

## Niver Creek MDP/FHAD – Draft Conceptual Report

PREPARED BY: Haley Heinemann

PROJECT: 661392

MEETING DATE: May 18, 2016

MEETING TIME: 10:00 am

LOCATION: UDFCD

ATTENDEES: Shea Thomas (UDFCD)  
Anna Sparks (Adams County)  
Don Stahurski (Federal Heights)  
Tim Williams (Federal Heights)  
Jim Kaiser (Thornton)  
Terry Barnhardt (HHWW)  
Harlan Bryant (HHWW)  
Danny Elsner (CH2M)  
Jen Winters (CH2M)  
Haley Heinemann (CH2M)

### Meeting Minutes

#### 1. Draft Conceptual Report

- a. Stakeholder Comments received on 4/26/2016
- b. Review of comment log
  - i. Review page by page
  - ii. Main issues (shown in bold)
    1. Flood Hazards
      - a. *SFHA vs. shallow flooding*
        - o Comment #29: Some structures affected by overland flow are shown within Shaded Zone X in the effective FEMA map. Notably within the vicinity of the North Valley Tech Center. CH2M to add clarification to text explaining that many of these structures will now be designated within AO, shallow flooding with an average depth. ACTION ITEM - CH2M will also add clarifying text describing how many of the structures that are being added to the floodplain will be in shallow flooding (as compared to regular flooding).

## 2. General Recommendations

### a. UDFCD criteria

- Comment #60: The General Recommendations section was populated with standard UDFCD language included in every master plan. Critical facilities – designated by local jurisdiction – may be subject to different criteria.
  - ACTION ITEM - Shea to find out origins of language and we may update if needed.

## 3. 7.2.3 Tributary L

### a. I-25 detention - online storage for subcatchments NL15 and NL16

- Comment #75: NL15 and NL16 will be routed to the I-25 detention pond via the proposed storm sewer along 88<sup>th</sup> Avenue. It was not recommended that storm sewer be routed north to the Niver Dam, given the existing elevations of 88<sup>th</sup> Avenue vs. the crest of the dam. CH2M to add clarifying text to the report.

### b. Offline vs. online detention

- Comment #79: ACTION ITEM - Remove line concerning the possible incorporation of online detention.

## 4. 7.3 Prioritization and Phasing

### a. Phasing of I-25 detention

- Comment #91: If the I-25 detention pond is constructed before the proposed upstream detention, effective detention may be limited to smaller storms (i.e. the pond will not be fully effective during the 100-yr storm without the reduction of peak flows via upstream detention). ACTION ITEM - CH2M to add clarifying text.
- Comment #104:
  - A possible detention pond was considered at Huron Street. This location was ruled out after modeling confirmed that the limited pond size (about 10 ac-ft) would not be enough to reduce peak flows.
  - ACTION ITEM - CH2M to add clarifying text, including that future combinations can be considered to reduce detention required at the Hyland Hills Water World pond series. CH2M also to add text stating the concerns with several of the locations upstream of Pecos including irrigation issues, utilities, public access, etc. CH2M to send draft text to HHWW to review. Shea to send HHWW photos of ponds in series as examples.

## 5. Cost Estimates

### a. O&M

- Comment #17: ACTION ITEM - CH2M to revise \$0 entries and include O&M costs for existing channels and structures.

### b. Property acquisition costs – detention ponds

- Comment #33: ACTION ITEM - CH2M to increase property acquisition costs to \$4.00/SF.

### c. NVTC bridge costs – length

- Comment #58/59: ACTION ITEM - CH2M to back-check lengths of bridges in cost estimate. May increase to 175 feet if found to be reasonable.

### d. Traffic control and pavement restoration allowances?

- Comment #34/89: ACTION ITEM - CH2M to add traffic control and pavement costs to the estimate. Given the complicated location, traffic control will be estimated at 10% of the total construction cost.

## 6. Highlighted Text – without additional comment

- Comment #7/11/72: Disregard.

## 7. Hyland Hills Water World

### a. Comments received – see item #4 above

### b. Future coordination – see item #4 above

## 8. File Size Issues

- Shea would prefer the appendix remain within the same file as the report body. CH2M to continue managing PDF file size issues.

## 9. UDFCD has completed CUHP calibration, which has resulted in revised and amended calculations. Concurrently, NOAA has released new rainfall data for the watershed area. Preliminary calculations by Shea indicate possible peak flow reductions between ~25% and 55% for the Niver Creek watershed.

- ACTION ITEM - CH2M to provide UDFCD a new fee and schedule reflecting the updates to be made to the hydrology, conceptual design, and FHAD.

## 2. Next Steps...

### a. Conceptual Design:

- i. ~~Final Conceptual Design submitted to UDFCD by June 13, 2016.~~
- i. Schedule to be updated per revisions to the hydrology noted above.

# Niver Creek MDP/FHAD - Draft MDP Report Comments

Draft Submitted: 04/01/2016

Comments Received: 04/26/2016

Comment Number	Report Section	Page Number	Author	Comment	Response
1	Table of Contents	II - III	asparks	Consistency for figure labeling: some figure labeling is missing a period after the figure number.	Corrected.
2	List of Abbreviations	IV	asparks	Fix alignment.	Corrected.
3	ES.2 Planning Process	5	sthomas	Project Manager.	Project role changed to Project Manager.
4	ES.2 Planning Process	5	sthomas	Add meeting with HHWW and final progress meeting.	Concur - will add meeting
5	ES.3 Study Area Description	5	asparks	The watershed is entirely within Adams County. I think you meant unincorporated Adams County.	Changed to Unincorporated Adams County.
6	ES.3 Study Area Description	5	sthomas	Include length of streams studied in miles.	Concur - will add
7	ES.5 Hydraulic Analysis	6	jkaiser	<b>Highlighted text: "According to the RAS floodplain analysis, if a 100-year flood occurred without any future-improvements, a total of 261 structures would experience some level of flood inundation."</b>	<b>Discuss - not sure what this means</b>
8	ES.6 Alternative Analysis	6	asparks	Change sentence: "The purposed of the alternative process was to identify areas of existing <b>opportunities</b> in the Niver Creek basin and to develop aleternatives that sufficiently address the <b>issues</b> ."	Concur - will change
9	ES.6 Alternative Analysis	7	asparks	Change sentence: "As determined in the hydraulic analysis, the major <b>constraints</b> within the basin were due to undersized road crossings and channels."	Concur - will change
10	ES.8 Conceptual Design	7	sthomas	See edits in section 7.	Concur - will do
11	ES.8.1 Upper Niver Creek	7	jkaiser	<b>Highlighted text: "The conceptual design for Upper Nvier Creek includes grading the existing Zuni Detention area to provide additional capacity during the 100-year storm event."</b>	<b>Discuss - not sure what this means</b>
12	ES.8.2 Trib M	7	asparks	Change sentence: "New storm sewers will prevent large peak discharges from causing localized street flooding and direct the discharges <b>straight</b> to the creek."	Sentence reworded as suggested.
13	ES.8.4 Lower Niver Creek, Option A	8	asparks	Change sentence: "The channel <b>is proposed to be</b> lcoated along the outer edge of the site. In this option, the creek <b>is disjunctive</b> from the remainder of the site."	Concur - will change
14	ES.8.4 Lower Niver Creek, Option B	8	asparks	Change sentence: "The channel <b>is proposed to be</b> ..." and "The existing Coronado Parkway will <b>then conceptually</b> extend into..."	Concur - will change
15	ES.8.4 Lower Niver Creek, Option C	8	asparks	Change sentence: "The proposed channel <b>can</b> be an integrated part..." and " <b>Consistent with the Welby Subarea Plan, a Mixed Used Neighborhood</b> will be a good mix of urban..."	Concur - will change
16	ES.8.4 Lower Niver Creek, Option D	8	asparks	Sentence typo: "This option would be to keep the alignment of the existing culvert and replace it <b>with</b> a culvert that..."	Concur - will change
17	Table ES-2. Master Plan Jurisdictional Cost Estimate Summary	9	asparks	<b>This is unusual to see \$0 O&amp;M. Please verify.</b>	<b>Dicuss - only added O&amp;M for things that didn't already exist</b>
18	Figure 7-1. Master Plan Schematic	10	sthomas	This figure didn't load for me.	Concur - will fix links
19	1.2 Purpose and Scope	11	asparks	Change sentence: "The main purpose of this project is to develop a MDP to identify existing <b>opportunties</b> along Niver Creek and..."	Concur - will change
20	1.2 Purpose and Scope	11	sthomas	Highlighted text: "March 2016"	Concur - will fix
21	1.3 Planning Process	11	sthomas	Include meeting with HHWW	Concur - will add meeting
22	1.4 Mapping and Surveys	11	asparks	Typo: "Mahnard" should be "Manhard"	Concur - will change
23	2.1 Project Area	13	asparks	Change sentence: "...covers portions of the City of Federal Heights, the City of Northglenn, the City of Thornton, and the City of Westminster, all within Adams County."	Concur - will change
24	3.4 Hydrograph Routing	17	asparks	Remove blue line in text.	Concur - will change
25	Table 3-6. Percent Imperv	18	asparks	Delete extra blank line.	Concur - will change
26	3.7 Results of Analysis	19	asparks	Fix gap.	Concur - will change
27	4.2 Flood Hazards	22	asparks	Delete dash, insert space.	Concur - will change
28	4.2 Flood Hazards	22	jkaiser	Some of this could be attributable to "better mapping" as far as the areas in Federal Heights. Also, the areas immediately east of Washington street, I thought, were Shaded Zone X today, due to shallow flooding (not the 500-year flow) so the fact they are in the floodplain model today is not necessarily a change, unless the flow depth is significantly higher and now becomes Zone A (or AE). If that is the case, that should be mentioned here.	Will add additional descriptive text
29	4.2 Flood Hazards	22	jkaiser	<b>So these may well be Shaded Zone X, and technically would therefore not be in the SFHA. This and the area east of Washington, discussed above would decrease the otherwise dramatic INCREASE in structures added to the SFHA</b>	<b>Discuss - would likely be a shallow flooding zone</b>
30	5.1 Alternative Development Process	27	asparks	Change sentence: "...to identify areas of existing <b>opportunities</b> in the Niver Creek basin and to develop alternatives that sufficiently address the <b>issues</b> ."	Concur - will change
31	5.4 Alternative Hydraulics	27	asparks	Delete word: "...to determine the existing <b>problem</b> flooding areas within..."	Concur - will change
32	5.4 Alternative Hydraulics	27	asparks	FHWA	Concur - will change
33	5.5 Alternative Costs	28	jkaiser	<b>This is low unless it is already mapped floodplain.</b>	<b>Discuss - could raise above \$1.50/sf.</b>
34	5.5 Alternative Costs	28	jkaiser	<b>A very significant "bridge" or Conspan type culvert will be needed to get the flow across 84th Avenue east of the interchange. Coupled with traffic control necessary for such an alternative, this should show a significant cost.</b>	<b>Discuss</b>
35	5.6 Alternative Plans	28	asparks	Change sentence: "If no improvements are made in the Niver Creek basin, then the flooding <b>issues</b> discussed..."	Conur - will change
36	5.6 Alternative Plans	29	jkaiser	And the Autumn Creek Townhomes west of Huron Street	Concur - will add text
37	Table 5-2 Owners of Proposed Detention Basin Properties	29	asparks	Why are you putting ownership name here? that ownership can change, unlike the District. Below, the ownership is indicated as private.	Concur - will replace with private
38	5.6.2 Upper Niver Creek	30	jkaiser	These do not connect when I click on figure 5-1 as I have it	Concur - will fix links
39	5.6.4 Tributary L Alternatives 1,2,3,4	31-33	jkaiser	Are these redundant? Fig 5-1 only shows one segment	Concur - will add 92nd Ave.
40	5.6.4 Tributary L Alternative 2	31	jkaiser	depth	Concur - will add text

41	Table 5-3 Alternative 2 Flow Reduction	31	jkaiser	Perhaps add Huron Street to Tables 5-3 through 5-5 to illustrate the effects of any Pecos detention.	Concur - will add to tables
42	5.6.4 Tributary L Alternative 2	31	jkaiser	With the flow reductions being achieved upstream, why are these the same as Alternative 1?	Concur - will confirm
43	Table 5-4. Alternative 3 Flow Reduction	32	asparks	Delete extra line.	Concur - will change
44	5.6.4 Tributary L Alternative 4	32	jkaiser	Will Alternatives 3 and 4 include the scattered detention at Highland Hills instead of the jurisdictional detention? Will the 35 AF upstream of Pecos be jurisdictional?	Yes - we are showing jurisdictional at Pecos, but the same volume could be achieved by spreading out the volume. Will clarify in text.
45	5.6.4 Tributary L Alternative 4	32	jkaiser	Please remind me why we did not route these off of 88th Avenue into the existing Niver Detention basin where there is plenty of capacity. (typical alternative 1 - 4)	Didn't have grade to direct flow in that dam
46	5.6.5 Lower Niver Creek	33	jkaiser	These do not connect when clicking on figure 5-1 as I have it.	Concur - will fix links
47	5.6.5 Lower Niver Creek, NVT SubAlts	33	asparks	See p. 8 for comments (this is a repeated section).	Concur - will fix
48	5.6.5 Lower Niver Creek, NVT SubAlts	33	jkaiser	Figure 5-1 indicates the 12' x 6' RCBC needs to be replaced under every alternative. Should this not be reflected here, as well as in options B and C?	Concur - will confirm
49	5.6.5 Lower Niver Creek, NVT SubAlts	33	sthas	RCBC typo - Options A and B	Concur - will fix typo
50	5.6.5 Lower Niver Creek, NVT SubAlts	33	jkaiser	If the "outer edge" includes going down the west side to then go along the south side, then the alternative cost needs to include a substantial culvert or con-spar under 84th Avenue just east of the interchange.	Concur - will confirm
51	Figure 5-1. Alternatives Map	35	sthas	These links aren't working and I don't see the sketches included in this report anywhere.	Concur - will fix links
52	5.6.6 Local Improvements	36	jkaiser	Can Lipan Street south of Gale Blvd. be discussed here?	Concur - will add text
53	5.7 Qualitative Evaluation Procedure	37	jkaiser	Does this include arterial roadways?	Yes - includes arterial roadways; will add to text.
54	Table 6-1. Proposed Detention Basins	38	jkaiser	Figure 5-1 says 20 AF	Concur - will fix
55	Table 6-1. Proposed Detention Basins	38	jkaiser	Figure 5-1 says 9 AF	Concur - will fix
56	6.3.1 Environmental Consideration	39	jkaiser	infiltration of low flows with clay soils???	Concur - will add text; though this might be only the first X depth (top soil) not deep infiltration
57	7.1.1 Changes from Recommended Plan	41	jkaiser	Item 4: Can this be updated?	Text came directly from UDFCD. Will add in parenthesis (see section XX)
58	Table 7-1. Proposed Detention Basins	41	jkaiser	Trib L, NL-15: included with the above, or an additional 20 AF?	Yes - is included in total AF; will clarify in text.
59	7.1.2.3 Plan Benefits	42	sthas	No.	Concur - will fix text
60	<b>7.1.3 General recommendations</b>	<b>42</b>	<b>asparks</b>	<b>Item d: Do you want to mention commercial/industrial or emergency services criteria for floodplain as well?</b>	<b>Discuss - Text overall comes from UDFCD</b>
61	7.2.1 UN	43	sthas	Is the existing channel stable? If so, state that. If not, we need to include stabilization recommendations.	Concur - will review and add text
62	7.2.1 UN	43	sthas	Second bullet point: "Replace existing concrete low flow channel <b>downstream of Huron Street</b> with natural..."	Concur - will add text
63	7.2.1 UN	43	sthas	"4 feet deep with approximately 45 feet bottom width, <b>4:1 side slopes (?)</b> "	Concur - will add text
64	7.2.1 UN	43	sthas	"Construct a 1.2' drop structure <b>downstream of Huron Street</b> "	Concur - will add text
65	7.2.1 UN	43	sthas	One 8' x 5' RCBC at Knotty Pine? Not two?	Concur - will review
66	7.2.1 UN	43	jkaiser	Neither of the hotlinks below work. The cursor changes denoting the detection of a hotlink, but nothing happens.	Concur - will fix links
67	Table 7-3. Cost Est - UN	44	sthas	The 8'x5' and 9'x5' culverts are single barrel.	Concur - will review
68	7.2.2 Tributary M	45	sthas	Is the existing channel stable? If so, state that. If not, we need to include stabilization recommendations.	Concur - will review and add text
69	7.2.2 Tributary M	45	sthas	"Construct 5 feet deep channel <b>downtown of 92nd Avenue</b> with approximate 46.."	Concur - will add text
70	7.2.2 Tributary M	45	sthas	Make note that inlets were not sized as part of the master plan and therefore not included in the cost estimate.	Concur - will add text
71	7.2.2 Tributary M	45	sthas	Upstream with less flow, only 3 cells are needed. Please explain reason for the increase.	Concur - will review
72	<b>7.2.2 Tributary M</b>	<b>45</b>	<b>sthas</b>	<b>Highlighted text: "Option A - 'Best Fit option'"</b>	<b>Discuss - not sure what this means</b>
73	7.2.2 Tributary M	45	jkaiser	These hotlinks do not open anything	Concur - will fix links
74	Table 7-4. Cost Est - Trib M	46	sthas	Where is this?	This is within the Options, will add text
75	<b>7.2.3 Tributary L</b>	<b>47</b>	<b>sthas</b>	<b>What proposed improvements make this happen?</b>	<b>Discuss - reducing direct flow to the channel</b>
76	7.2.3 Tributary L	47	sthas	We need to include text stating the detention on HHWW can be distributed into multiple smaller ponds if desired. Size and location of ponds will be determined during preliminary design, but the intent is to meet a 100-year peak flow rate of ___ cfs at a time ___ minutes into the storm event at Pecos Street.	Concur - will add text
77	7.2.3 Tributary L	47	jkaiser	Thus, \$1.50/sf for land costs is way too low.	Concur - will fix links
78	7.2.3 Tributary L	47	sthas	Delete text: "in order to minimize the footprint <b>and maximize the potential for development.</b> "	Concur - will delete text
79	7.2.3 Tributary L	47	sthas	<b>Didn't you look at this and find it not to be the case?</b>	<b>Discuss</b>
80	Table 7-6. Owners of Proposed Detention Basin Properties	47	asparks	Replace Wattles Real Estate Partners LLC with "Private"	Concur - will replace with private
81	Table 7-7. Conceptual Design Flow Reduction	47	jkaiser	Add reductions at Huron Street, too?	Concur - will add to tables
82	7.2.3 Tributary L	47	jkaiser	second reach?	Concur - will fix text
83	7.2.3 Tributary L	47	sthas	Is the existing channel stable? If so, state that. If not, we need to include stabilization recommendations.	Concur - will review and add text
84	7.2.3 Tributary L	47	jkaiser	These hotlinks do not open anything	Concur - will fix links
85	7.2.4 Lower Niver Creek	49	sthas	Explain why a bridge is needed instead of culverts, which were used everywhere else.	Concur - will add text
86	7.2.4 Lower Niver Creek	49	asparks	See p. 8 for comments (this is a repeated section).	Concur
87	7.2.4 Lower Niver Creek	49	jkaiser	These hotlinks do not open anything	Concur - will fix links
88	<b>Table 7-10. Cost Est - LN</b>	<b>50</b>	<b>jkaiser</b>	<b>To span ROW to ROW these need to be at least 150-feet if perpendicular; if at a skew, they need to be longer. Should probably figure 175 feet.</b>	<b>Discuss - lengths</b>
89	<b>Table 7-10. Cost Est - LN</b>	<b>50</b>	<b>jkaiser</b>	<b>Need an allowance for traffic control, also need one for pavement restoration. This should be a high allowance, regardless of the 84th box location.</b>	<b>Discuss - add traffic control and pavement restoration?</b>
90	Table 7-10. Cost Est - LN	50	sthas	No cost included for channel improvements.	Concur - will add

91	7.3 Prioritization and Phasing	51	jkaiser	This seems to say that the I-25 pond, if built first, would not work.	Discuss - it's true that the I-25 pond (since it is offline) will need detention upstream to work
92	7.4 Water Quality Impacts	51	jkaiser	Actually it IS Thornton Parkway, and crosses the road north of the "92nd Avenue" alignment. the "( )" should be the other way around.	Concur - will fix text
93	7.5 Operations and Maintenance	51	jkaiser	residences?	Concur - fix text
94	Fiugre	52	stomas	This figure didn't load for me.	Concur - will add links
95	Table 7-12. Peak Flow Summary	53	jkaiser	Why is I-25 so much higher than the "detention inflow"?	There are additional basins at I-25 that do not contribute to basins
96	8.0 References	58	asparks	Add Welby Subarea Plan as reference.	Concur - will add
97	Appendix A - Project Correspondence		stomas	Include this memo in Appendix A.	Concur - will add
98	Appendix C - Hydraulic Analysis		stomas	These hydrographs showing improvements should be in App F. (Figures C-2, C-3, C-4)	Concur - will add
99	Appendix E - Wetland and Riparian Inventory		jkaiser	Will these links be restored?	Concur - will fix links
100	Appendix F - Alternatives Analysis		stomas	You can delete these SWMM outputs for the alternatives. Only include the conceptual design output in App G.	Concur
101	Appendix H - Master Plan Maps		jkaiser	Where are the clickable maps?	Concur - will fix links
102	Appendix I - Master Profiles		jkaiser	Where are the clickable profiles?	Concur - will fix links
103			CH2M	File size is large and runs out of memory; Add Appendix seperately?	
104			HHWW	Is there some way to balance out the flood detention needs throughout the neighborhood without putting the major flood detention ponds on the Hyland Hills-Water World parcel? Bell Roth Park and other vacant lands to the east near Huron Street should also be utilized to lessen the impact to our District property.	Discuss - detention was maximized upstream of Pecos. Question - how and when should we respond to HHWW? Should we include the figure with alternative pond locations and provide a discussion?
105			HHWW	How flexible will be concept plan be? The District does not want to get locked into this extensive project without more detailed engineering analysis and specific designs. We need to ensure that our wishes and comments are taken into consideration throughout the design and construction process.	The MDP will not committ HHWW to anything as it is only a conceptual plan.
106			HHWW	How much excavation will be required especially on the 35 AF pond (#1) and the two larger ( AF upstream ponds (#6 & #8)? The District would like to confine the limits of the pond #1 to the wetland areas so as preserve the dryland areas to the south for other recreational uses.	Excavation amount is unknown; These items will determined during the design phase.
107			HHWW	Pond #1 area has a high water table which will expose ground water and will require evaporative loss replacement. HH cannot participate is this water make up.	Noted; these items will be evaluated during future design if/when it occurs
108			HHWW	Ponds #4 and #5 are located in areas of shallow, dense and very hard sandstone which will make excavation more expensive and difficult.	Noted; these items will be evaluated during future design if/when it occurs
109			HHWW	Also around ponds #4 and #5, there are several District and City owned utilities that must be crossed or relocated.	Noted; these items will be evaluated during future design if/when it occurs
110			HHWW	Finally, the 9 AF pond (#6) could potentially impact our existing irrigation pond for the park and several of our park sidewalks. Additional study is needed to assess these potential impacts to District facilities.	Noted; these items will be evaluated during future design if/when it occurs