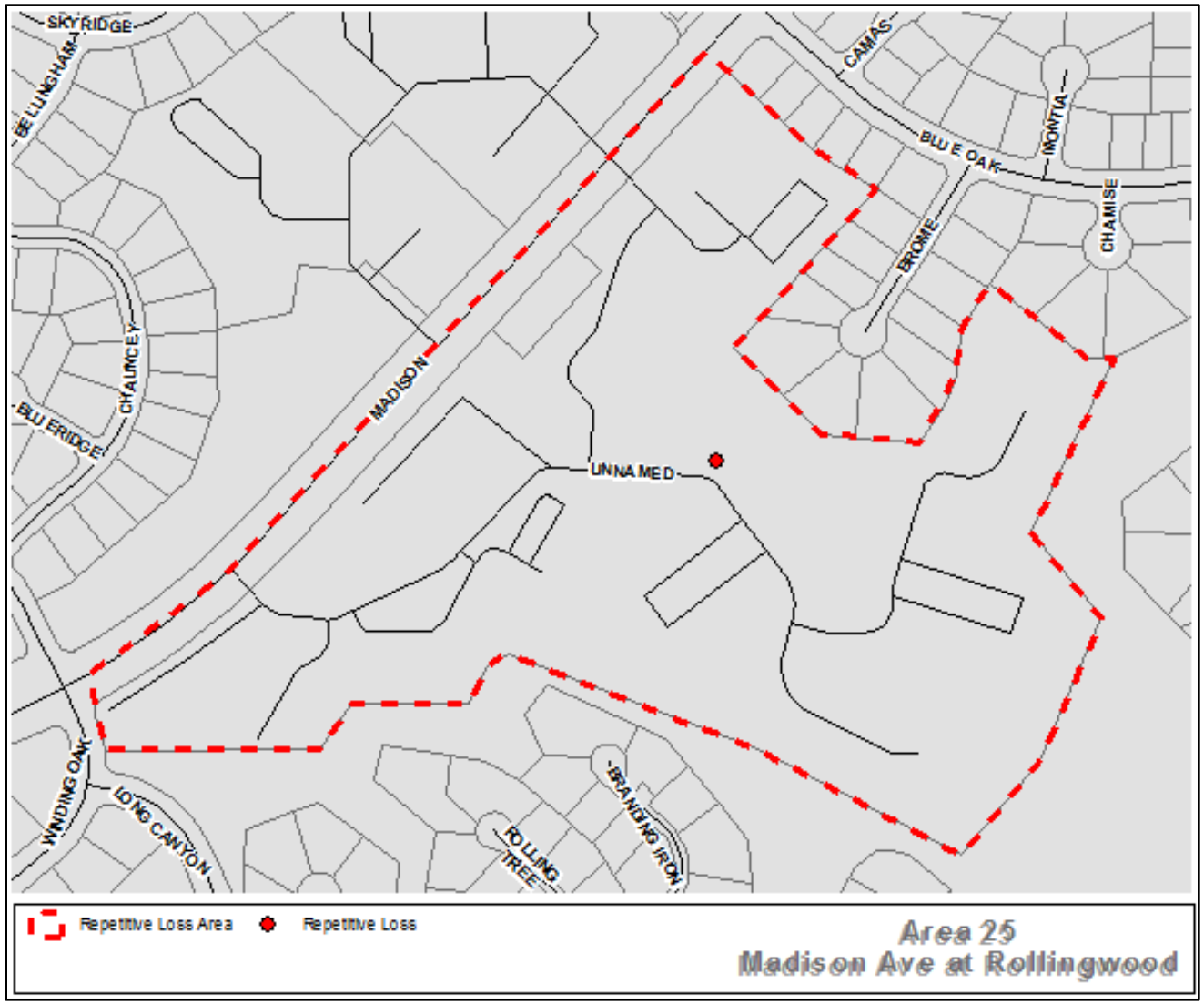
The location of Area 25 is generally the south side of Madison Avenue in the area of the Rollingwood development (east of the intersection of Madison and Hazel Avenue. The source of flooding is a unnamed stream system flowing southward to the American River.

There are 69 addresses which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions. The historic loss properties and repetitive loss properties are all located within the Rolling Wood condominium project. Eight of the condo units have repetitive losses and 17 others have a history of flooding but are not repetitive loss.

A25.4 BASIC INFORMATION

The primary methods of property protection would be to elevate affected structures or to construct a permanent floodwall around them if it could be designed to not cause impacts to any other structures in the area.

FIGURE A25
Repetitive Loss Area #25



A25.5 DATA COLLECTION

LIDAR topography, street level photography, and aerial photography were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

A25.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) none of the properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when the local floodplain associated with an unnamed stream overtops its banks during intense rainfall events.

A25.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that approximately 15 of the overall 69 addresses within the RLA had reported drainage related issues.

A25.5.3 Structure Inspections

The flood protection assessments in this Report are based upon visual observation of relative elevations. Each property within the RLA was reviewed and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A25.5.4 Types of Foundations

The most common type of foundations within the RLA is slab on grade, which constitutes a substantial portion of the foundations found in Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A25.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for home elevation projects. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Sacramento County Department of Water Resources
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

FAIR OAKS STREAM GROUP

AREA 25

MADISON AVENUE

FAIR OAKS STREAM GROUP

DATA ANALYSIS SUMARY

PROPERTIES	**68**
REPETITIVE LOSS PROPERTIES	*8*
HISTORICAL LOSS PROPERTIES	*17*
REPETITIVE LOSS AREA PROPERTIES	*44*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS
  - SLAB ON GRADE 68
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

Appendix 26

REPETITIVE LOSS AREA 26
STRONG RANCH SLOUGH

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 26

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A26.1 REPETITIVE LOSS AREA 26

This report focuses on Area 26, one of the twenty eight (28) designated RLAs within the Sacramento County. Area 26 analysis defined by **Figure A26**.

A26.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAs.

A26.3 PROBLEM STATEMENT

The location of Area 26 is generally bound by Howe Avenue to the west, Fulton Avenue/Munroe Street to the east, Imran Drive to the north and Fair Oaks Boulevard to the south. The Woodside properties are located at the confluence of Sierra Branch and Strong Ranch Slough in the south-west portion of the watershed. The Strong Ranch Slough and Chicken Ranch Slough (SRS / CRS) watershed is an urban watershed of approximately 15 square miles within Sacramento County, in northern California. Water levels in the lower portion of the Strong and Chicken Ranch Slough watershed are affected by the water level in the D05 pond, which, in turn, is related to water level in the lower American River.

Homes and community facilities in the Woodside condominium complex in the Arden-Arcade neighborhood of Sacramento County were flooded by local storm runoff in 1986, in 1997, and again on New Year's Eve of 2005. This complex is located in the Strong Ranch Slough watershed, adjacent to the Strong Ranch and Sierra Branch channels

The source of flooding was primarily identified as the residences being in low lying areas, in some instances adjacent to Strong Ranch Slough that is over capacity, and most of the homes having slab-on-grade foundations.

There are 69 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

A26.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following had plans or studies that could affect the cause or impacts to flooding are:

- USACE (1987). Hydrologic analysis of interior areas. EM 1110-2-1413. Office of the Chief of Engineers, Washington, D.C.
- Chicken Ranch Slough drainage master plan. Prepared for County of Sacramento, Department of Public Works, Water Resources Division, Sacramento, CA. Nolte and Associates – 1991
- Hydrologic study of Folsom Re-operation impacts on Sacramento County Drainage Facilities. Prepared by David Ford Consulting Engineers,
- How can Strong Ranch Slough and Chicken Ranch Slough flooding be reduced?

Prepared by David Ford Consulting Engineers, Sacramento, CA. – 1997

- Impact of Sacramento River stage on D05 pumping station exterior stage. Prepared by David Ford Consulting Engineers, Sacramento, CA. – 1997
- Use of weather radar data will improve forecasting in Sacramento County. Prepared by David Ford Consulting Engineers, Sacramento, CA.- 1997
- Economic efficiency of flood-damage-reduction plan for Arden-Arcade neighborhood of Sacramento County. Prepared by David Ford Consulting Engineers, Sacramento, CA. – 1997
- Federal Emergency Management Agency Flood insurance study: Sacramento, California, unincorporated areas. Washington, DC. - 1998
- USACE (1999). Reconnaissance study of Strong and Chicken Ranch Sloughs. WRDA 86, 905b Analysis. Sacramento, CA.
- USACE (2001). Strong and Chicken Ranch Sloughs, California – Feasibility report: Phase 1 studies. Prepared by David Ford Consulting Engineers, Sacramento, CA.

The primary methods of property protection are:

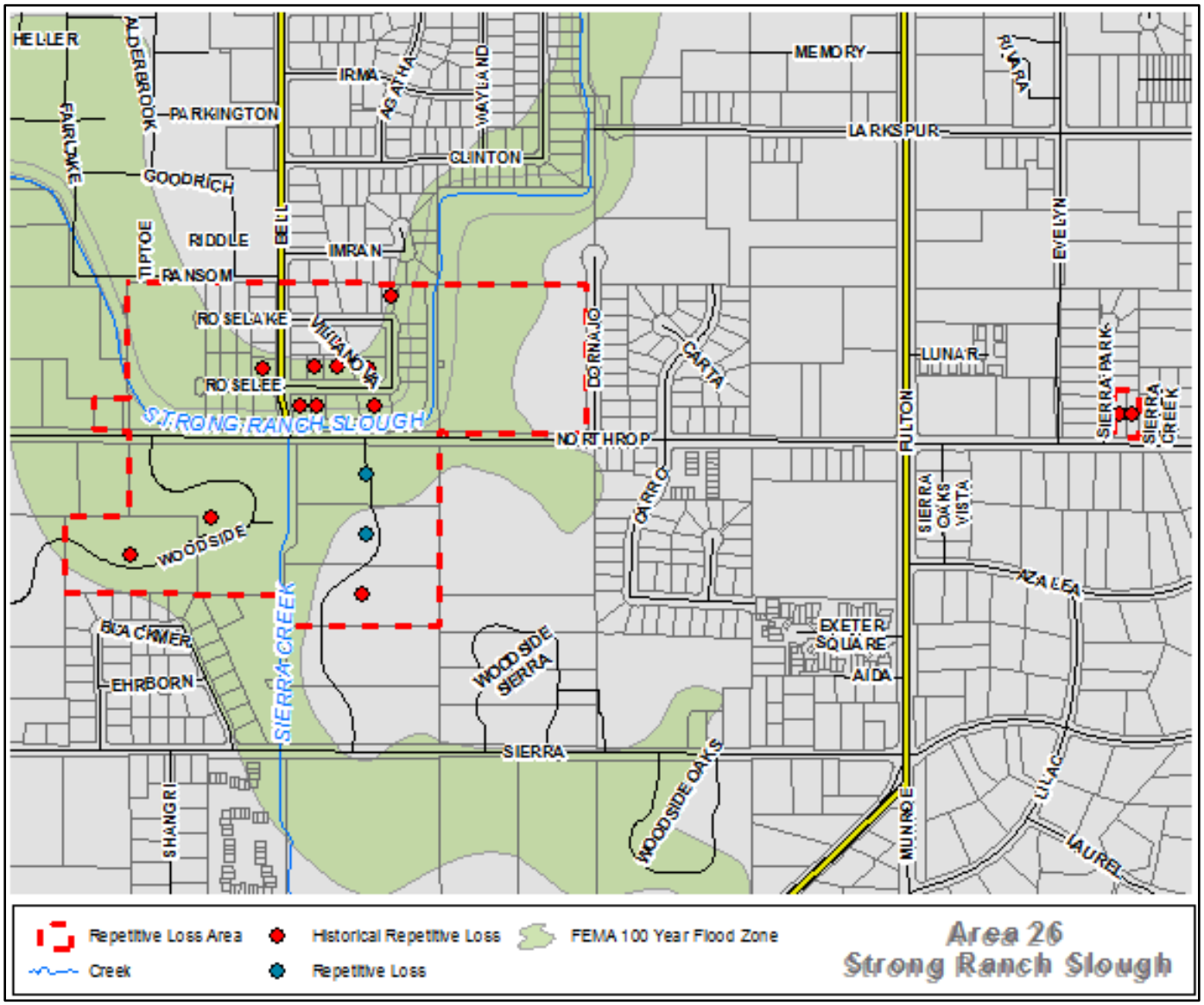
- The primary methods of property protection are: Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.
- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.
- Home Removal – If necessary, it may be recommended that the County purchase the property and remove the home from the lot

A26.5 DATA COLLECTION

Sacramento County Plans and studies for Strong Ranch Slough were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- Strong and Chicken Ranch Slough Watershed Alternative Analysis – 2006
- Sacramento County 5.1 Local Hazard Mitigation Plan Update - September 2011

FIGURE A26
Repetitive Loss Area #26



A26.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) 107 properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when flows exceed the capacity of Strong Ranch Slough and Sierra Creek. The Sacramento County Local Floodplain on Bell Street, Northrop Avenue, Woodside Lane and Sierra Boulevard for this RLA floods due to them being in low lying areas.

A26.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 187 of the overall 228 properties within the Strong Ranch Slough RLA had reported flooding.

A26.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in June of 2015. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A26.5.4 Types of Foundations

The most common type of foundations within the Strong Ranch Slough RLA is slab-on-grade.

A26.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for future mitigation measures. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

AREA 26

BELL STREET

NORTHROP AVENUE

Strong Ranch Slough

DATA ANALYSIS SUMMARY

PROPERTIES	**17**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*5*
REPETITIVE LOSS AREA PROPERTIES	*12*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 2
  - SLAB ON GRADE 13
- NO STRUCTURES
  - PRIVATELY OWNED 2

MITIGATED PROPERTIES

- ACQUISITION & DEMO 0
- ACQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 26

ROSELAKE AVENUE

ROSELEE WAY

Strong Ranch Slough

DATA ANALYSIS SUMMARY

PROPERTIES	**12**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*0*
REPETITIVE LOSS AREA PROPERTIES	*12*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 8
  - SLAB ON GRADE 4
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUISITION & DEMO 0
- ACQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 26

VILLANOVA CIRCLE

Strong Ranch Slough

DATA ANALYSIS SUMMARY

PROPERTIES	**20**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*8*
REPETITIVE LOSS AREA PROPERTIES	*12*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 7
  - SLAB ON GRADE 13
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUISITION & DEMO 0
- ACQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

AREA 26

WOODSIDE LANE

Strong Ranch Slough

DATA ANALYSIS SUMMARY

PROPERTIES	**150**
REPETITIVE LOSS PROPERTIES	*52*
HISTORICAL LOSS PROPERTIES	*11*
REPETITIVE LOSS AREA PROPERTIES	*87*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 0
  - SLAB ON GRADE 150
- NO STRUCTURES
  - PRIVATELY OWNED 0

MITIGATED PROPERTIES

- ACQUISITION & DEMO 0
- ACQUISITION – NO STRUCTURE 0
- ELEVATED (RAISED FOUNDATION) 0

Appendix 27

REPETITIVE LOSS AREA 27
BROOKTREE CREEK

SACRAMENTO COUNTY

Department of Water Resources
Repetitive Loss Area Analysis

APPENDIX 26

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A27.1 REPETITIVE LOSS AREA 27

This Report focuses on Area 27, one of the twenty-eight (28) designated RLAs within the Sacramento County. Area 27 analysis includes properties on Rosebud Lane as well as properties on Auburn Boulevard and is defined by **Figure A27**.

A27.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAAs

A27.3 PROBLEM STATEMENT

The location of Area 3 is generally northwest of Auburn Boulevard. The source of flooding was primarily identified as the back water flow from the confluence of Brooktree Creek and Arcade Creek.

There are sixteen (16) properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

A27.4 BASIC INFORMATION

The primary methods of property protection are: wet flood-proof portions of the building (so water won't cause damage), direct drainage away from the building, and drainage maintenance.

A27.5 DATA COLLECTION

Sacramento County Plans and studies for Brooktree Creek were not available to be utilized in this analysis.

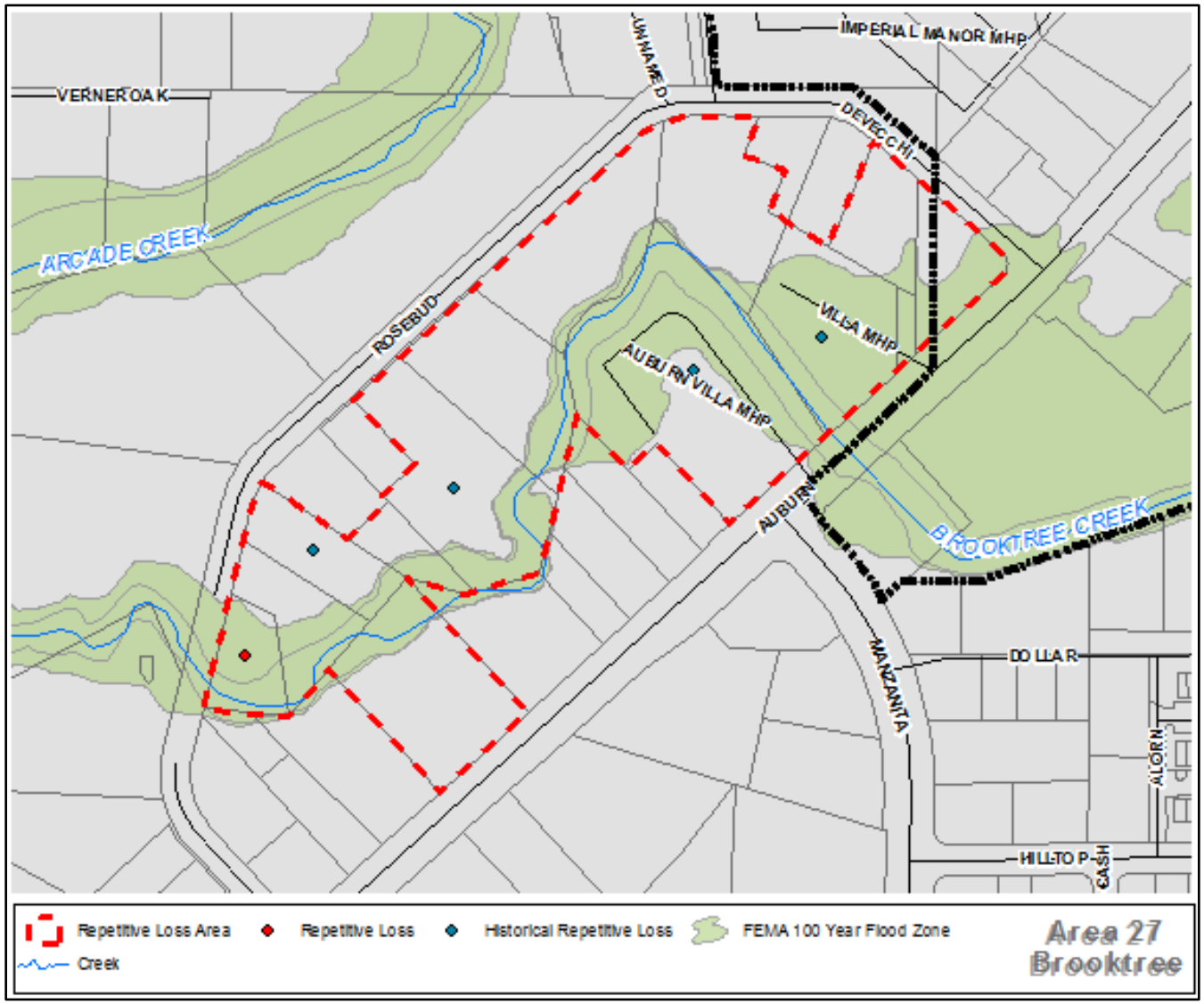
A27.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) 16 properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when Brooktree Creek overflows into a floodplain. The Sacramento County Local Floodplain Map does not cover the Dry Creek Shed for this RLA.

A27.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that three (3) of the overall 17 properties within the Brooktree Creek RLA had reported flooding.

FIGURE A27
Repetitive Loss Area #27



A27.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in January 1995 and December 1999. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A27.5.4 Types of Foundations

The most common type of foundations within the Brooktree Creek flood plain RLA is slab on grade, which constitutes 81.3% of the common foundations found in this RLA within Sacramento County (see Section 2.5.2 of this report for a detailed description of the foundation types mentioned).

A27.6 FUTURE MITIGATION MEASURES

The County continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Through HMGP & FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available.
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

BROOKTREE CREEK FLOODPLAIN

AREA 27

AUBURN BOULEVARD

DEVECCHI AVENUE

BROOKTREE CREEK FLOODPLAIN

DATA ANALYSIS SUMARY

PROPERTIES	**7**
REPETITIVE LOSS PROPERTIES	*0*
HISTORICAL LOSS PROPERTIES	*1*
REPETITIVE LOSS AREA PROPERTIES	*6*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS *(Mobile Home Park)* 1
  - SLAB ON GRADE 6
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 27

ROSEBUD LANE

BROOKTREE CREEK FLOODPLAIN

DATA ANALYSIS SUMARY

PROPERTIES	**9**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*2*
REPETITIVE LOSS AREA PROPERTIES	*6*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 1
  - SLAB ON GRADE 7
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION) 1

Appendix 28

REPETITIVE LOSS AREA 28
VERDE CRUZ CREEK

SACRAMENTO COUNTY

Department of Water Resources

Repetitive Loss Area Analysis

APPENDIX 28

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A28.1 REPETITIVE LOSS AREA 28

This Report focuses on Area 28, one of the twenty eight designated RLAs within the Sacramento County. Area 14 analyses include Moraga Drive, Crestview Drive, Loma Linda Court, Hackberry Lane, and Verde Cruz Way as defined by **Figure A28**.

A28.2 ADVICE FOR RESIDENTS

Residents have been advised that their property is in or near a flood hazard area by a direct mailer that targeted properties in the RLAs.

A28.3 PROBLEM STATEMENT

The location of Area 14 is made up of six subareas. The first subarea is directly adjacent to Verda Cruz Creek and is generally bounded by Verde Cruz Creek crossing at the intersection of Hackberry Lane, Verde Cruz Way. The fourth section is located at the Verde Cruz Creek crossing near the intersection of Crestview Drive and Heathcliff Drive. The fifth subarea is adjacent to Brooktree Creek and is generally bounded by Auburn Boulevard, Rosebud Lane, and Devecchi Avenue. The sixth subarea is directly adjacent to Verde Cruz Creek near the intersection of Moraga Drive and Dewey Drive.

The source of flooding was primarily identified as the residences being in low lying areas, in some instances adjacent to a creek that is over capacity, and most of the homes having slab-on-grade foundations.

There are 22 properties which include buildings on FEMA's repetitive loss list, historical loss properties and nearby buildings that may have the same or similar flooding conditions.

A28.4 BASIC INFORMATION

From the agencies or organizations that were contacted (Chapter 2.2), the following plans or studies that could affect the cause or impacts to flooding are:

- Drainage Study for 4950 Hackberry Lane

The primary methods of property protection are:

- Home Elevation – Is your floor below the elevation of the floodplain? If so, it may be prudent to elevate the structure. Whenever the floor of a home is below the 100-year flood elevation, physically elevating the structure is often recommended as it is one of the most effective means to prevent flood damage. Financial assistance may be available to you. In the past, the County has utilized FEMA grant money for dozens of qualified elevation projects.

- Site Modification – Would a small wall, berm, or other site specific grading help keep water out of your house? Often, modification of the area around your home may be

appropriate to minimize flooding depending on the depth of floodwater and site specific constraints.

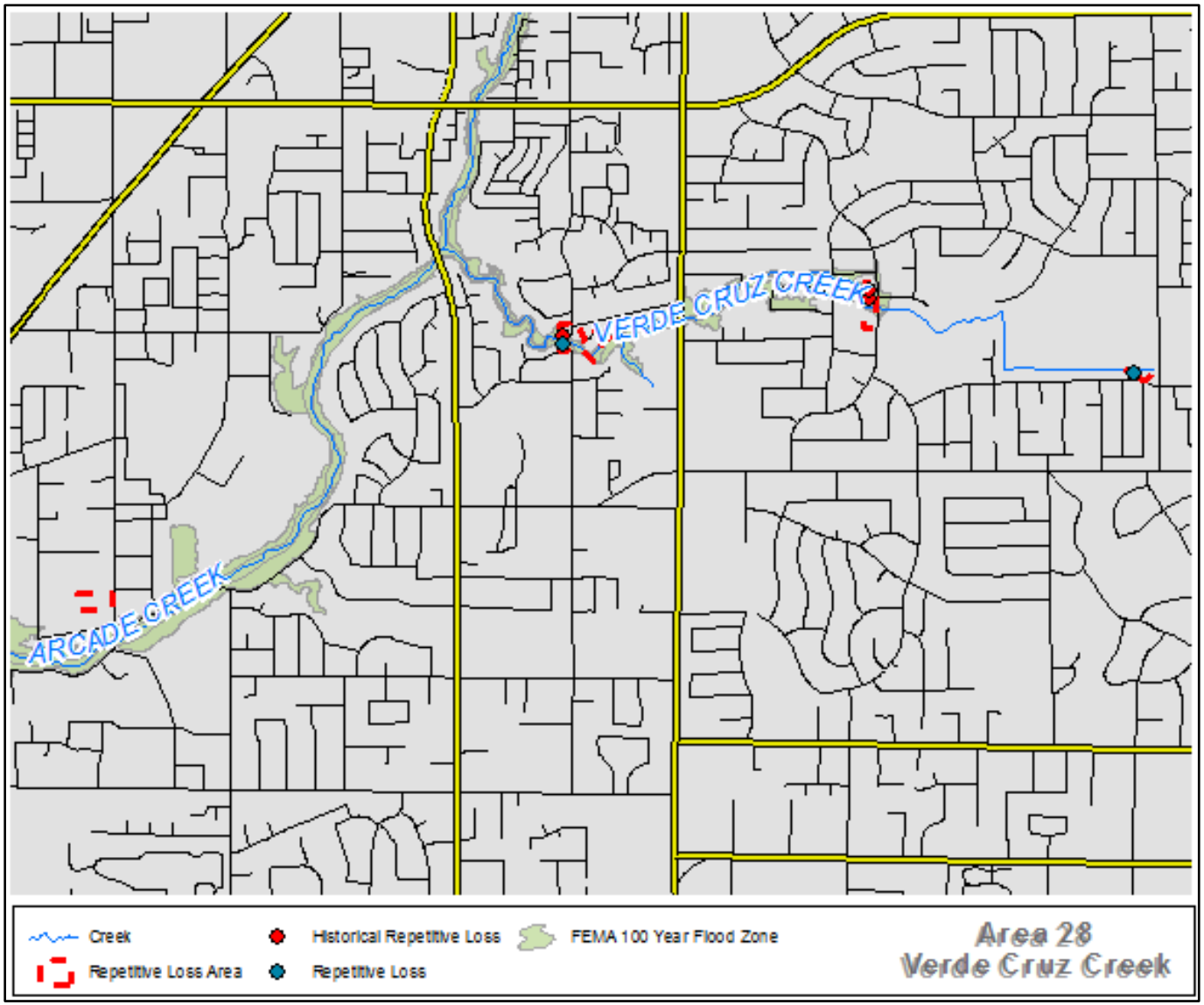
- Temporary Flood Barriers – Perhaps sandbags or other barriers could be employed on site in advance of a storm to help keep water out.
- Home Removal – If necessary, it may be recommended that the County purchase the property and remove the home from the lot.

A28.5 DATA COLLECTION

Sacramento County Plans and studies for Manzanita Avenue were utilized in this analysis. The sources listed below provided additional data related to the causes and impacts of flooding in the RLA.

- Crestview Culvert
- Crestview Oaks
- Moraga Drive and Dewey Drive Drainage Project
- Via Del Campo High School Drainage Project

FIGURE A28
Repetitive Loss Area #28



A28.5.1 Flood Insurance and Flood Event Data

Based on the FIRM (August 2012) 28 properties within the RLA are within the 100-year FEMA floodplain. The flooding occurs when flows exceed the capacity of Arcade Creek, and Verde Cruz Creek. The Sacramento County Local Floodplain on Sycamore Avenue for this RLA floods due to it being a low lying area.

A28.5.2 Flooding Experiences of Property Owners

Water Resources Service Request Tracking System (WR-SRTS) indicates that 4 of the overall 22 properties within the Dry Creek RLA had reported flooding.

A28.5.3 Structure Inspections

On-site inspections of buildings in the RLA were performed in March of 2015. This inspection was performed from both the public right-of-way, when not allowed onto the property and on the effected property by engineering staff (Drainage Maintenance and Operations, Drainage Development, and Drainage Design). As such, staff did not survey building elevations in relation to the 100-year flood elevation. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations along with interviewing residence of observed accounts during the storm event to determine the extent of the damage to the structure. Each property within the RLA was visited and the following attributes were documented:

- Foundation type and condition;
- Relative elevation of first floor;
- Garage location and relative elevation;
- Property grading;
- Downspout discharge location; and
- Neighborhood topography and flow routes.
- High-water marks and debris mark levels

A28.5.4 Types of Foundations

The most common type of foundations within the Manzanita Avenue RLA is slab-on-grade.

A28.6 FUTURE MITIGATION MEASURES

The County continues to search for additional funding for future mitigation measures. The County further continues to encourage home owners to raise their structures above the flood hazard.

- **Responsible Office:** Department of Water Resources (Demolition) through HMGP& FMA and Property Owner (Home Elevation)
- **Timeline:** As opportunity and/or funding becomes available
- **Potential Funding:** State and/or Federal Grant

DATA ANALYSIS SUMMARY

VERDE CRUZ CREEK

AREA 28

COLLEGE OAK DRIVE

CRESTVIEW DRIVE

VERDE CRUZ CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**18**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	*3*
REPETITIVE LOSS AREA PROPERTIES	*14*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS 10
  - SLAB ON GRADE 8
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)

AREA 28

MORAGA DRIVE

VERDE CRUZ CREEK

DATA ANALYSIS SUMARY

PROPERTIES	**4**
REPETITIVE LOSS PROPERTIES	*1*
HISTORICAL LOSS PROPERTIES	
REPETITIVE LOSS AREA PROPERTIES	*3*

- EXISTING STRUCTURES (UNMITIGATED)
  - RAISED FOUNDATIONS
  - SLAB ON GRADE
- NO STRUCTURES
  - PRIVATELY OWNED

MITIGATED PROPERTIES

- ACQUSITION & DEMO
- AQUSITION – NO STRUCTURE
- ELEVATED (RAISED FOUNDATION)