

TO: Parks and Recreation Advisory Board
FROM: Jeff Dillon, Director, Parks and Recreation Department
SUBJECT: Matters from the Department
DATE: August 25, 2014



A. IPM Program Update: Achievements, Emerging Issues and Next Steps (Rella Abernathy - Verbal Update)

B. Service Analysis Update

Earlier this year, PRAB members and staff developed an initial version of the [Recreation Priority Index \(RPI\)](#). The RPI categorizes services based upon organizational mission, target population served, service outcomes, contributions to the sustainability framework, partnership value and redundancy with services provided by others in the community. Services are categorized as community, recreation or exclusive. The purpose of this work is to ensure recreation operations are aligned with master plan goals, balance the recreation services portfolio to serve community values, and appropriately apply available subsidies.

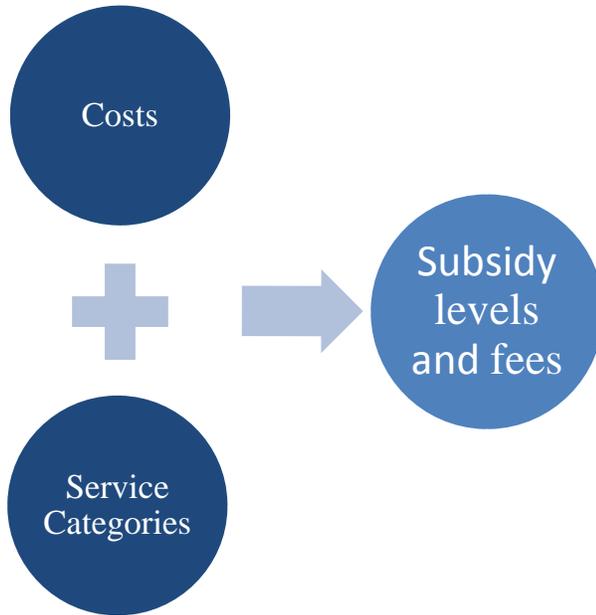
Initial categorization of all department services is now complete. Services were scored using 2013 expense and participation data. In addition, services were scored as the program was designed and delivered. For example, while many programs attract participants from diverse backgrounds, a program only received points for “encourages diversity” if it was specifically planned and implemented in a way that celebrates differences and targets participation from different cultures.

Completing an initial round of scoring has proven to be very instructive and highlighted areas where programming can be adjusted to more clearly align with community values and fulfill the policy direction of the master plan. For example, by ensuring that there is a health education component in instructor-led services, the impact on the community’s health and well-being can be increased. To address these findings, this fall, staff will be trained in a standard method for program planning, delivery and evaluation to ensure that all programs have the capacity to influence and impact the goals of the master plan.

Initial findings have also highlighted where business practices can be adjusted to facilitate becoming a more “data-driven” organization. For example, the manner by which attendance is recorded can be made more consistent allowing more accurate comparisons between registered and non-registered services. These adjustments to business practices will be made as the next registration sessions are prepared in the recreation software and standard participation tracking practices will be implemented.

There are two branches of work stemming from RPI implementation. The first revolves around determining the appropriate mix of recreation services and subsidy levels to align with master plan financial sustainability goals. Using the department’s 3-step approach, service costs will be linked with service categorization to determine current subsidy levels. In September, staff will provide the PRAB with an overview of the categorization and subsidy levels of the department’s current service portfolio. Staff will also present a decision-making framework that the department proposes to use based on the findings of the RPI scoring.

RPI Implementation Strategy:



While fee increases for some programs are possible, a working group is being established to determine options for improving and growing the department’s financial aid program to address where fees may be a barrier to participation.

The second branch of work revolves around program planning, delivery and evaluation and aligns with the policy direction of the Community Health and Wellness theme of the master plan. In the fall, staff will implement standard methods for program development and delivery to ensure that all services have the capacity to influence and impact the master plan.

C. South Boulder Creek Flood Mitigation Planning Study

Please see the attached memorandum provided by the Public Works Department.

**CITY OF BOULDER
WATER RESOURCES ADVISORY BOARD
INFORMATION ITEM**

MEETING DATE: July 21, 2014

AGENDA TITLE: Information Item – South Boulder Creek Flood Mitigation Planning Study Status Update

FROM:

Jeff Arthur, Director of Public Works for Utilities
Bob Harberg, Principal Engineer - Utilities
Annie Noble, Flood and Greenways Engineering Coordinator
Kurt Bauer, Engineering Project Manager

EXECUTIVE SUMMARY

The purpose of this memorandum is to provide a general summary of the history and progress made to date on the South Boulder Creek flood mitigation planning study. This mitigation plan was initiated in 2010 after the floodplain mapping was updated in 2007. Since the study was initiated, multiple flood mitigation alternatives have been evaluated to address flooding associated with South Boulder Creek. A consulting recommendation has been developed and is described in this memorandum. A more detailed description of the recommended alternative will be presented and a request for a motion from the WRAB will be made at a meeting scheduled on August 18. **Attachment A** shows the location of the study area.

Hydraulic modeling indicates that a major storm event will cause water from South Boulder Creek to overtop US36 near Table Mesa Drive and result in flooding through the West Valley (area generally located west of South Boulder Creek, north of US36, east of Foothills Parkway and south of Arapahoe Avenue). The September 2013 flood event did overtop US36, causing an estimated \$45 million in flood damage. A flood mitigation planning study began in early 2010 with a focus on developing and evaluating alternatives designed to mitigate flood hazards affecting structures and areas along South Boulder Creek and the West Valley within the current incorporated city limits.

Conceptual alternatives were initially developed by problem area in a matrix format that included a wide range of mitigation measures. These concepts were then presented at a public meeting and subsequently combined into 15 Alternative Plans. These alternatives were

evaluated and nine Best Alternative Plans were developed and presented at a second public meeting and to WRAB in late 2010.

Four of the nine Best Alternative Plans were further refined and analyzed and the consultant team selected an engineering recommendation. Major components of the consultant recommended alternative include construction of a regional stormwater detention facility south of US36, a smaller detention facility at Manhattan Middle School and one at Flatirons Golf Course.

The recommended alternative would provide significant flood protection within the West Valley area, including eliminating the 100-year floodplain designation that currently affects approximately 700 structures. The estimated cost of the alternative is approximately \$46 million, but the project could be constructed in three phases. Construction of the project would require numerous permits, agreements with the University of Colorado and Boulder Valley School District, disposal of Open Space and Mountain Park land and would be regulated by the State as a high hazard dam. Construction of the regional detention facility at US36 would result in significant impacts to wetlands, habitat for threatened and endangered species and other environmental and aesthetic resources.

BACKGROUND

In the mid-1990s the University of Colorado (CU) was evaluating the purchase of the South Campus located at US36 and Table Mesa. During this evaluation, inaccuracies in the 1986 regulatory flood mapping were discovered. In 1997, the city, Boulder County, the Urban Drainage and Flood Control District (UDFCD) and the Colorado Water Conservation Board commissioned a flood study to verify the results of the CU study and to compare the results to the adopted floodplain mapping.

The 1997 study was not approved and a new flood study, using more advanced hydraulic modeling and hydrology techniques, was commissioned by the city and the UDFCD in 2002. The 2002 study included a Climatology and Hydrology Report and was reviewed by an independent review panel, citizen advisory group and a hydrology advisory panel. The study was completed in 2007 and resulted in a new flood map and formally identified the flood hazard that would impact the West Valley neighborhoods west of South Boulder Creek and north of US 36. The updated floodplain mapping determined that about 700 structures (with a total of approximately 1,200 dwelling units) are located in the 100-year floodplain. The majority of these structures are located within existing developed areas of the city within the West Valley area. A Risk Assessment completed in June 2009 estimated a 100-year event would result in \$215 million in property damages.

South Boulder Creek has flooded in the past, including in 1938, 1950s, 1969 and in 2013. The flood events in 1969 and 2013 resulted in overtopping of US36 and substantial flooding in the West Valley. South Boulder Creek had the greatest reported property damage from the 2013 flood of all the city's 15 major drainageways at \$45.3 million. The 2013 flood is estimated to have resulted in flows above a 50-year event but below the 100-year flow used in the Risk Assessment to estimate damages.

ANALYSIS

The South Boulder Creek Flood Mitigation Planning Study began in early 2010 and is being funded by the city and the UDFCD. A consulting team from CH2MHill was selected to perform the study. The study is focused on developing and evaluating alternatives designed to mitigate flood hazards affecting structures and areas within the current incorporated city limits, primarily within the West Valley area (**Attachment A**).

Conceptual alternatives were initially developed by problem area in a matrix format that included a wide range of mitigation measures. These concepts were then presented at a public meeting held in March 2010 and subsequently screened from input received at the meeting, hydraulic modeling and field visits. The concepts were then combined into 15 Alternative Plans. These alternatives were evaluated and nine Best Alternative Plans were developed and presented at a second public meeting in September 2010.

The nine conceptual alternatives were presented to WRAB in December 2010. Staff recommended five alternatives be selected for further refinement and analysis. WRAB motioned to move forward with four of the nine alternatives (a pipe alternative was eliminated) including:

1. Maintaining the status quo;
2. High hazard and critical facility protection;
3. Regional detention at US36 with downstream improvements; and
4. Distributed regional detention.

Based on further analysis of the four alternatives, the consultant team has selected the Regional detention at US36 with downstream improvements as the engineering recommendation. Four sub-alternatives were developed for the regional detention at US36 facility:

1. A wall centered on the US36 median barrier;
2. A detention facility located on some of the current US36 expansion project right-of-way;
3. A detention facility located outside of the current US36 expansion project; and
4. A detention facility located outside of the ultimate configuration of the future US36 corridor.

The US36 median barrier alternative was found to be technically infeasible and was eliminated from further consideration. A traditional earthen berm, concrete wall or combination could be used to contain the storm water for the regional detention at US36 facility.

The engineering recommended alternative includes the following major components:

- An approximately 75-acre (560 acre-feet of storage) regional flood detention facility located primarily on University of Colorado South Campus land (the concept does not impact the South Campus concept development plan) with a portion of the berm located on Open Space land.
- A 25 acre-feet stormwater storage facility at Manhattan Middle School, a nine acre-feet detention storage area at the intersection of Foothills Parkway and Baseline Road and placing a segment of Dry Creek No. 2 Ditch in a 72-inch diameter pipe. It should be noted that the city recently commissioned an analysis of the potential for detention on the

Hogan Pancost property as an alternative to or in addition to the Manhattan Middle School detention facility. This analysis should be available in August.

- A 58 acre-feet stormwater detention facility at Flatirons Golf Course by constructing earthen berms near Arapahoe Avenue.

The alternative would provide 100-year flood protection within the West Valley area at an estimated cost of approximately \$46 million. The mitigation project could be constructed in up to three separate phases:

1. Regional detention facility at US36 (\$23 million);
2. West Valley improvements (\$11 million); and
3. Arapahoe Avenue detention (\$12 million).

Attachments B-D graphically present the major components of the engineering recommendation.

Construction of the project would eliminate the overtopping of US36 and subsequent flooding in the West Valley during a major storm event, significantly reducing the flood risk including eliminating the 100-year floodplain designation that currently affects approximately 700 structures. Construction of the project would require numerous permits, agreements with the University of Colorado and Boulder Valley School District, disposal of Open Space and Mountain Park land and be regulated by the State as a high hazard dam. Construction of the regional detention at US36 facility would result in significant impacts to wetlands, habitat for threatened and endangered species (Preble's meadow jumping mouse, Ute Ladies'-tresses orchid) and other environmental and aesthetic resources. A 100-year event would result in inundation of approximately 37 acres of city Open Space lands for up to a 72-hour period of time.

The project website located at www.southbouldercreek.com provides additional information on the flood mitigation planning study along with a draft report. Information about the city's floodplain management program, floodplain regulations and flood insurance including how mitigation planning fits into the city's floodplain management process can be found at: [LINK](#).

NEXT STEPS

A more detailed description of the recommended alternative will be presented and a request for a motion made at the August 18 WRAB meeting. An open house will be conducted to present the engineering flood mitigation recommendation on August 18 prior to the WRAB meeting. A presentation to the Open Space and Mountain Parks Board of Trustees will be conducted to discuss the potential environmental impacts and conceptual mitigation plan but has yet to be scheduled. A study session with City Council is scheduled for September 30.

ATTACHMENTS

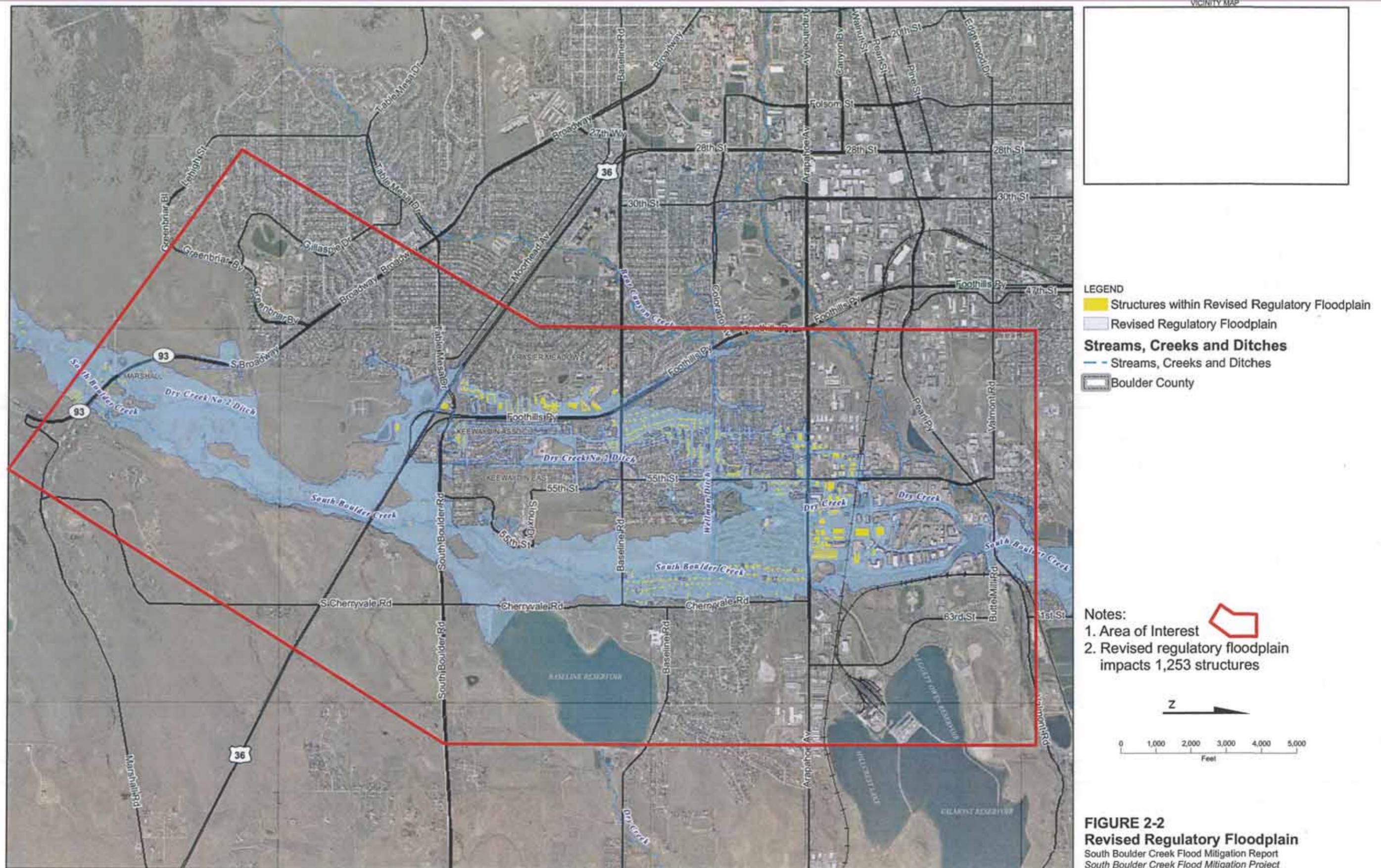
Attachment A – Study Area

Attachment B – Recommended engineering alternative overview

Attachment C – Conceptual plan of the regional detention at US36 facility

Attachment D – Concept plan of the Manhattan Middle School detention facility

Attachment E – Concept plan of the Arapahoe Avenue detention facility



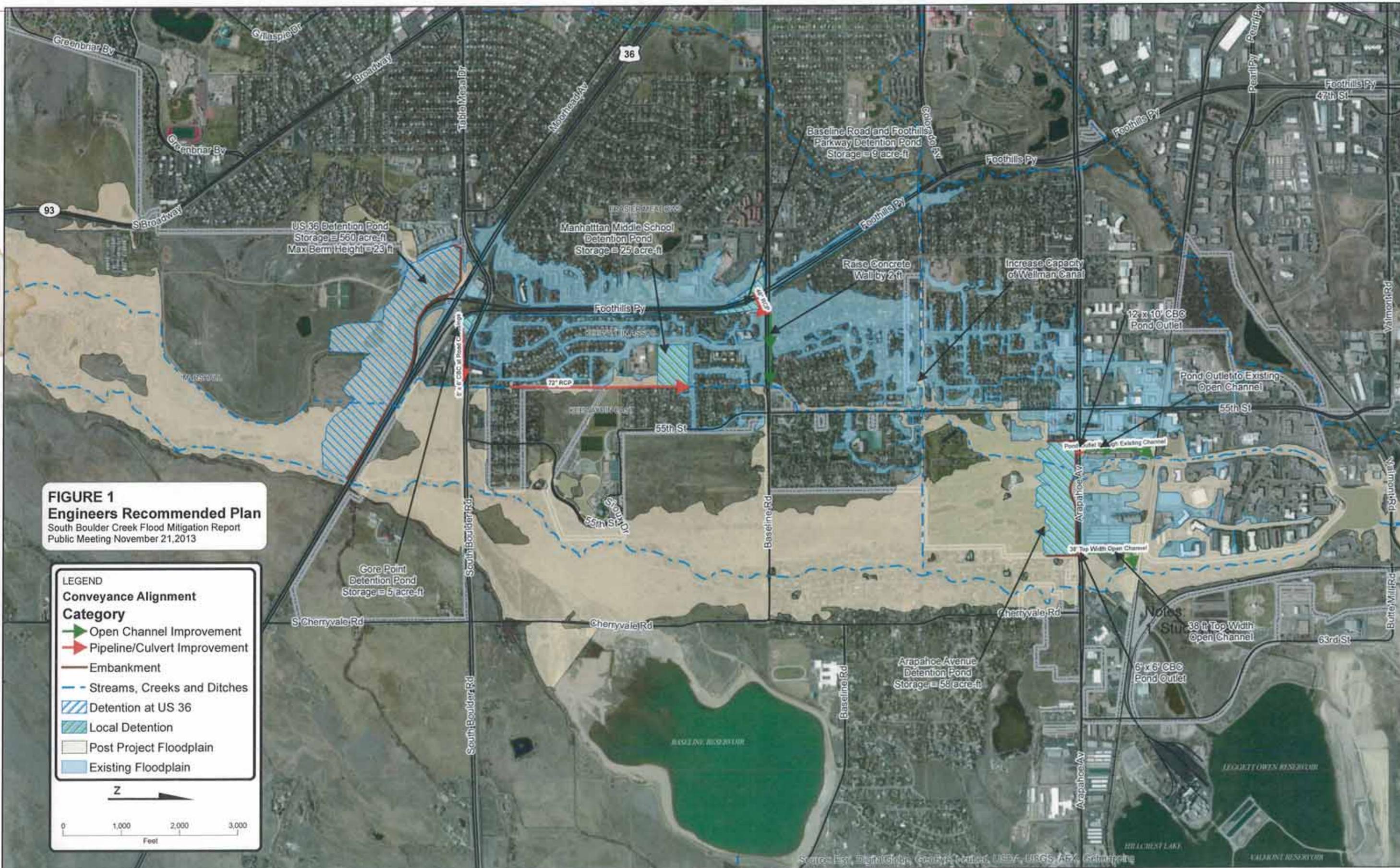


FIGURE 1
Engineers Recommended Plan
South Boulder Creek Flood Mitigation Report
Public Meeting November 21, 2013



- LEGEND**
- Streams, Creeks and Ditches
 - Main Road
 - Proposed Grading at US-36
 - Existing 5' Contours
 - Detention Pond Limits
 - Fill by Others

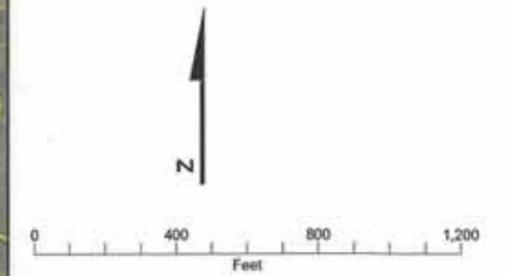


FIGURE 9-2
US-36 Detention
 South Boulder Creek Flood Mitigation Report

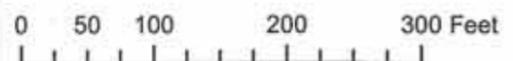
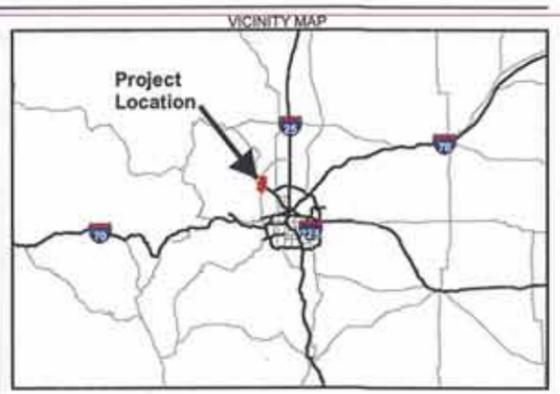
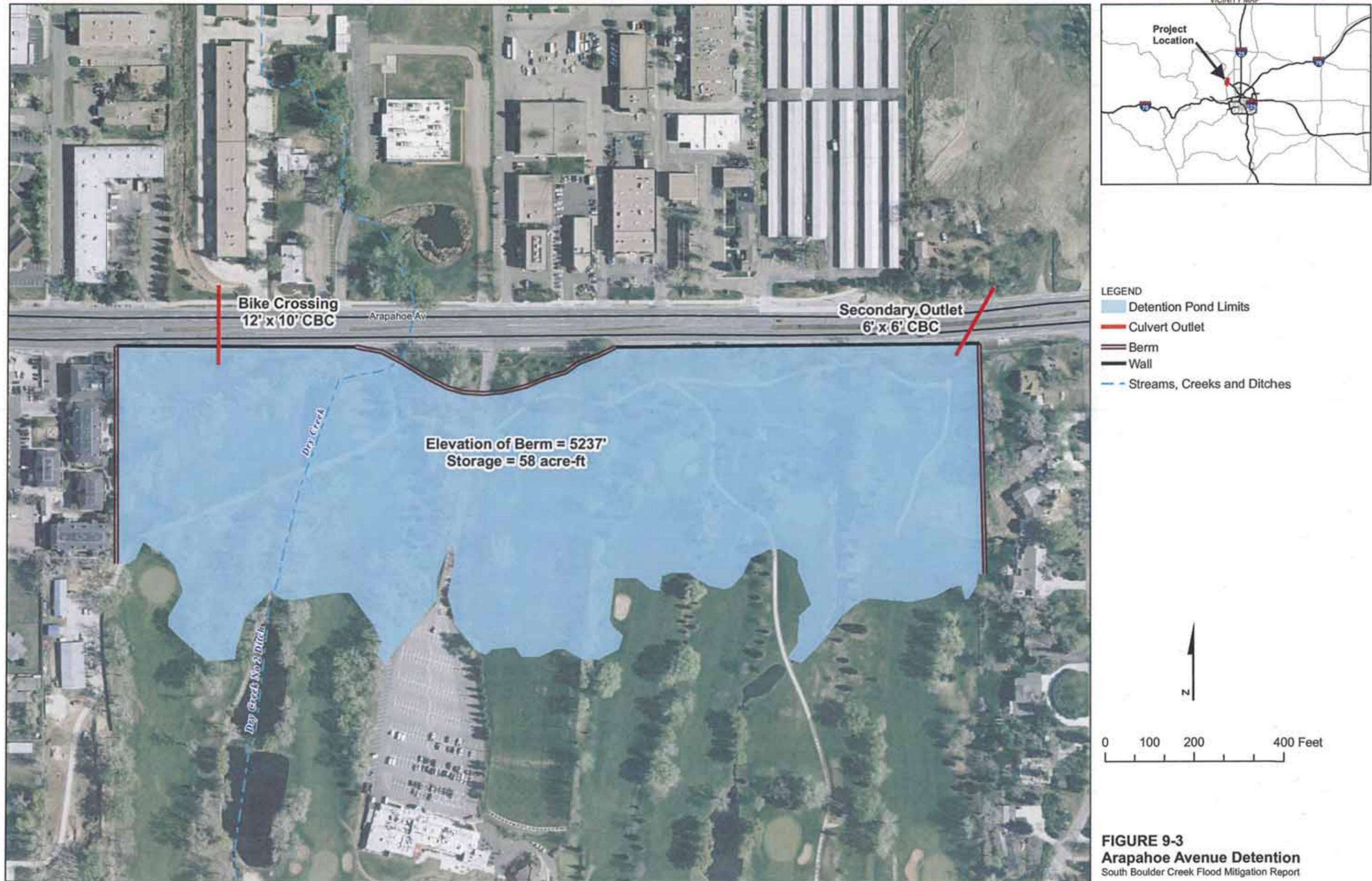
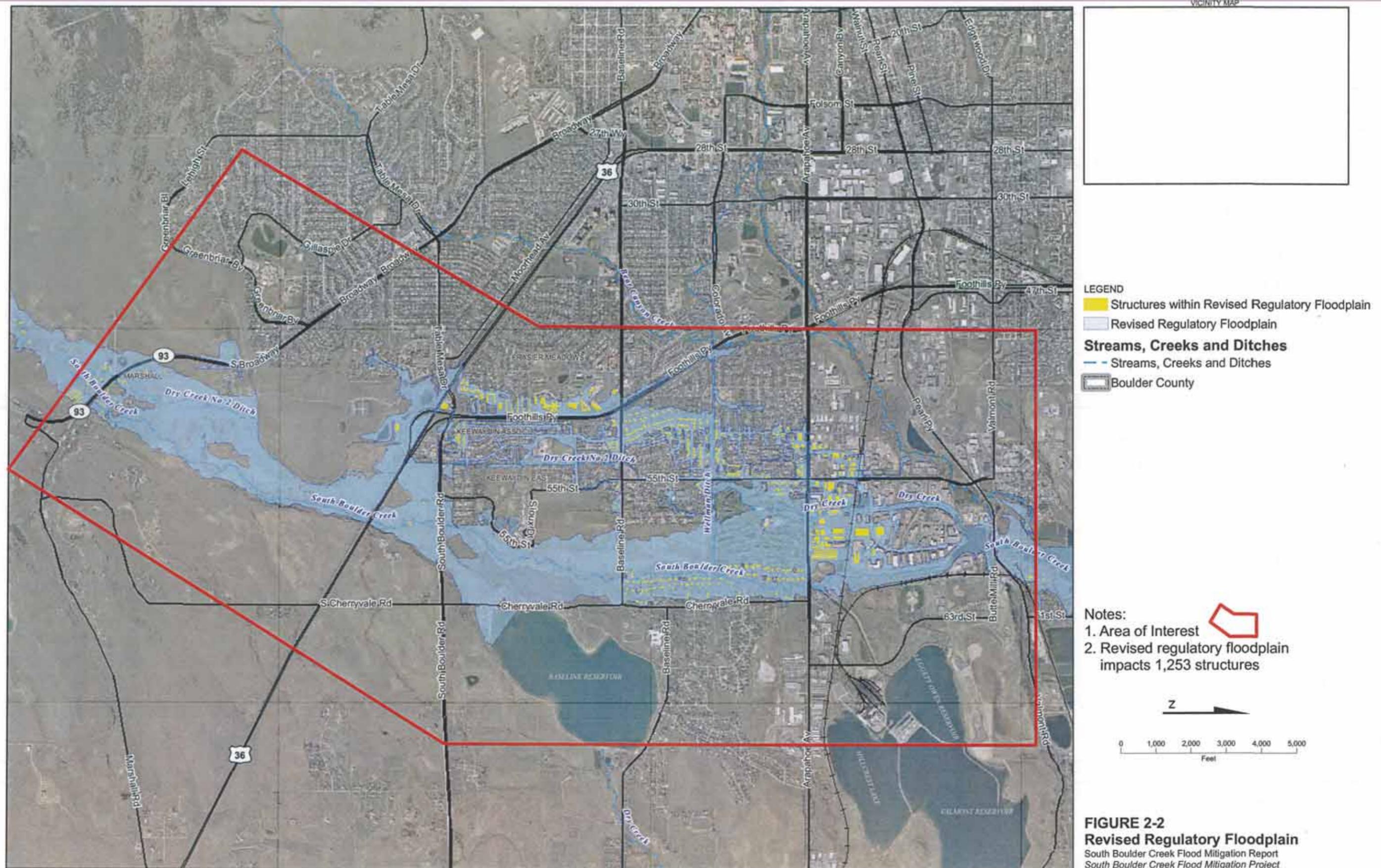


FIGURE 9-4
Manhattan Middle School Detention
 South Boulder Creek Flood Mitigation Report





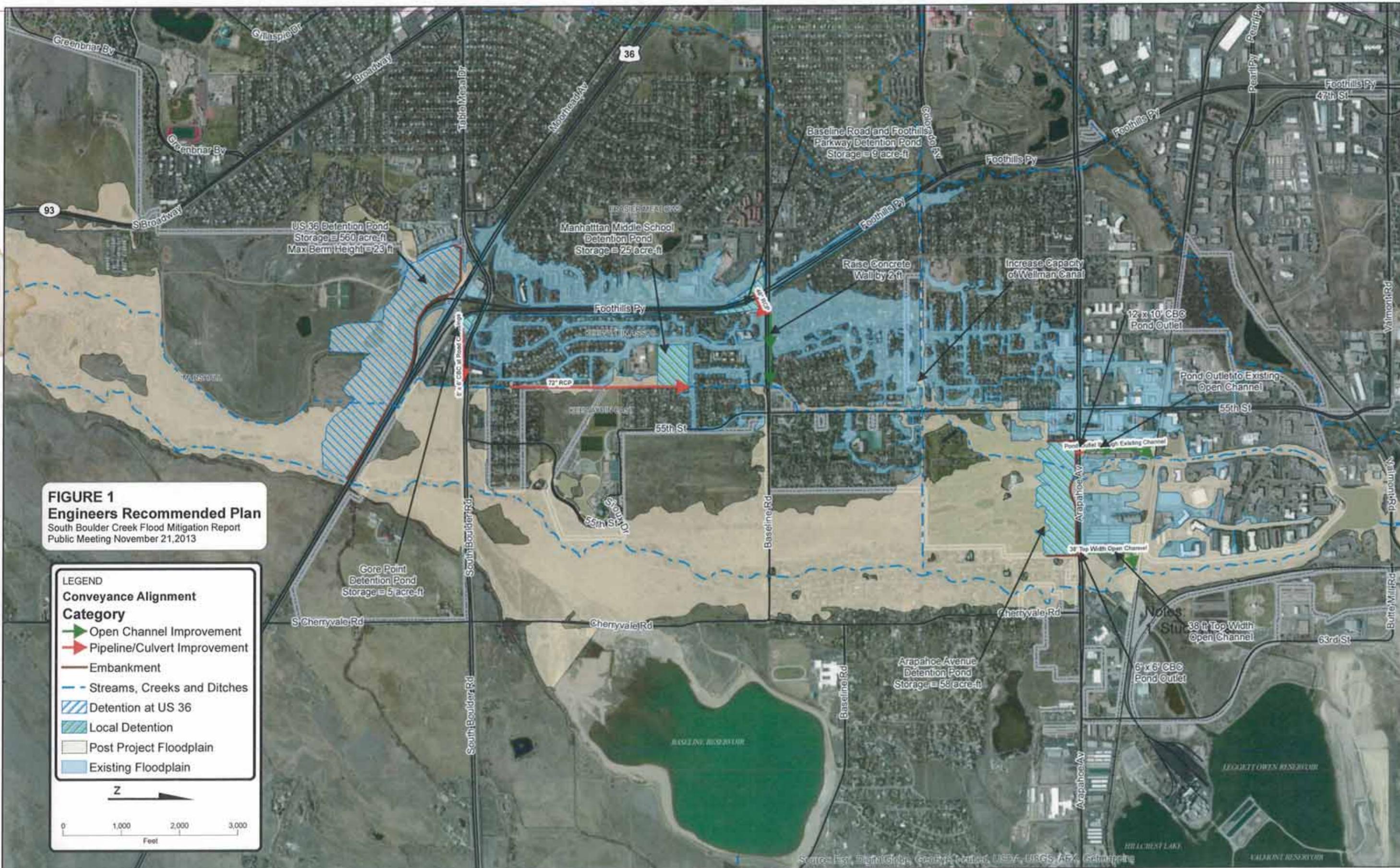


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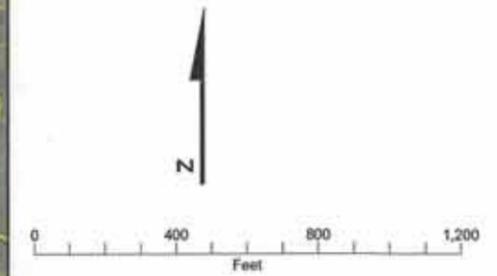


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US-36 Detention
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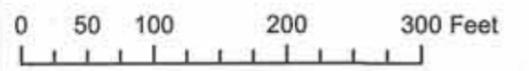
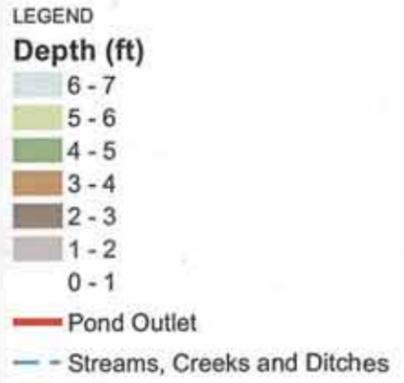
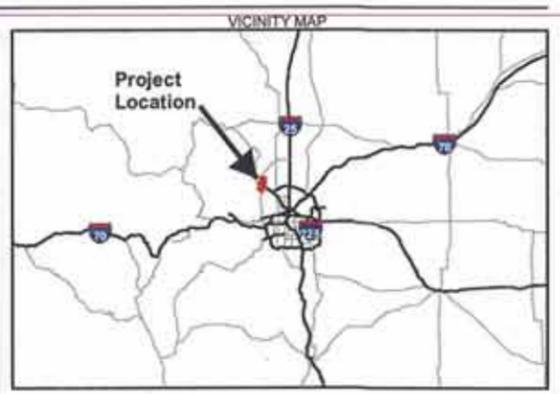


FIGURE 9-4
Manhattan Middle School Detention
 South Boulder Creek Flood Mitigation Report

