EXHIBIT A

FINAL
CORRECTIVE ACTION PLAN

Presented to:
Federal Emergency Management Agency
Region IX
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Oakland, CA 94607-4052

City of Sacramento

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Executive Summary

INTRODUCTION

Effective December 8, 2008, the Flood Insurance Rate Maps (FIRMs) for the Natomas Basin were remapped by Federal Emergency Management Agency (FEMA) from a Shaded X Zone to an AE Zone after the U.S. Army Corps of Engineers (Corps) decertified the levee system protecting the Basin. The remap required mandatory flood insurance for property owners within the Basin and meant all new construction or substantial improvements to structures had to meet a 33-foot base flood elevation (BFE) requirement. In response to the Corps decertification, the Sacramento Area Flood Control Agency (SAFCA) has implemented the $680 million Natomas Levee Improvement Project (NLIP) to upgrade the levee system protecting the Natomas Basin.

In October 2009, City of Sacramento (City) staff reported potential violations of its Floodplain Management Ordinance to FEMA regarding building permits issued in North Natomas. Further follow up investigations were conducted by the City and reported to FEMA in December 2009. On February 8, 2010, the City received a letter from FEMA stating it was in violation of the Floodplain Management Ordinance and federal regulations for allowing 35 permits to be issued for residential homes in the Natomas Central subdivision that did not meet the 33-foot BFE requirement. Of these 35 permits, 10 homes were completed, 4 homes were partially constructed, and concrete foundation slabs were poured on the remaining 21 lots. Nine of the completed homes have been occupied. FEMA ordered the City to prepare a Corrective Action Plan (CAP) to remedy the violations to the maximum extent possible.

On February 23, 2010, official suspensions of work notices were posted on the slabs and unoccupied Natomas Central homes. Also, a thorough review of all building permits issued in Special Flood Hazard Areas (SFHAs) was conducted by City staff. Additional permit violations were discovered for a private garage on El Dala Lane and two fire damaged homes, which were not elevated to meet the 33-foot BFE. These additional violations have also been included in this CAP. For the purposes of this CAP, the nine occupied Natomas Central Subdivision homes and the two fire damaged homes will be referred to as the “Eleven Homes”.

Over the past several months, the City has worked closely with FEMA and taken several positive and immediate actions to resolve these violations and prevent further violations from occurring.

The City has prepared this CAP to remediate the violations to the maximum extent possible. The intent of this CAP is to go beyond remedy of the violations themselves and

implement additional mitigation measures intended to safeguard against the occurrence of similar violations in the future, reduce flood damage risk throughout the City, and to preserve the City's good standing in the National Flood Insurance Program (NFIP) and the Class 5 ranking in the Community Rating System (CRS). Preservation of the City's ranking in the CRS is critical since any downgrading could result in higher flood insurance premiums throughout the City.

Permitting Process Improvements

As part of the corrective action process, the City immediately took actions to improve the building permit process to prevent any future violations. Additional safeguards were added to the City's permitting process within SFHAs to prevent a repeat of these violations and ensure compliance with the City's Floodplain Management Ordinance. These measures include placing initial holds, which can only be released by a select group of authorized staff trained in floodplain management, on any permit applications in SFHAs, automatic substantial improvement/damage calculations, weekly oversight of all permit activity, monthly reports reviewing building permits issued in SFHAs, and more rigorous training program for development staff, including the establishment of at least one Certified Floodplain Manager in the Community Development Department.

The intent of these process improvements is to provide continual oversight and improvements to prevent future violations of NFIP and/or local regulations. To facilitate FEMA verification of compliance, the City will provide FEMA with a list of building permits issued in the SFHA anytime upon request.

Corrective Action Plan Components

The CAP is broken down into three specific components. The first component analyzes full and partial remediation alternatives for the 17 non-compliant structures and discusses the feasibility of these remediation alternatives. The second component of the CAP proposes providing privately funded flood insurance for the Eleven Homes to guarantee reconstruction of the homes and replacement of contents in the event of a flood. The final component of the plan goes beyond the subject violations by proposing implementation of additional mitigation measures to enhance flood preparedness and protect structures throughout the City.

Selected Remediation Alternatives

An engineering analysis on full and partial remediation alternatives was conducted for the 16 homes (occupied and unoccupied) and the 1 detached garage. Full remediation of these violations would require the 16 homes and the garage to be either razed, elevated approximately 14-23 feet, relocated out of the Natomas Basin, or floodproofed. Based on this analysis, the City has determined that it will pursue full remediation of the

unoccupied homes and the garage through code enforcement, but that it is not feasible to fully remediate those violations for the Eleven Homes because of the legal practicalities of forcing compliance upon the occupants of these homes. While unable to practically remediate the violations for the Eleven Homes, it is important to note that all of the structures will be considered fully remediated within a couple years upon substantial completion of the $680 million Natomas Levee Improvement Project (NLIP). According to the current NLIP schedule, the "substantial completion" threshold is expected to be met by the end of 2011. This threshold will qualify the entire Natomas Basin to be remapped to a Zone A99. Completion of the entire project is projected for 2015 and will secure a minimum 200-year level of flood protection for the Natomas Basin. The Sacramento Area Flood Control Agency (SAFCA) is diligently pursuing the project according to schedule and will be providing scheduling revisions should they become necessary as the project proceeds.

As part of this proposed CAP, consistent with the provisions of Section 1316 of the National Flood Insurance Act of 1968, the City will submit Section 1316 declarations for the Eleven Homes because of the practical, legal and engineering constraints to razing, elevating, relocating, or floodproofing the homes.

Full Remediation of the Five Unoccupied Natomas Central Homes and El Dala Garage

In order to remedy the violations to the maximum extent possible in accordance with the NFIP, The City will undertake actions, including if necessary, code enforcement to require the five unoccupied Natomas Central homes and the El Dala Garage to be fully compliant with NFIP and local requirements. These actions will result in razing of the five unoccupied homes and razing, converting to a carport or floodproofing the El Dala garage.

Section 1316 Declaration for the Eleven Homes

The City will submit a Section 1316 declaration to FEMA for the Eleven Homes. Until rescinded, the Section 1316 declaration will deny the Eleven Homes NFIP insurance and will not allow these structures to be eligible for Federal disaster aid to permanently repair or restore these structures in the event of damage cause from federally declared disasters.

A request for rescission of the Section 1316 declaration will be made once the Natomas Basin has been re-designated as Zone A99.

Flood Insurance

This CAP proposes that flood insurance be purchased for the Eleven Homes. As discussed later in this document, the developer has purchased a private insurance policy for the nine occupied Natomas Central homes and the City has purchased insurance for

the two fire damaged homes, through Lloyds of London, as part of the early implementation of this CAP. The private insurance policies cover structure and contents coverage for the Eleven Homes. The insurance policies for these homes will remain in effect until the area is remapped into an A99 flood zone and the Section 1316 declaration is rescinded.

Additional Mitigation Measures

The City will implement the following mitigation measures in addition to the remediation measures and private flood insurance for the completed homes as part of the CAP:

Enhanced Warning System and Evacuation Planning

To further enhance the City's ability to protect, warn, rescue and evacuate Natomas and other parts of the City, as part of this CAP, the City's proposes the following enhancements to its disaster warning and evacuation planning. While this effort may be driven due to events in Natomas, solutions will ultimately provide a regional benefit to the entire Operational Area.

1) Select and acquire a robust alert and notification system capable of reaching community members and internal government staff resources. The system will be utilized by the Sacramento City & County Office of Emergency Services (SacOES). This system will be able to reach the public in a variety of methods to significantly improve upon the current reverse 911 capabilities.

2) Formalize and agreement for the deployment of the Police Department's Forward Looking Infrared (FLIR) camera during flood conditions upon request of field operations. The helicopter mounted camera is cable of detecting water seepage through levees and is one of the tools used by the City to monitor levees. In addition, mounted pontoons will be considered for the helicopter to increase the safety of flying over water during storm events.

3) Develop a community-wide public education campaign and strategy to introduce and encourage public registration into the new alert system and what the public should do when alerted.

4) Specifically include special needs populations in public education and alert/notification program to include assessment of potential tools to better notify these populations.

5) Assess and inventory transportation based resources that could be employed to facilitate an evacuation.

6) Develop and implement an improved training program and required materials to

facilitate first responders in the field to better identify and describe boils and other threats to levee system for improved proactive flood flight and response.

These efforts will enhance or complete projects that SacOES is currently engaged in, planning to undertake or have identified as a need but lack resources. These efforts also will complement existing local emergency planning and response processes.

Repetitive Loss Improvements

The City will implement projects in the City to remove at least four structures from the FEMA Repetitive Loss list. This includes projects such as raising, floodproofing, or purchasing structures or constructing local drainage improvements to protect structures. In August 2010, the City submitted Notice of Intents for two projects in order to obtain grant funding to off-set these costs.

Preferred Risk Policy (PRP) Flood Insurance & Natomas Outreach Campaign

The City will perform an aggressive City outreach campaign to increase NFIP PRP policyholders by 10% throughout the City (non-Natomas residents), increase awareness in Natomas of the change in flood insurance rates for PRP holders, and increase awareness of the risks of living behind in an area protected by levees. Grant funding for these activities may be available.

Adopt Additional Floodplain Regulations

Additional floodplain development standards will be developed through a task force with the building industry, FEMA, the City, and other potential participants. The intent of this effort will be to adopt building requirements over and above State standards including measures that may include, but not be limited to refuge areas, protection of emergency generators, and raised safety facilities. Proposed standards will be recommended for adoption into the City's Floodplain Management Ordinance.

Certified Floodplain Manager

The City will have a staff member from the Community Development Department take the Certified Floodplain Manager (CFM) exam. This staff member is involved with everyday reviewing of plans and issuing of building permits in the floodplain. Upon becoming a CFM, this staff member will add to the floodplain management expertise in the City and will be better qualified to oversee and answer questions on floodplain development.

Implementation Schedule

A schedule to implement training, flood insurance, and remediation and mitigation measures is listed in the table below:

MEASURE	DATE
Mandated Training for City Staff	Annual
Initiate Full Remediation of the Five Unoccupied Homes	December 1, 2010
Initiate Full Remediation of the El Dala Garage	December 1, 2010
1316 Determinations Requests for the Eleven Homes Request 1316 Determination Notify Residents	 December 1, 2010 December 1, 2010
Natomas Levee Improvement Project • Obtain A99 designation • Submit Annual Report to FEMA	 Mid-2012 (target date) TBD
Purchase Flood Insurance	August 2010 (completed)
Enhance Warning and Evacuation Planning	November 2010 – November 2011
Repetitive Loss Improvements • Apply for grant funding • Obtain grant funding • Fund improvements • Complete improvements • Provide documentation to FEMA	August 2010 – September 2013
PRP & Natomas Outreach Campaign	October 2010 – October 2011
Adopt Additional Floodplain Regulations • Initiate Task Force • Adopt new standards	October 2010 – October 2011
Certified Floodplain Manager	August 2011

Additional Action Item

Weather Proofing Slabs

The CAP proposes allowing structure protection measures to be performed on the slabs to maximize the likelihood that they will still be viable when construction is allowed again in the Natomas Basin. For the 21 existing slabs, the builder will verify that all tendons

have been burned off and their anchorage grouted in and clean, prime, and paint all exposed hardware with a rust-inhibitive coating. Minimal landscaping will be installed to stabilize the soil moisture content and protect the integrity of the slabs. In addition, structural and geotechnical inspections will be performed on a semi-annual basis to verify that initial structural protection measures are in place, the soils continue to be adequate to support the slabs, no external factors have damaged the lots, and the integrity of the slabs and underlying soils are acceptable for construction at the time of inspection.

Introduction

In response to violations of the National Flood Insurance Program (NFIP) and the City's Floodplain Management Ordinance noted in Federal Emergency Management Agency's (FEMA) February 8, 2010 letter to Mayor Kevin Johnson, the City of Sacramento (City) has prepared a Corrective Action Plan (CAP) to remediate those violations to the maximum extent possible. The intent of the CAP is to go beyond remedy of the violations themselves and preserve the City's standing the NFIP and the Class 5 ranking in the Community Rating System (CRS).

The City has a long history of dedication to flood protection and a compliant floodplain management program. The Sacramento Area Flood Control Agency (SAFCA), of which the City is a member, was established in 1989 and is progressing with work in cooperation with the federal and state governments to provide at least a 200-year level of flood protection to the City and surrounding area. Since 1986, over $1 billion of federal, state and local funds have been allocated and are being spent to improve the flood control systems protecting the City. Included in this effort are ongoing projects in Natomas, on the American River, South Sac Steams Group and Folsom Dam. But the work is not yet complete, with further authorizations and appropriations being planned to achieve the minimum 200-year level of flood protection for the area.

The City is a community largely protected by levees and it must always be a top priority to be prepared for a flood disaster. To this end, the City has worked closely with FEMA and developed a floodplain management program that has one of the highest rankings in the CRS and through continual public education, has one of the highest percentages of federally backed flood insurance policies in the country. Because of this dedication, City property owners realize over $1.5 million in reduced flood insurance premiums annually.

The CAP is broken down into three specific components. The first component analyzes full and partial remediation alternatives for the non-compliant structures and discusses the feasibility of these remediation alternatives. The second component of the CAP proposes providing privately funded flood insurance for the nine occupied Natomas Central homes and the two fire damaged homes to provide for reconstruction of the homes and replacement of contents in the event of a flood. The final component of the plan goes beyond the subject violations by proposing implementation of additional mitigation measures to enhance flood preparedness and protect additional structures throughout the City.

Background

Effective December 8, 2008, the Flood Insurance Rate Maps (FIRMs) for the Natomas Basin were remapped by FEMA from a Shaded X Zone to an AE Zone. The remap meant all new construction or substantial improvements to structures had to meet a 33-foot Base Flood Elevation (BFE) requirement.

In late September of 2009, the City's floodplain management staff (Department of Utilities) discovered 35 permits that were issued on September 22, 2009, after the December 8, 2008 effective FIRM date, during a routine CRS recertification report to FEMA. These 35 permits were in violation of the City's Floodplain Management Ordinance and NFIP regulations.

The violations occurred when the builder requested the Community Development Department (CDD) transfer 35 building permits from 35 "original" lots to 35 "new" lots, all in the Natomas Central subdivision. The building permits for the "original" lots previously had been issued between December 12, 2006 and December 5, 2008. According to the City's Attorney Office (CAO), transferring permits from one lot to another is not authorized under the City Code.

The CDD Director informed K. Hovnanian to halt any construction on the subject structures and to not close escrows.

On October 14, 2009, City staff met with FEMA to notify them that the 35 permits had been issued in apparent violation of City and federal regulations. At that meeting, the City committed to putting immediate safeguards in place to ensure that no further permits would be issued in potential violation of City or FEMA regulations. On October 15, 2009, the then CDD Director notified K. Hovnanian that the halt to construction remained and not to close escrows.

On November 3, 2009, the CAO submitted a letter to FEMA explaining the code provisions for transferring of building permits and that transferring permits from one lot to another is not authorized under the City Code. Another letter from the CAO was submitted to FEMA on December 15, 2009, proposing that all 35 permitted homes be completed, allowed to be occupied and insured under the Zone X rating.

On February 8, 2010, FEMA responded stating that there was a violation of the City's Floodplain Management Ordinance and federal regulations, and allowing the 35 permitted dwelling units to be completed was unacceptable. FEMA's letter also stated that a CAP must be submitted by April 8, 2010, that will address the 35 construction violations and will maintain the City's good standing in the NFIP and the CRS Program.

On February 23, 2010, official suspension notices were posted at 26 of the 35 structures. The nine structures that were finaled and occupied were not served suspension notices. A sample suspension notice is in Attachment 3. Elevation Certificates were also completed

for the occupied structures, the unoccupied home, and the four partially completed houses (Attachment 2).

On March 29, 2010, the City submitted a draft CAP to remediate violations from the issuance of 35 permits in the Natomas floodplain that did not meet the 33-foot BFE. Since then, FEMA and the City have had several meetings to discuss the draft CAP and the additional information required for the final CAP. Based on these discussions, the City has conducted additional analysis and made several additions and changes to the proposed action items in this CAP.

Additional analyses included staff review of approximately 1400 building permits that were issued in a SFHA since December 8, 2008 to check for any other violations. All permit categories including tanks and minor permits (Attachment 4) were also reviewed by CDD staff. All questionable building permits were sent to Department of Utilities (DOU) staff to review for possible violations. For building permits that were for improvements to existing structures, the market value of the structure was pulled from the County Assessor's database to determine if the value of the work was more than 50% of the structure value. If the structure did not have a listed market value or the value of the work was more than 40% of the market value, DOU staff conducted further review to determine if the permit was issued in violation of the "substantial improvement" limitations of the NFIP and the floodplain ordinance. At the end of the review, a list of eight potential violations was compiled by DOU staff. Further investigation into these suspect permits found that two permits were not violations and three other permits were followed up on and the violations were remediated. The three remaining permits were violations and have been included in this CAP. This includes a detached garage on El Dala Lane and two fire damaged homes.

On July 26, 2010, FEMA submitted a letter to the City approving some of the mitigation measures in the CAP. These measures included the developer purchasing flood insurance for the nine occupied Natomas Central homes, the developer "weather proofing" the 21 concrete slabs, the establishment of a task force to develop additional floodplain development standards for the City, a public outreach campaign to increase the number of preferred risk policies within the City, and mitigation of repetitive loss properties.

On September 13, 2010, the City submitted a second draft CAP. The City had several more meetings with FEMA and came to a potential agreement on the correct actions to take for these violations, which are reflected in this final CAP.

Violations – 35 Permits

The 35 permits in violation are for new single family homes in the Natomas Central subdivision in Villages E, I, and P. These 35 permitted structures are in various stages of construction and are "fill-ins" (corner lots) in neighborhoods where houses are already constructed and occupied. See Attachment 1 for a location map of the 35 lots.

To date, 10 houses are complete (nine occupied), two houses are at stucco stage, two houses have lath/siding, and 21 houses are at foundation. Below is a list of the 35 permits and their current status:

Structure No.	***Permit No.***	***Sq. Ft.***	***Construction Status***	***Occupied?***
1	RES-0904140	2536	**Stucco**	No
2	RES-0904141	2116	**Stucco**	No
3	RES-0904142	1983	Foundation	No
4	RES-0904143	2116	Foundation	No
5	RES-0904144	1914	**Lath/siding**	No
6	RES-0904145	2116	**Lath/siding**	No
7	RES-0904146	2445	**Complete**	No
8	RES-0904147	2536	**Complete**	**Yes**
9	RES-0904148	2536	Foundation	No
10	RES-0904149	1914	Foundation	No
11	RES-0904150	1914	Foundation	No
12	RES-0904151	2116	Foundation	No
13	RES-0904152	2536	Foundation	No
14	RES-0904153	2116	Foundation	No
15	RES-0904154	1914	Foundation	No
16	RES-0904155	2536	Foundation	No
17	RES-0904156	1914	Foundation	No
18	RES-0904157	2536	Foundation	No
19	RES-0904158	2536	**Complete**	**Yes**
20	RES-0904159	1914	**Complete**	**Yes**
21	RES-0904160	2116	**Complete**	**Yes**
22	RES-0904161	1983	**Complete**	**Yes**
23	RES-0904162	2536	**Complete**	**Yes**
24	RES-0904163	1914	**Complete**	**Yes**
25	RES-0904164	2536	**Complete**	**Yes**
26	RES-0904165	2116	**Complete**	**Yes**
27	RES-0904166	2536	Foundation	No
28	RES-0904167	2116	Foundation	No
29	RES-0904168	2536	Foundation	No
30	RES-0904169	2116	Foundation	No
31	RES-0904170	1983	Foundation	No
32	RES-0904171	2116	Foundation	No
33	RES-0904172	2536	Foundation	No
34	RES-0904173	1914	Foundation	No
35	RES-0904174	2828	Foundation	No

The following are the structures that were purchased from the builder and are occupied with the close of escrow dates and estimated purchase prices based on the County and City Transfer Tax.

Structure No.	Close of Escrow	Est. Purchase Price
8	11/24/09	$302,500
19	12/4/09	$290,000
20	8/27/09	$255,000
21	9/30/09	$284,500
22	8/27/09	$249,000
23	9/29/09	$302,500
24	12/7/09	$255,000
25	11/24/09	$290,000
26	12/28/09	$255,500

Five of these houses were occupied after the City sent notices to K Hovnanian that the homes were not to be occupied.

Violation – El Dala Garage

After the 35 permit violations were discovered, the City reviewed all the building permits that were issued since the Natomas Basin was remapped to the AE Flood Zone on December 8, 2008. A building permit was discovered for a private detached multi-car garage on El Dala Lane in Natomas that was issued on December 11, 2008. The garage was not elevated or floodproofed to meet FEMA's BFE of 33 feet requirement. The garage was built by the same developer as the 35 other permit violations being addressed in this CAP.

Structure No.	*Permit No.*	*Sq. Ft.*	*Construction Status*	*Occupied?*
36	RES-0803266	1704	Complete	2 of 4 garages are occupied

The detached multi-car garage is a 4-car garage that serves four condominiums. The cost to build the garage was $41,407 according to permit records. Two of the four condominiums that share the garage are completed units. The homeowner association is the current owner of the garage. See Attachment 1 for a map of the garage.

Violations – Two Fire Damaged Homes

Building permit violations were discovered for two houses that were substantially damaged by fire and not rebuilt in compliance with the regulatory 33-foot BFE.

A permit for one of the homes (Structure 37 in table below) was issued on July 27, 2009 to repair the home. The repairs were effectively completed before the end of 2009, and the permit was finaled on July 14, 2010. To date, this house has not been reoccupied. The cost to repair the home was $143,000, which included replacing the roof, trusses, drywall, electrical, minor plumbing, and HVAC system. The assessor's value of the house was $132,458. The violation appeared to occur due to a mistake of issuing the building permit as a "minor" permit. At the time, the "FEMA floodplain warning" did

not appear in the building permit database (Accela) for minor permits even though the house was in an AE zone.

A second permit was issued for Structure 38 (see table below) on Dec 12, 2008 to repair this substantially damaged home. The permit was finaled on May 13, 2009. The cost to repair the smoke and fire damaged home was $166,354. The County assessor's value of the house was $162,515. In this case, the permit was issued by code enforcement. At the time, code enforcement issued permits were not identified as being in a floodplain when an application was opened as they are now.

Structure No.	***Permit No.***	***Sq. Ft.***	***Construction Status***	***Occupied?***
37	RES-0907944	1320	Complete	No
38	RES-0816570	1600	Complete	Yes

The City looked into issuing a post mortem variance from the City's floodplain ordinance, but it was determined that they could not meet all of the criteria for the variance. Specifically, the criteria for "the failure to grant the variance would result in exceptional hardship to the applicant" could not be met. FEMA guidelines explicitly state that a "hardship" must be something unusual and peculiar to the property and those aesthetic considerations, or possible financial social or emotional impacts to the owner do not meet the hardship criteria. The outcome of this evaluation was that it would not be an appropriate use of City discretion, in this case, to grant variances. In addition, the granting of variances would not modify the flood insurance premium rates. In the case of these two homes, the insurance premium rates are based on the flood zone in place on the date the building permit was is issued for the substantial improvements. Based on the current AE flood zone and the 33-foot BFE, NFIP flood insurance policies for these two homes would be very expensive.

For the purposes of this plan, the nine occupied Natomas Central Subdivision homes and the two fire damaged homes will be referred to as the 'Eleven Homes'.

Permitting Process Improvements

The City has implemented new procedures in the Community Development Department (CDD) and other related departments to assure compliant processing of permits and applications to prevent similar violations in the future. The old and new written procedures, flowcharts, and handouts are in Attachment 4.

The City has a database called Accela that tracks all building permit applications and issued permits using permit numbers. When a person comes in for a permit, a file is opened and a parcel number or address is entered into the database. If the property is in a floodplain, a FEMA warning message appears as a "condition", which puts a hold on the permit from being processed until it is determined if floodplain regulations apply.

In the old procedures, the "condition" could be removed by any City staff. When these 35 permit violations occurred, the "conditions" were ignored and the safeguards were compromised by staff removing the "condition", so the permits could move forward. Now, the "FEMA Hold Condition" can only be removed by a small group of authorized staff (3 CDD managers and 5 DOU staff) that is knowledgeable of with the floodplain management regulations. A reason must be written in Accela stating how the "condition" was resolved and why the hold was removed. An application for a building permit in a SHFA cannot move forward without approval from one of these individuals preventing unauthorized City staff from removing holds and conditions.

Also, the old procedures allowed City staff to change the flood zone in the computer system. This made it difficult for others doing plan review to know if the parcel was in a floodplain or not. Improvements to the system now lock the flood zone attribute and it cannot be changed by anyone. The system now only provides the ability to state if an Elevation Certificate requirement can be changed, but only the same small group of authorized staff has the right to change this requirement.

Another major change is the automation of the substantial improvement/damage 50% calculation. Before the new procedures, Floodplain Management staff relied on trained CDD staff at the public counter to determine if a proposed project met the definition of a substantial improvement. Now, the City's Accela database will automatically pull the County Assessor's value for the structure from the County's database and calculate the Substantial Improvement calculation based on the value of the work entered into Accela. If the substantial improvement calculation is greater than 40%, then a "FEMA Hold Condition" is placed on the application until an authorized DOU staff determines if the project is a substantial improvement and if the City's Floodplain Management Ordinance applies.

Yearly reports have always been run on the building permits issued and finaled within the SFHA by Floodplain Management staff as required for CRS recertification. Now, monthly reports are run on building permits. Even though the City does not expect the new procedures to allow any building permit violations through user error, it can always occur when proper procedures are not followed. In order to ensure that user and/or process errors do not occur, weekly oversight by City staff will be conducted in addition to the monthly reports until the City feels comfortable that the process is solid. The purpose of the weekly oversight will be to ensure that all processes are being effectively implemented.

Weekly oversight and monthly reports are new procedures implemented by the City to "double check" on a more frequent basis that building permits were not mistakenly issued for new construction or substantial improvement/damage projects in a SFHA. If mistakes are made, these new procedures will allow the City to stop an unauthorized project before any substantial amount of construction has been completed. This commitment by the City to enhance the oversight of the process will facilitate continual improvement to assure full compliance with NFIP and local regulations.

To facilitate verification of compliance, the City will be prepared to provide FEMA with a list of building permits issued in the SHFA anytime upon request.

Other additions to the new procedures include automatic printout of labels stating "Flood Restrictions Apply" for the permit jackets that belong at the construction sites; automatic scheduling of additional inspections requiring the Inspector to collect and review the Elevation Certificate at the "Building Under Construction" and "Finished Construction" stages; and general handouts for permit applicants on the requirements for building in a floodplain. This information can be found in more detail in Attachment 4.

A more rigorous ongoing training program has been implemented for applicable City staff in CDD and DOU. Also, training will continue to be provided anytime changes in flood zones occur on the FIRMs.

Since these violations occurred, CDD staff have become very aware of the importance of floodplain development regulations and are very cautious when issuing a building permit in a floodplain. The new CDD management team is supporting process changes and is committed to ongoing floodplain development training for staff. CDD staff is encouraged to ask questions of floodplain management staff and is at least one CDD supervisor will become a Certified Floodplain Manager (CFM).

Corrective Action Plan Components

Full Remediation Alternatives

To fully remediate the violations, the alternatives for the 16 structures and 1 garage are:

1. Purchase and raze the structures;
2. Elevate structures so that the top of the first floor is 1-foot above the BFE;
3. Relocate the structures to a non-SFHA or an area where the top of the first floor is 1-foot above the BFE; or
4. Construct the Natomas Levee Improvement Project to meet A99 criteria and receive a Letter of Map Revision from FEMA.

Additional alternatives for the El Dala garage would be to floodproof the structure or convert it to a carport, so it does not meet the definition of a structure.

These alternatives were explored through a cost/benefit analysis for the 17 permits in Attachment 8.

Purchase and Raze Structures

In this alternative, the 17 structures (16 homes + 1 garage) would have to be purchased and razed. The cost to raze a structure would include the purchase price plus the cost to relocate residents (10 structures) and remove and re-grade the structures. The relocation costs include moving costs, a relocation consultant, and possible legal costs. A 10% purchase incentive was added to the estimated purchase price of each structure. All costs were determined by experienced City staff.

Structure No.	Est. Purchase Price (+10% incentive)	Relocation Costs	Cost to Remove & Re-grade	TOTAL COST
8	$302,500 (+$30,250)	$14,000	$10,000	$356,750
19	$290,000 (+$29,000)	$14,000	$10,000	$343,000
20	$255,000 (+$25,500)	$14,000	$10,000	$304,500
21	$284,500 (+$28,450)	$14,000	$10,000	$336,950
22	$249,000 (+24,900)	$14,000	$10,000	$297,900
23	$302,500 (+30,250)	$14,000	$10,000	$356,750
24	$255,000 (+25,500)	$14,000	$10,000	$304,500
25	$290,000 (+29,000)	$14,000	$10,000	$343,000
26	$255,500 (+25,550)	$14,000	$10,000	$305,050
7	Complete/Not Occupied	$0	$10,000	$10,000
1	Stucco Only	$0	$10,000	$10,000
2	Stucco Only	$0	$10,000	$10,000
5	Lath/Siding Only	$0	$10,000	$10,000
6	Lath/Siding Only	$0	$10,000	$10,000
36	$50,000 (+$4,140)	$0	$10,000	$55,547
37	$143,000 (+$14,300)	$0	$10,000	$167,300
38	$162,000 (+$16,200)	$14,000	$10,000	$202,200
TOTAL				**$3,423,447**

Elevate Structures

In this alternative, the 16 homes (not including garage) would have to be elevated to 1-foot above the BFE in order to be in full compliance with the City's floodplain management ordinance. Before determining the cost to elevate, the City surveyed 14 homes (10 completed, 2 at lath/siding, and 2 at stucco stage) and the 2 fire damaged homes in order to complete Elevation Certificates. The Elevation Certificates and letter can be viewed in Attachment 2.

The elevations of the top of the lowest floor from the Elevation Certificates and the additional elevation needed to be in compliance with the City's Floodplain Management Ordinance are as follows:

Structure No.	***Top of Bottom Floor (Ft. NGVD 29)***	***Additional Elevation for compliance (33 ft – Elev. +1 ft.)***
1	18.40	15.60
2	18.40	15.60
5	19.48	14.52
6	18.80	15.20
7	19.46	14.54
8	19.23	14.77
19	18.85	15.15
20	18.25	15.75
21	18.40	15.60
22	18.20	15.80
23	19.30	14.70
24	19.20	14.80
25	17.60	16.40
26	18.10	15.90
36	NA	NA
37	10.85	23.15
38	12.40	21.60

Below are the estimated materials and labor costs for elevating 16 structures (elevating is not an option for the garage) plus resident relocation costs and possible legal fees. All costs were determined by experienced City staff. These costs were corroborated with FEMA's *Homeowner's Guide to Retrofitting.* See Attachment 5 for more details on labor and material costs.

Items	**Cost per Structure**	**No. of Structures**	**Estimated Cost**
Structural Design Criteria	$30,000	16	$480,000
Column Design	$45,000	16	$720,000
Wall Design	$55,000	16	$880,000
Foundation	$85,000	16	$1,360,000
Lateral Flood Force Analysis	$45,000	16	$720,000
Dwelling Raised/Attached	$15,000	16	$214,000
Permits & inspections	$500	16	$8,000
Resident Relocation Costs (10 structures only)	$10,000	10	$100,000
TOTAL	**$285,500**		**$4,508,000**

If the homes are elevated to 1-foot above the BFE, the flood insurance rates would drop from approximately $62,560 to $400 (structure coverage only with a $1000 deductible).

Relocate Structures

This alternative would require moving the Eleven Homes and the razing of the five unoccupied homes and one garage. Below are the costs for the 17 structures. These cost estimates were obtained from experienced City staff and FEMA's *Homeowner's Guide to Retrofitting.* Back up documentation is in Attachment 5.

Items (Eleven Homes)	**Cost per Home**	**Estimated Cost for Eleven Homes**
Relocating Buildings	$225,000	$2,475,000
New parcels w/ utilities	$125,000	$1,375,000
Residents relocation costs	$10,000	$110,000
Incentive to owners (10% of house value)	$28,000	$308,000
TOTAL	**$388,000**	**$4,268,000**

Adding these costs above to the costs to raze the five unoccupied structure and garage is:

Moving Eleven Homes	$4,268,000
Razing 5 Homes & Garage	$60,000
TOTAL	**$4,328,000**

Natomas Levee Improvement Project

The violations will be fully remediated when the Natomas Levee Improvement Project (NLIP) has repaired enough of the levees to meet the A99 criteria and FEMA issues a Letter of Map Revision for the Natomas Basin.

SAFCA is currently the lead agency on the NLIP. SAFCA will remain the lead until the NLIP is far enough along to meet the A99 criteria. The current NLIP schedule anticipates that the requirements for the FEMA's A99 Zone flood insurance rate will be met by the end of 2011 and the remapping could occur by mid-2012. The Army Corps of Engineers (Corps) will become the NLIP lead agency once the A99 criteria is met and will continue with the project until 100-year and 200-year levels flood protection are achieved. The anticipated schedule for reaching a 100-year level and remapping the Natomas Basin to an X Zone is 2015. Attachment 6 contains a map showing the work and current schedule. There is no guarantee that the current NLIP schedule will not slip, but SAFCA is diligently pursuing the project according to schedule.

The cost to repair the levees is estimated at $ 350 million to meet the A99 criteria and $680 million to reach 200-year flood protection.

On behalf of the City, SAFCA will submit an annual report to FEMA with the status of the NLIP until the Natomas Basin is re-designated as Zone A99.

Partial Remediation Alternatives

Before the City could determine if a partial remediation alternative by floodproofing is feasible for the nine occupied Natomas Central homes and the two fire damaged homes, the City looked at past levee break scenarios and hired a consultant to model further levee break scenarios near the homes. A structural analysis was also performed to calculate the structural integrity of the houses in the event that they are subjected to several feet of flood water.

Levee Break Scenarios

In 2006, the City and County of Sacramento created Rescue and Evacuation Maps (levee break scenarios) for 18 hypothetical levee failures scenarios as part of the City's Comprehensive Flood Management Plan. This included five scenarios for the Natomas Basin. These maps help prepare for and protect citizens from potential loss of life and property in a major flood event.

After meeting with FEMA to discuss the draft CAP, the City hired a consultant in April 2010 to conduct a more detailed hydraulic analysis of levee break scenarios near the Eleven Homes using data and modeling techniques that were not available when the original Rescue and Evacuation Maps were created in 2006. Two levee break scenarios on the Sacramento River were modeled to determine flood depths. See Attachment 7. These scenarios are not the "worst-case scenario" nor were they intended to supersede FEMA's BFE for Natomas. The information from these model runs are only for the specific purposes of this CAP.

Out of the two levee break scenarios modeled, the results showed a maximum flood elevation of about 24.0 feet, which results in flood depths at the Eleven Homes of 4.67 to 13.15 feet. The flood depths at the Eleven Homes are shown below.

Structure No.	***Top of Bottom Floor (Ft. NGVD 29)***	***Flood Depths (24.0 ft – Elevation)***
8	19.23	4.77
19	18.85	5.15
20	18.25	5.75
21	18.40	5.60
22	18.20	5.80
23	19.30	4.67
24	19.20	4.77
25	17.60	6.40
26	18.10	5.90
36	NA	NA
37	10.85	13.15
38	12.40	11.60

Structural Engineering Analysis

As further follow up to the draft CAP, the City hired a Structural Engineer to calculate the structural integrity of the Natomas Central completed houses in the event that they are subjected to several feet depth of flood water. The analysis focused on three areas of possible failure: 1) buoyancy of the entire structure, including the foundation, 2) separation of the structure from the foundation and resultant buoyancy of the separated structure, and 3) failure of individual elements, studs, nailing and stucco, from hydrostatic pressure.

The results show that the structures cannot be floodproofed to withstand even two feet of inundation by flood water because of the probable failure of the stucco. See Attachment 9 for the full report.

Floodproofing the Eleven Homes

Based on the information from the additional analysis, City staff researched different floodproofing methods to protect the Eleven Homes from flooding to the maximum extent possible. Three basics forms of floodproofing evaluated were: sealants and shields, permanent flood barriers, and temporary flood barriers.

The first method would use sealant on the exterior walls and temporary shields to cover the openings such as doors and windows. However, the structural analysis determined that the maximum depth of flooding that the homes could withstand would be less than two feet.

The second alternative evaluated was permanent flood walls around each of the Eleven Homes. A flood wall can be constructed of concrete, masonry, or a combination of both. The openings such as driveways would require a temporary metal shield.

The third alternative is a temporary flood barrier known as "Flood Wall", which is a water-filled flood barrier. These barriers are 4.59 feet tall and 7.22 wide and will protect structures from up to 4 feet of flood water before leakage occurs. The product has been tested by U.S. Army Corps of Engineers. "Flood Wall" makes a product that will withstand 5 feet of water, but these larger barriers are too wide (10.8 feet) to fit between houses and their weight would make quick deployment impracticable.

The estimated costs for these floodproofing alternatives for the Eleven Homes are listed below. The costs for the first two alternatives were based on FEMA's *Homeowner's Guide to Retrofitting* (Attachment 5). The cost of the third alternative was based on cost estimates from the "Flood Wall" manufacturer/vendor. The costs were based on averages. The assumed averages are a first floor area of 945 square feet and a perimeter of 125 feet. A flood depth of 4 feet will be used to compare prices.

Dry-floodproofing Technique	Cost per linear ft. (height of 4 feet)	Linear ft. per structure	Ave. Cost per structure	Total cost for 11 structures
Alternative 1: Sealant & Shields				
Sealant (epoxy or polyurethane clear coat)	$28	125	$3,500	$38,500
Wood Shields (2 doors & 1 windows per structure)	$156	9	$1,404	$15,444
Metal Shields (1 door & 1 window)	$500	10	$5,000	$55,000
TOTAL (+20% Design & Construction Costs)			**$11,885**	**$108,944**
Alternative 2: Floodwall				
Floodwall surrounding structure	$212	147	$31,164	$342,804
Metal shield for driveway	$500	12	$6,000	$66,000
Drainage line around structure	$40	125	$5,000	$55,000
Sump pump			$1,800	$19,800
TOTAL (+20% Design & Construction Costs)			**$43,964**	**$483,604**
Alternative 3: Temporary Flood Barriers				
Flood Walls	$159	162	$25,755	$283,310
Sump pumps (7 pumps at $1,800 each)			$1,145	$12,600
Generators (7 at $1,000 each)			$635	$7,000
Accessories			$455	$5,000
Training			$227	$2,500
TOTAL			**$28,217**	**$310,410**

Discussion of Remediation Alternatives

Since it will be at least a couple years until the progress on the NLIP can meet the A99 criteria, the NLIP is not a feasible remediation option at this time.

The other three full remediation measures considered would be very costly, time consuming, aesthetically awkward, and logistically challenging. However, these considerations are not, in and of themselves, compelling reasons not to employ any one of them to provide full remediation. Rather, the City proposes not to employ any of these full remediation measures for the Eleven Homes because of the upheaval and disruption that they would cause for the families residing in these homes and because of the legal practicalities of pursuing them. Under the NFIP, remedying a violation means to bring the structure into full or partial compliance with floodplain construction requirements, or, if this is not possible, to reduce the impacts of the fact that it is non-compliant.[1] Ways that impacts may be reduced include protecting the structure from flood damages, implementing the enforcement provisions of the floodplain ordinance or otherwise deterring future similar violations, or reducing federal liabilities with regard to the structure.

[1] Remedying to the maximum extent possible means to the most effective level of flood loss reduction attainable given practical and legal constraints.

Based on the levee break results and the results of the structural analysis that determined the homes would withstand less than two feet of standing water, the dry floodproofing option would provide minimal flood protection and not meet the flood depths required in the table above. Though probably physically possible, the construction of permanent flood walls around each of the Eleven Homes would present many practical difficulties.

The portable barriers, while feasible, do not offer protection from the likely flood scenario modeled and thus, do not constitute remediation to the maximum extent possible. As an alternative, the City proposes investing in improvements to the flood preparedness, warning and evacuation tools employed by the City/County Emergency Operations Center to enhance the ability to mobilize emergency evacuations and minimize flood damages in North Natomas and the entire City. This enhancement will be explained later in this plan.

Based on the previous discussion, the City proposes to pursue full remediation through Code Enforcement, if necessary, for the five unoccupied homes and the El Dala garage. The City also finds that it is not feasible, nor desirable to pursue full remediation through razing, elevating or relocating the Eleven Homes. Rather, the City cites that the Eleven Homes will be fully remediated upon the remapping of the Natomas Basin into an A99 zone and in the interim period the City proposes to submit a Section 1316 declaration to FEMA, arrange for the purchase of non-FEMA flood insurance and engage in additional mitigation measures to reduce flood risk throughout the City.

1316 Declaration for Eleven Homes

The City will submit a Section 1316 declaration to FEMA for the Eleven Homes. The Section 1316 determinations will deny the Eleven Homes of NFIP insurance and make these structures ineligible for federal disaster aid in the event of damaged from federally declared disasters.

A request for rescission of the Section 1316 declaration will be made once the Natomas Basin has been re-designated as Zone A99.

Flood Insurance

With the proposed Section 1316 determinations, the homes will still exist and remain occupied and will require flood insurance, therefore, another important component of this CAP will be flood insurance for the Eleven Homes. The City has looked at three options to provide for flood insurance:

1. NFIP AE Flood Zone Insurance;
2. Private flood insurance; and
3. Reserve funds to cover potential flood damages.

The first option would be the most expensive option. According to FEMA, the NFIP AE flood insurance annual premium for these homes would be approximately $87,500 per home for structure and contents coverage with a $1,000 deductible or approximately $65,685 per home for structure and contents coverage with a $5,000 deductible.

The second option is to provide flood insurance for the Eleven Homes through a private insurance company and assure the policies are kept in place until the Natomas Basin is remapped to an A99 flood zone.

The third option is to cover the cost of the flood damage through a reserve fund. This would entail, for example, setting up an escrow account or a letter of credit to cover insurance limits. This unique arrangement could present challenges that would need to be worked through with the mortgage companies and homeowners.

The City and the builder have agreed that the best option to solve this insurance issue is having the builder take out private insurance through a Lloyds of London for the nine occupied Natomas Central homes. The City covers the private flood insurance for the two fire damaged homes. This insurance has been purchased and will remain in place until the Natomas Basin is remapped into an A99 flood zone.

Additional Mitigation Alternatives

The City is also proposing the following mitigation measures in addition to the floodproofing measures and private insurance for the completed homes as part of the CAP:

1. Expand Warning System and Evacuation Plan;
2. Repetitive Loss Improvements;
3. Preferred Risk Policy Campaign/Goals & Natomas Basin Outreach Program;
4. Adopting Additional Floodplain Management Regulations; and
5. Certified Floodplain Manager in the Community Development Department.

Expand Warning System and Evacuation Plan

To further enhance monitoring of the levee systems protecting Natomas and other parts of the City, as part of this CAP, the City's proposes the following enhancements to its disaster warning and evacuation planning. While this effort may be driven due to events in Natomas, solutions will ultimately provide a regional benefit to the entire Operational Area.

1) Select and acquire a robust alert and notification system capable of reaching community members and internal government staff resources. The system will be utilized by the Sacramento City & County Office of Emergency Services (SacOES). This system will be able to reach the public in a variety of methods to significantly improve upon the current reverse 911 capabilities.

2) Formalize an agreement for the deployment of the Police Department's Forward Looking Infrared (FLIR) camera during flood conditions upon request of field operations. The helicopter mounted camera is cable of detecting water seepage through levees and is one of the tools used by the City to monitor levees. In addition, mounted pontoons will be considered for the helicopter to increase the safety of flying over water during storm events.

3) Develop a community-wide public education campaign and strategy to introduce and encourage public registration into the new alert system and what the public should do when alerted.

4) Specifically include special needs populations in public education and alert/notification program to include assessment of potential tools to better notify these populations.

5) Assess and inventory transportation based resources that could be employed to facilitate an evacuation.

6) Develop and implement an improved training program and required materials to facilitate first responders in the field to better identify and describe boils and other threats to levee system for improved proactive flood flight and response.

These efforts will enhance or complete projects that SacOES is currently engaged in, planning to undertake or have identified as a need but lack resources. These efforts also will complement existing local emergency planning and response processes.

Repetitive Loss Improvements

The City currently has 45 repetitive loss properties. Documentation to remove 14 of these 45 properties was provided to FEMA in October 2009. Projects have been identified that will resolve the flooding for some of the remaining 31 repetitive loss structures. These include projects such as raising, floodproofing, or purchasing the structure or constructing local drainage projects to protect structures. The City's goal is to remove at least 4 (13%) of the remaining 31 repetitive loss properties from the list within the next three years (by September 2013).

FEMA has grant money available for these types of projects through the California Emergency Management Agency (CalEMA). Projects for these repetitive loss properties

could fall under a few grant programs such as the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) Pre-Disaster Mitigation (PDM), Repetitive Flood Claims (RFC), and Severe Repetitive Loss (SRL) programs. The grants offered require a 10-25% local cost share.

The following list includes potential projects that could protect these structures from future flooding, so that they can be removed from the repetitive loss list:

Repetitive Loss Address	**Potential Projects**
2030 20th Avenue	Three of these properties are individual structures within the same apartment complex. All four properties are in a low-lying area with an undersized drainage system. The drainage system needs to be upgraded or the structures need to be elevated.
2036 20th Avenue	
2040 20th Avenue	
2044 20th Avenue	
6711 37th Avenue	Flooding from adjacent vacant lot behind property. The pipe in the area has been upsized, but a detention basin is still needed. The structure could possibly be elevated also.
3503 Binghampton	Water seeps through landscaping into sunken living room. Need to elevate living room.
3331 E. Curtis Drive	Internal drainage in this area is undersized. Construct the Curtis Park Regional Storage Project to improve drainage.
5641 Johns Drive	Trunk pipeline is inadequate. Construction of a new detention basin at the Sacramento Executive Airport just south of James Mangan Park. Increasing the pumping capacity at Sump 26 and upsizing the trunk pipeline would also help with drainage in this area.
661 Las Palmas Avenue (Severe RL Property)	Richardson Village Park Detention Basin was constructed to reduce the flooding in the area. The lateral needs replacing along La Palmas or the structures need to be elevated.
729 Las Palmas Avenue	
5856 Ortega Street	The drainage system is under sized in this area. The intersection of Ortega Street and McMahon Drive is subject to frequent flooding. Upsize the McMahon Drive lateral and install a new bypass pipeline at the east end of McMahon Drive, which connects to Basin 8 trunk.
530 Q Street	This area has an undersized drainage system. Increase the storm drainage mains to 54-inch in this area.
2222 X Street	Structure is in low lying area. Elevate structure.

In August 2010, the City submitted Notice of Intents for grant funding to off-set these costs. The next step is to submit full applications to CalEMA for funding and to contact the homeowners of the repetitive loss structures to determine their interest in participating in the grant program.

Preferred Risk Policy & Natomas Basin Outreach Campaign

In addition to other mitigation activities, the City proposes to perform an aggressive outreach campaign that would run from October of 2010 through October of 2011. The goals of the campaign would be to:

- Increase NFIP PRP policyholders by 10% throughout the City (non-Natomas residents);
- Increase awareness in Natomas of the change in flood insurance rates for PRP holders; and
- Increase awareness of the risks of living behind in an area protected by levees.

The outreach would go well beyond the City's basic activities of bill stuffers explaining flood risk and flood insurance, letters for repetitive loss properties (includes copy of bill stuffer), and letters for SFHAs (includes copy of bill stuffer).

The following additional activities are proposed:

Residential: Citywide

- Participate in Emergency Preparedness/Flood Insurance Information Meetings with the City's Department of Parks and Recreation Neighborhood Services Division, SacOES, SAFCA, Sacramento Police and Sacramento Fire Departments
- TV public service announcement
- Transit Advertising
- Link on SacramentoReady.org to promote Flood Insurance as a necessary step in preparing for emergencies
- Static ad on websites linking to DOU page on Citywide flood risk

Residential: Natomas

- Participate in Emergency Preparedness/Flood Insurance Information Meetings with the City's Department of Parks and Recreation Neighborhood Services Division, SacOES, SAFCA, Sacramento Police and Sacramento Fire Departments
- Static ad on Natomasbuzz.com linking to DOU page on Natomas flood risk
- Sponsor Safely Out Packets for 25% of Natomas households and work with Councilmember's office and CERT volunteers to distribute in the community

Adopt Additional Floodplain Regulations

Another mitigation measure that complements the City's and FEMA's development standards and focuses on public safety is the adoption of additional floodplain management regulations requiring refuge areas, protection of emergency generators, raised safety facilities, exit locations, and evacuation planning.

The State, through Senate Bill 5 (SB 5), signed into law in October 2007, has updated the California Building Standards Code to require additional floodplain management regulations for areas where flood levels are anticipated to exceed three feet for a 200-year flood event. These requirements include:

- Refuge areas with exits (e.g., second-floor areas with windows or balconies)
- Exit locations when the way out is in an extraordinary location for persons with disabilities (e.g., a roof hatch)
- Evacuation points/routes for transport to safety

The concept of refuge areas is based on providing a temporary safe haven for residents in the event of a catastrophic flood emergency until they can be rescued. The sole purpose is to prevent drowning and loss of life. Refuge areas include locations within immediate walking distance of residents or workers that are above the highest expected flood depths. Building roofs, accessible attics, upper story floors, high ground, and levees are all potential refuge areas and exit locations.

In conjunction with the State Standards above, additional floodplain development standards will be developed through a task force with the building industry, FEMA, the City, and other potential participants. The intent of this effort will be to adopt building requirements over and above State standards including, but not be limited to refuge areas, protection of emergency generators, and raised safety facilities. Proposed standards will be recommended for adoption into the City's Floodplain Management Ordinance.

Certified Floodplain Manager

The City will have a staff member from the CDD take the Certified Floodplain Manager (CFM) exam. This staff member is involved with everyday activities with reviewing plans and issuing building permits in the floodplain. This staff member can be in the same department and oversee and answer questions on floodplain development.

Summary of Selected Alternatives & Implementation Schedule

The alternatives discussed in this report were evaluated, and a cost/benefit analysis was conducted by City staff (Attachment 8). Based on the results of this analysis, the City proposes to:

- pursue full-remediation of the five unoccupied homes and the El Dala garage;
- submit a 1316 declaration to FEMA for the Eleven Homes;
- provide flood insurance for Eleven Homes;
- pursue full remediation by continuing to fully support the SAFCA NLIP; and
- perform additional mitigation measures.

Implementation Schedule

A schedule to implement training, flood insurance, and remediation and mitigation measures is listed in the table below:

MEASURE	**DATE**
Mandated Training for City Staff	Annual
Initiate Full Remediation of the Five Unoccupied Homes	December 1, 2010
Initiate Full Remediation of the El Dala Garage	December 1, 2010
1316 Determinations Requests for the Eleven Homes Request 1316 Determination Notify Residents	 December 1, 2010 December 1, 2010
Natomas Levee Improvement Project • Obtain A99 designation • Submit Annual Report to FEMA	 Mid-2012 (target date) TBD
Purchase Flood Insurance	August 2010 (completed)
Enhance Warning and Evacuation Planning	November 2010 – November 2011
Repetitive Loss Improvements • Apply for grant funding • Obtain grant funding • Fund improvements • Complete improvements • Provide documentation to FEMA	August 2010 – September 2013
PRP & Natomas Outreach Campaign	October 2010 – October 2011

Adopt Additional Floodplain Regulations • Initiate Task Force • Adopt new standards	October 2010 – October 2011
Certified Floodplain Manager	August 2011

Additional Action Item

Weather Proofing Slabs

The CAP proposes allowing structure protection measures to be performed on the slabs to maximize the likelihood that they will still be viable when construction is allowed again in the Natomas Basin. For the 21 existing slabs, the builder will verify that all tendons have been burned off and their anchorage grouted in and clean, prime, and paint all exposed hardware with a rust-inhibitive coating. Minimal landscaping will be installed to stabilize the soil moisture content and protect the integrity of the slabs. In addition, structural and geotechnical inspections will be performed on a semi-annual basis to verify that initial structural protection measures are in place, the soils continue to be adequate to support the slabs, no external factors have damaged the lots, and the integrity of the slabs and underlying soils are acceptable for construction at the time of inspection.