ADAMS & DENVER COUNTIES, COLORADO
GENERAL INVESTIGATIONS STUDY

HARVARD GULCH
Meeting Purpose – To share the proposed plan with the community and receive feedback/input.
Study Authority

- 24 September, 2008, by the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2813
  - “Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army review the report of the Chief of Engineers on the South Platte River and Tributaries, Colorado, Wyoming and Nebraska, published as House Document 669, 80th Congress, and other related reports to determine whether any modifications of the recommendations contained therein are advisable at the present time in the interest of flood damage reduction, floodplain management, water supply, water quality improvement, recreation, environmental restoration, watershed management, and other allied purposes, in Adams and Denver Counties, Colorado”.

Who is the Non-Federal Sponsor?

- City and County of Denver
- Signed a Feasibility Cost Share Agreement in May 2014
How long will the study take?

Expected Submittal of Final Report – December 2018
Expected Chief’s Report to Congress – July 2019
Overall Study Area

Three Reaches:

1. South Platte River
   - 58th Ave. to 6th Ave. (Phil Milstein Park)
   - Ecosystem Restoration Focus

2. Weir Gulch
   - Sheridan Blvd. to South Platte River
   - Flood Risk Management Focus

3. Harvard Gulch
   - Nonstructural Project
   - Flood Risk Management Focus
Reduce flood risk by finding an technically feasible, economically viable, and environmentally acceptable solution that will be beneficial to the public.

Why is a solution needed?
- Most common and costly natural disaster
- 1% annual chance (100-year) flood is the national standard
- 26% chance of experiencing the 100-year flood over the life of a 30-year mortgage
- 5 times more likely to experience flood than fire.
Need – Existing Flood Risk
Study assessed the existing flood risk within the community

- Developed alternatives that would reduce the flood risk

- Determined which alternatives provided the most benefits to the community and the nation.
Alternatives Evaluated & Compared:
1. Open Flood Channel
2. Closed Channel/Open Channel (Culvert) Combination
3. Nonstructural
4. Combined Structural & Nonstructural
5. Detention

Alternatives Considered but Eliminated:
• Levees
• Floodwalls
Structural vs. Nonstructural

Structural – Alter the flow of the water

Nonstructural – Alter buildings within the path of the water
Benefits of flood risk management include reduced flood damages, clean up costs avoided, and reduced detours and delays. While not monetized reduced life and safety risks are clear benefits as well.

USACE determines the economical viability of an alternative by calculating a Benefit Cost Ratio (BCR) score. If multiple alternatives have a BCR > 1.0 then the alternative with the highest Net Benefits is the selected alternative.

\[
\frac{\text{Benefits}}{\text{Costs}} > 1.0
\]

Summary: Benefits must be higher than costs!

Net Benefits = Flood Risk Benefits – Project Costs
Harvard Gulch
Tentatively Selected Plan

Nonstructural Recommendations
BCRs above 0.5

Denver County GI
March 2018

Legend
Nonstructural Measures
- Elevation
- Fill Basement
- Dry Floodproofing
- Buyout
- Reaches
- Floodway
- 100 yr Floodplain

Goal - Flood Risk Reduction

217 Structures Proposed to be Modified:
- 67 Commercial
- 150 Residential
  - 10 Relocations
Nonstructural Measures

Harvard Gulch

Nonstructural Flood Risk Reduction

Acquisition/Relocation

Elevation

Dry Floodproofing

Fill Basement
## Estimated Project Costs

<table>
<thead>
<tr>
<th>Cost Breakdown</th>
<th>Total Project</th>
<th>Harvard Gulch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost</strong></td>
<td>$515M</td>
<td>$26M</td>
</tr>
<tr>
<td><strong>BCR</strong></td>
<td>N/A*</td>
<td>1.40</td>
</tr>
<tr>
<td><strong>Annual Net Benefits</strong></td>
<td>N/A*</td>
<td>$385K</td>
</tr>
<tr>
<td><strong>Federal Cost Share (65%)</strong></td>
<td>$337M</td>
<td>$16.9M</td>
</tr>
<tr>
<td><strong>Local Sponsor Cost Share (35%)</strong></td>
<td>$184M</td>
<td>$9.1M**</td>
</tr>
</tbody>
</table>

*No overall BCR because Ecosystem Restoration (South Platte River) measures benefits differently than Flood Risk Management (Weir & Harvard Gulch)

**Local cost share is subject to agreements between the Non-Federal Sponsor (CCD) and the individual property owners
Remaining Study Schedule

URBAN WATERWAYS RESTORATION FEASIBILITY STUDY TIMELINE: 4 YEARS

SCOPING & PROJECT UNDERSTANDING
- 2014: PROJECT BEGINS
- SPRING 2015: ROUND 1 PUBLIC MEETINGS

ALTERNATIVE FORMULATION & ANALYSIS
- DEC 2015: FLOODPLAIN EDUCATION SESSIONS FOR HARV. & WEIR
- JAN 2016: ROUND 2 EDUCATION SESSIONS & PUBLIC MEETINGS

FEASIBILITY-LEVEL ANALYSIS
- AUG 2018: ROUND 3 PUBLIC MEETINGS
- AUG 28, 2018: END PUBLIC REVIEW OF DRAFT FEASIBILITY REPORT

CHIEF'S REPORT
- 2019: R.O.D. CHIEF'S REPORT
How to Provide Input

Draft Report available for review at:
http://www.nwo.usace.army.mil/Missions/Civil-Works/Planning/Project-Reports/

You may submit comments or questions via email:
Jeff Bohlken, Project Manager: Jeffrey.C.Bohlken@usace.army.mil
Dave Crane, Biologist, David.J.Crane@usace.army.mil

OR by mail:
U.S. Army Corps of Engineers
ATTN: CENWO-PMA-A – Bohlken
1616 Capitol Avenue
Omaha, Nebraska 68102
QUESTIONS?

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THANK YOU!