

# Appendix C

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## C.1 Intent

Every five years, the Partnership reviews the progress on the Plan originally adopted in 2009. Progress towards structural elements of the plan is noted and priorities for the next five years are set. See [Attachment 1](#) for planning progress through the 2019 Plan Update. In August 2023, the Partnership began the 2024 Plan Update process that coincides with the adoption of the interlocal agreement for continuation of the Partnership. This update also included additional stakeholder engagement to pursue potential modifications to the stream setback requirement defined in policy group #3 Stream Corridor Preservation and update local administrations and elected officials on the PWCP purpose and actions carried out as part of the Plan.

### Background:

Before this 2024 Plan Update effort, observations of streams in the watershed present severe stream erosion and potential risk of damage to public infrastructure and loss of private property. PCWP members have records of hundreds of known bank failure locations. Problems created by these conditions include undermining culverts and bridge abutments, exposing sewer pipes and other utilities, encroaching bank lines into roadways, private lots and fences falling into streams, sheer cliffs susceptible to bank failure in easily accessible areas, and more. The need for local jurisdiction infrastructure repair projects and submissions for the Papio NRD's Urban Drainageway Program that assists stream stabilization projects on private lands indicate there are ongoing problems with stream stability. Several studies investigating stream stability concerns in the watershed have also been performed. FEMA and USACE both pursued investigations due to local concerns and the growing number problems caused by stream erosion. The studies include:

- USACE Section 22 Stream Degradation Study: this study provides the PCWP with the opportunity to work closely with the USACE on a technical assessment of degradation issues, trends, and the development of a comprehensive strategy allowing for the prioritization of construction projects that will benefit communities within the watershed.
- FEMA Erosion Mapping: FEMA performed a GIS overlay exercise to map the stream bank erosion potential along major stream segments within the watershed. Factors considered included slope, velocity, soil K-factor, and impervious land cover near the stream buffer.
- Lateral Migration Analysis: PCWP contracted FHU to conduct a lateral migration assessment of streams in the watershed. It was determined that there was an average stream widening of 5-10 feet over a 12-year period in undeveloped watersheds.

FHU was also tasked to investigate stream setback policy alternatives that would reduce the risk of future damage and loss. This effort assessed the pros and cons of various setback policy options considering factors such as ease of implementation, grade control, addressing future degradation, and the impact of buffer width on available developable land. Several policy options were developed and are summarized in [Attachment 2](#) to this appendix. The recommended updated policy that was selected to present to the development community included:

1. **Require 3:1 plus 50 feet setback on all streams (not only main segments as currently identified in the Plan)**
2. **Account future degradation when calculating the setback area or stabilize the streambed with grade controls to reduce degradation (and therefore setback width).**

These policy changes presented to the development community in 2021 and were not well received. Through the stakeholder engagement efforts included with in this 2024 Plan Update, the PCWP sought to identify opportunities for compromise through facilitated conversations with various stakeholder groups. Listening sessions were conducted throughout August and September of 2023 and are summarized in section C.2. After pursuing additional modifications

and discussing compromises as described below, still no updates to the stream setback requirements were agreed upon amongst the development community and members of the PCWP. The PCWP maintains interest in addressing stream stability problems occurring in the watershed and has agreed to continue efforts to investigate policy modifications during the next 5 (five) year implementation period.

## C.2 Stakeholder Engagement

**Purpose:** Establish communication with a variety of stakeholder groups (listed 1-5 below) directly impacted by the existing stream setback policy and learn more about opportunities for or challenges against change. Additionally, the overall engagement effort attempted to reacquaint elected officials and key stakeholders with the PCWP provide a reminder about their essential work for the watershed and its partners.

**Format:** Virtual Listening Sessions or In-Person Meetings led by third party (RDG Planning & Design) on behalf of the Papillion Creek Watershed Partnership

### Outreach Summary (see details on following pages):

#### 1. Architecture & Engineering Consultants

- a. Virtual Listening Session
- b. August 18, 2023
- c. 8 Attendees

#### 2. Surrounding City and County Staff

- a. In-Person Listening Sessions
- b. August 24, 25, 2023
- c. 8 Attendees

#### 3. Developers

- a. Virtual Listening Session
- b. September 5, 2023
- c. 1 Attendee

#### 4. Lawyers who represent Developers

- a. Virtual Listening Session
- b. September 5, 2023
- c. 2 Attendees

#### 5. City of Omaha Staff

- a. In-Person Listening Session
- b. August 24, 2023
- c. 13 Attendees

#### 6. Combined Working Group

- a. In-Person Listening Session
- b. November 15, 2023
- c. 13 Attendees

### C.2.1 A&E Consultants Summary

A list of local consulting firms that perform land development design was compiled and email communication was sent to invite participants to a virtual listening session. Consultants are responsible incorporating policy requirements into a land development plat and are familiar with the challenges and impacts of various policy requirements.

Virtual Listening Session Date: 8/18/2023

Table C.1. A&E Consultants List and Communication Log

| Position   | Organization         | Email from Lori | 2 <sup>nd</sup> Email | Response/Attended                                          |
|------------|----------------------|-----------------|-----------------------|------------------------------------------------------------|
| Consultant | E&A Consulting Group | Aug. 10         | Aug. 14               | Kyle Vohl, Caleb Beasley, Anna Grimes, and Jeff LaMontagne |
| Consultant | Lamp Rynearson       | Aug. 10         | Aug. 14               | Terry Atkins and Joe Flaxbeard                             |
| Consultant | TD2                  | Aug. 10         | Aug. 14               | Doug Kellner                                               |
| Consultant | Olsson               | Aug. 10         | Aug. 14               | Phillip Niewohner                                          |

### What We Learned:

- Will have large tracts of land that will never be developed, not practical, drive up the cost of land.
  - People have issues with the 404-permitting process through the Army Corps of Engineers.
- Conversations were had about what could be allowed in setbacks.
- More density is great, but you still have to be able to sell it.
  - Updating zoning codes could be challenging.
- There are concerns about bank stabilization.
  - Additionally, questions about whether construction costs (stormwater infrastructure) could be reimbursed.
- Cannot rely on Homeowners Associations (HOAs) to handle management and maintenance of the setbacks or stormwater infrastructure.
- Participants questioned whether there could be more flexibility with monitoring.
  - Does it have to be one size fits all approach?

### C.2.2 Surrounding City and County Staff Summary

Staff from the cities surrounding Omaha (City of Papillion, City of Gretna, City of LaVista, City of Ralston, and City of Bellevue) and Sarpy County were compiled, and email communication was sent to invite participants to a virtual listening session. City and county staff are responsible for incorporating policies into their local jurisdiction ordinances and enforcement of the policies.

Virtual Listening Session Dates: 8/24/2023 and 8/25/2023



Table C.2. Surrounding City and County Staff List and Communication Log

| Position                                                | Organization      | Email from Lori | 2 <sup>nd</sup> Email | Response/Attended                       |
|---------------------------------------------------------|-------------------|-----------------|-----------------------|-----------------------------------------|
| City Engineer, City Administrator                       | City of Gretna    | Aug. 10         | Aug. 16               | Greg Perry<br>Paula Dennison            |
| Planning Director, Planning Coordinator & City Engineer | Sarpy County      | Aug. 10         | Aug. 16               | Don Simon<br>Denny Wilson<br>Kelly Jeck |
| Community Development Director                          | City of Ralston   | Aug. 10         | Aug. 16               | Megan Engberg                           |
| Deputy Community Development Director & City Engineer   | City of La Vista  | Aug. 10         | Aug. 16               | Invited but did not attend              |
| Planning Director                                       | City of Papillion | Aug. 10         | Aug. 16               | Travis Gibbons                          |
| Planning Director                                       | City of Bellevue  | Aug. 11         | Aug. 16               | Tammi Palm                              |

### What We Learned:

- It all comes down to cost. Land is already so expensive.
- The lack of affordable housing options is concerning, with no simple answer in the member communities.
  - Affordable housing came up a lot, but so did the ‘missing middle’. Communities aren’t getting the density they would like to see from the development community.
  - People are interested in more variety and smaller lot sizes.
  - “We can’t keep doing \$400,000 homes on big lots.”
- Gretna, specifically, has a lot of room to grow.
- Participants do see neighborhoods that are losing back yards (Bellevue).
- HOAs fail to take care of the issues and the City ends up inheriting them.
- Can we get out in front of Developers?
  - They need education to take some stress off City staff.
- Better park planning is another avenue to consider with the potential for some of these setbacks to be part of a community’s park system.
- Can we incentivize more natural channel restoration?
  - Low-impact Development- at some point, we will need to see as shift in the development community to recognize shifting preferences and what young households can afford.
- Conversation was had about what is allowed in the setbacks.
  - For example, natural/soft trails, landscaping, and drainage easements would be allowed.
  - We’d like to try and keep utilities out of there.
- Small cities’ staff are already at capacity as is.
  - “I don’t have someone right there in house that I can got to with a problem.”
    - Maintaining existing infrastructure is already challenging. Damage or future problems

- Elected official are not educated about this issue.
  - Participants would love for the NRD to assume maintenance responsibilities.
  - Some are contracting City Engineers.

### C.2.3 Developers Summary

A list of development companies was compiled and email communication was sent to invite participants to a virtual listening session. Developers are most directly impacted by policy requirements that must be incorporated into the plans.

Virtual Listening Session Date: 9/5/2023

### Table C.3. Developers List and Communication Log

| Position                 | Organization                 | Email from Lori | 2 <sup>nd</sup> Email | 3 <sup>rd</sup> Email | Response/Attended           |
|--------------------------|------------------------------|-----------------|-----------------------|-----------------------|-----------------------------|
| Developer                | New Street Properties        | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |
| Developer                | McCune Development           | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |
| Developer                | Graves Development Resources | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |
| Developer                | Celebrity Homes              | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |
| Developer                | Hubbell                      | Aug. 10         | Aug. 28               | Sept. 1               | Invited, but did not attend |
| Developer                | City + Ventures              | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |
| Developer                | Noddle Companies             | Aug. 10         | Aug. 28               | Sept. 1               | Todd Swirczek               |
| Developer                | Urban Village                | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |
| Developer                | White Lotus Group            | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |
| Construction/Development | BHI Development              | Aug. 10         | Aug. 28               | Sept. 1               | Invited but did not attend  |

## What We Learned:

- Not so many concerns about the policy update in the urban core because it's mostly developed in the urban core.
  - Floodplain has been more of an issue.
    - Extent of the floodplain has been confusing/too big.
- Would like more communication from the NRD.
  - People need to be reminded of their importance.
  - Can the NRD take a stance on city stormwater policies?

### C.2.4 Lawyers Summary

A list of lawyers who represent developers was compiled and email communication was sent to invite participants to a virtual listening session. Lawyers represent the developers' best interests and will provide input on the policy requirements placed on developers.

Virtual Listening Session Date: 9/5/2023

Table C.4. Lawyers who Represent Developers List and Communication Log

| Position | Organization                        | Email from Lori | 2 <sup>nd</sup> Email | Response/Attended          |
|----------|-------------------------------------|-----------------|-----------------------|----------------------------|
| Lawyer   | FJJB Law                            | Aug. 10         | Aug. 28               | Invited but did not attend |
| Lawyer   | Adams & Sullivan                    | Aug. 10         | Aug. 28               | Pat Sullivan               |
| Lawyer   | Pansing, Hogan, Ernst & Bachman LLP | Aug. 10         | Aug. 28               | Jim Buser                  |
| Lawyer   | Baird Holm                          | Aug. 10         | Aug. 28               | Invited but did not attend |

#### What We Learned:

- Are there other options?
  - Grade control structures in lieu of additional setback?
- Army Corps requirements are awful.
  - Uncertain
  - Time consuming
  - Expensive
  - EPA overreach
- These requirements would make affordable housing so much more challenging.
- PCSMP Review process needs to be streamlined.
- Would like to see cost analysis of the different options/recommendations.
- Could this be more customized?
  - Checklist of modifications/options

### C.2.5 City of Omaha Summary

With City of Omaha having a large list of staff, a separate listening session was created to keep groups smaller and conversations more direct. A list of City of Omaha Staff was compiled, and email communication was sent to invite participants to a virtual listening session. City staff are responsible for incorporating policies into their local jurisdiction ordinances and enforcement of the policies.

Virtual Listening Session Date: 8/24/2023

Table C.5. City of Omaha Staff List and Communication Log

| Position                                                 | Organization  | Email from Lori | Response/Attended |
|----------------------------------------------------------|---------------|-----------------|-------------------|
| Assistant Director for Environmental Services            | City of Omaha | Aug. 10         | Jim Theiler       |
| Public Works Assistant Director – Environmental Services | City of Omaha | Aug. 10         | Derek Miller      |
| City Planner-Zoning Board Administrator                  | City of Omaha | Aug. 10         | Mike Carter       |
| Public Works-Private Plans Engineer                      | City of Omaha | Aug. 10         | Ryan Haas         |
| Planning Department Assistant Director – Urban Planning  | City of Omaha | Aug. 10         | Eric Englund      |
| Planning Director                                        | City of Omaha | Aug. 10         | Dave Fanslau      |
| Parks Director                                           | City of Omaha | Aug. 10         | Matthew Kalcevich |

### What We Learned:

- There are a lot of creeks out there.
- Challenges- creek setbacks on subdivisions, fees on large lots (watershed management)
- What is allowed in the setbacks?
- The SID isn't maintaining things and erosion happens and sanitary sewers can get exposed.
- How are we supposed to provide affordable housing?
- It's not looking good to get this passed through Council.
- Positive things are happening with the permitting process through the Army Corps.
- Is stabilization cheaper than giving up the extra buffer space?
- Are there any available incentives?
- What happens when an HOA owns the out lot?
  - Ultimately, it ends up in a land bank and the City will take it over with annexation.
- Why 50? Isn't 20 working?
- This is going to cost a lot of money.
- Do some more studies.

- Need clear data to show what works and what doesn't.
- More customized options should be considered.
- How can we incorporate this into park agreements?
  - Allocation of park land

#### C.2.6 Combined Working Group Summary

After the initial listening sessions, a path forward was not yet clear. A working group session was organized to gather individuals from all the previous categories. The intent of the session was to bring folks together from various professions, cities and backgrounds and collectively brainstorm and consider compromises that would help the plan update move forward. See [Attachment 3](#) for the presentation use for discussions.

The compromise policy proposals brought forward for consideration were as follows:

1. 3:1+50 feet setback. No future degradation considered.
2. Allowance for passive recreation features in outer 30 feet of setback area.
3. Grad control incorporated at stream crossings.

**In-Person Meeting Date:** 11/15/2023

#### Attendee List:

- Jim Theiler, City of Omaha
- Kyle Vohl, E&A Consulting Group
- Derek Miller, City of Omaha
- Greg Perry, City of Gretna
- Joe Flaxbeard, Lamp Rynearson
- Derek Goff, City of Papillion
- Katie Swanson, City of Omaha
- Amanda Grint, Papio NRD
- Ian Ghanavati, Papio NRD
- Lori Laster, Papio NRD
- Sara Mechtenberg, Houston Engineering
- Mike Sotak, Houston Engineering
- Molly Hanson, RDG Planning & Design

#### What We Learned:

- People still have a lot of questions.
  - Should apply to undeveloped land, we've never gone beyond that.
- From the development standpoint, we're still losing developable property.
  - Main concern is with increased setback.
  - Land is still very expensive.
  - We're missing the long-term forever maintenance.
    - They have no long-term consequences.
  - I don't think developers are going to go for it any way you slice it.
- Not a lot of confidence that will pass through City Councils.
  - People are going to have to show up and ask for it.

- Metro Omaha Builders Association (MOBA) will have to be neutral.
- How can we educate elected officials about this?
  - How do we talk about the multiple benefits?
- Can NRD map the relevant land that's still in play?
  - *This was later sent to the group.*
- If point One is a given, then points Two and Three help (compromise recommendations).
  - What if we did a reduction of the rear yard setback?
- Costs for watershed fees.
  - Developers don't pay the watershed fees.
- Follow-up with MOBA.

### C.2.7 MOBA Feedback

Metro Omaha Builders Association (MOBA) is an organization that advocates for the needs of the residential construction industry and can provide feedback that is representative of the development community. MOBA was contacted after the working group session to present a compromise in the proposed modifications outline in C.1. They were asked to provide feedback for if only modification #1 was carried forward and #2 was removed. The following response was provided via an email from Mark Westergard, Joint Agency Liaison:

"I presented the proposed creek setback policy to my committee, and it prompted a lot of discussion. After the discussion, the Committee decided that they will not support the 3:1 + 50' at all waterways.

As you know MOBA is an organization whose sole purpose is to support the home building and land development industries. The Committee's objections to the proposed policy were directly related to MOBA's purpose. Several of the reasons for opposition include:

1. An additional 60' swath of undevelopable land along all remaining waterways is a very large amount of land. It is highly doubtful that sellers of land will make any adjustment in price due to the proposed policy, making the net price on useable land much more expensive.
2. The proposed policy does not support affordable housing. If the policy were to become effective the cost of land per dwelling unit will go up considerably.
3. The Committee members generally were of the opinion that the vast majority of creek setback issues have occurred in areas that were developed prior to the current policy of 3:1 + 50' on major streams and 3:1 + 20' on other waterways. For non-major creeks, Committee members were of the opinion that the 3:1 + 20' setback was adequate in providing safe creek separations for residential housing."

### C.3 Partnership Update

**Purpose:** Share PowerPoint slides with staff and council/board members of all jurisdictions in the PCWP that describe where we are at the end of the process and allow time for questions/discussions. Slides are included as [Attachment 4](#) to this appendix.

**Format:** Virtual Listening Sessions at three predetermined times to accommodate the various schedules of those interest in attending.

Virtual Listening Session Dates: 3/25/2024, 3/27/2024, and 3/28/2024.

### 1. Monday, March 25, 2024, at 12:00 PM via Zoom

#### Attendees:

- Molly Hanson, RDG
- Lori Laster, Papio NRD
- Amanda Grint, Papio NRD
- Sara Mechtenberg, Houston Engineering
- Steve Scarpello, Omaha Council
- Beth Garber, Sarpy County

#### Registered but did not Attend:

- Kathy Bauer
- Colm G. Breathnach
- Aimee Bataillon
- John Krager
- Erica Mullen

#### Notes/Questions/Comments:

- Douglas County and Bennington choosing not to participate-why?
  - Bennington is small so they haven't been required to have a stormwater permit.
  - Douglas County- the county board had some issues with the structural aspects of the project.
- What population figures do you use to figure the rates?
  - 2020 Census + Sarpy County GIS provided.

### 2. Wednesday, March 27, 2024, at 4:30 PM via Zoom

#### Attendees:

- Molly Hanson, RDG
- Lori Laster, Papio NRD
- Mike Sotak, Houston Engineering
- David Fanslau, Papillion City Council
- Pete Festersen, City of Omaha City Council
- Ron Sheehan, City of La Vista
- Caleb Van Weelden, LSarpy County Planning Commission
- Greg Perry, City of Gretna
- Kelly Sell, La Vista City Council
- Rich Casey, City of Bellevue
- Ted Japp, Papio NRD Board

#### Registered but did not Attend:

- Brinker Harding

## Notes/Questions/Comments:

- Glad you're seeing it from the lens of climate action.
- Are those anticipated to be new dam sites or repairs?
  - New: work from 2024-2029
  - Working with landowners and developers
- The new flood maps with the federal government
  - Papio NRD is working on those flood maps.
  - Doesn't impact this work.
- What's the schedule for coming in front of City Councils?
  - Where you'll go first/second?
  - Can be done concurrently.
  - In front of Papio Board of Directors in May
    - No changes in policy was the recommendation going forward.
  - After that, up to each community to determine that schedule.
- Do you anticipate any controversy?
  - Not that we're aware of
- I noticed that Washington County was not represented in this group.
  - Have never been a member.
  - Received a request from them to remove their name from all documentation.
  - Have talked in the past a few times (they are aware/on the mailing list).

**3. Thursday, March 28, 2024, at 8:30 AM via Zoom**

## Attendees:

- Sara Mechtenberg, Houston Engineering
- Lori Laster, Papio NRD
- Tammi Palm, City of Bellevue
- Danny Begley, Omaha City Council
- Dean Miller, City of Omaha
- Kayla Hathcote, Deputy Attorney for Sarpy County
- Scott Bovick, Sarpy County Administration
- Marty Giff, Sarpy County Planning Commission
- John Krager, City of Bellevue Public Works
- Kelly Jeck, Sarpy County Planning Department

## Registered but did not Attend:

- Justin Horst
- Douglas Kindig
- Don Preister

## Notes/Questions/Comments:

- Any update on DS-19



- None other than USACE design starting in 2025. Likely an 18-month process.
  - NRD had started land rights purchase as local sponsor.
- Are DS-7 and 12 federally funded?
  - No

#### **C.4 Papio NRD Board Update**

The final presentation to summarize the 2024 Plan Update to the Papio NRD board is included as [Attachment 5](#) to this appendix.

# Appendix C

## Attachment 1

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# **Papillion Creek Watershed Partnership Watershed Master Plan Progress Update**

2009

- Initial Plan Adopted

2014

- First Plan Update

2019

- Second Plan Update



NRD Bonding Authority Approved by  
Legislature



Standardization of Grading Permit  
Submittal and Review Process



Implementation of New Post Construction  
Stormwater Management Plans



Implementation of Creek Setback Policy

## Proposed Regional Detention Basins – 2009 Watershed Plan

### 15 Projects

### Total Estimated Cost - \$242.2 Million

| Structure | Stream                  | Location                          | Estimated Cost (millions) |
|-----------|-------------------------|-----------------------------------|---------------------------|
| DS7       | Big Papio Tributary     | 168 <sup>th</sup> & Bennington Rd | \$12.2                    |
| DS8A      | Big Papio Tributary     | 144 <sup>th</sup> & Bennington Rd | \$14.8                    |
| DS9A      | Big Papio Tributary     | 132 <sup>nd</sup> & Bennington Rd | \$9.5                     |
| DS10      | Thomas Creek            | 120 <sup>th</sup> & Bennington Rd | \$21.4                    |
| DS12      | West Papio              | 216 <sup>th</sup> & Fort St       | \$20.3                    |
| DS15A     | North Branch West Papio | 168 <sup>th</sup> & Fort St       | \$47.9                    |
| DS19      | South Papio             | 192 <sup>nd</sup> & Giles Rd      | \$21.2                    |
| BP1       | Big Papio Tributary     | 216 <sup>th</sup> & Hwy 36        | \$10.8                    |
| WP1       | West Papio Tributary    | 180 <sup>th</sup> & Fort St       | \$11.7                    |
| WP2       | South Papio Tributary   | 180 <sup>th</sup> & Giles         | \$11.2                    |
| WP4       | South Papio Tributary   | 204 <sup>th</sup> & Schram Rd     | \$10.2                    |
| WP5       | South Papio Tributary   | 126 <sup>th</sup> & Cornhusker Rd | \$24.6                    |
| WP6       | West Papio Tributary    | 114 <sup>th</sup> & Cornhusker Rd | \$10.4                    |
| WP7       | West Papio Tributary    | 108 <sup>th</sup> & Cornhusker Rd | \$4.8                     |
| WP8       | South Papio Tributary   | 180 <sup>th</sup> & Harrison St   | \$11.2                    |

**Proposed Water Quality Basins – 2009 Watershed Plan  
12 Projects  
Total Estimated Cost - \$133.7 Million**

| <b>Structure</b> | <b>Reservoir</b>    | <b>Location</b> | <b>Estimated Cost<br/>(millions)</b> |
|------------------|---------------------|-----------------|--------------------------------------|
| CL1              | Cunningham Lake     |                 | \$11.9                               |
| CL2              | Cunningham Lake     |                 | \$12.3                               |
| CL3              | Cunningham Lake     |                 | \$11.9                               |
| CL4              | Cunningham Lake     |                 | \$12.7                               |
| CL5              | Cunningham Lake     |                 | \$8.2                                |
| CL6              | Cunningham Lake     |                 | \$8.5                                |
| CL7              | Cunningham Lake     |                 | \$6.3                                |
| WP5-1            | WP5 (Prairie Queen) |                 | \$11.9                               |
| DS15A-1          | DS15A (Flanagan)    |                 | \$15.8                               |
| DS15A-2          | DS15A (Flanagan)    |                 | \$15.8                               |
| ZB1              | Zorinsky Lake       |                 | \$9.5                                |
| ZB2              | Zorinsky Lake       |                 | \$8.9                                |

Complete

In  
Progress

Future

WP5 & WQ Basin

DS15A & WQ Basin

Zorinsky WQ Basin 1

Zorinsky WQ Basin 2

WP6

WP7

WP4

WP2

WP1

DS12

DS19

DS7

DS10

DS9A

DS8A

7 Cunningham WQ Basins



## Project Funding

### Total to Date

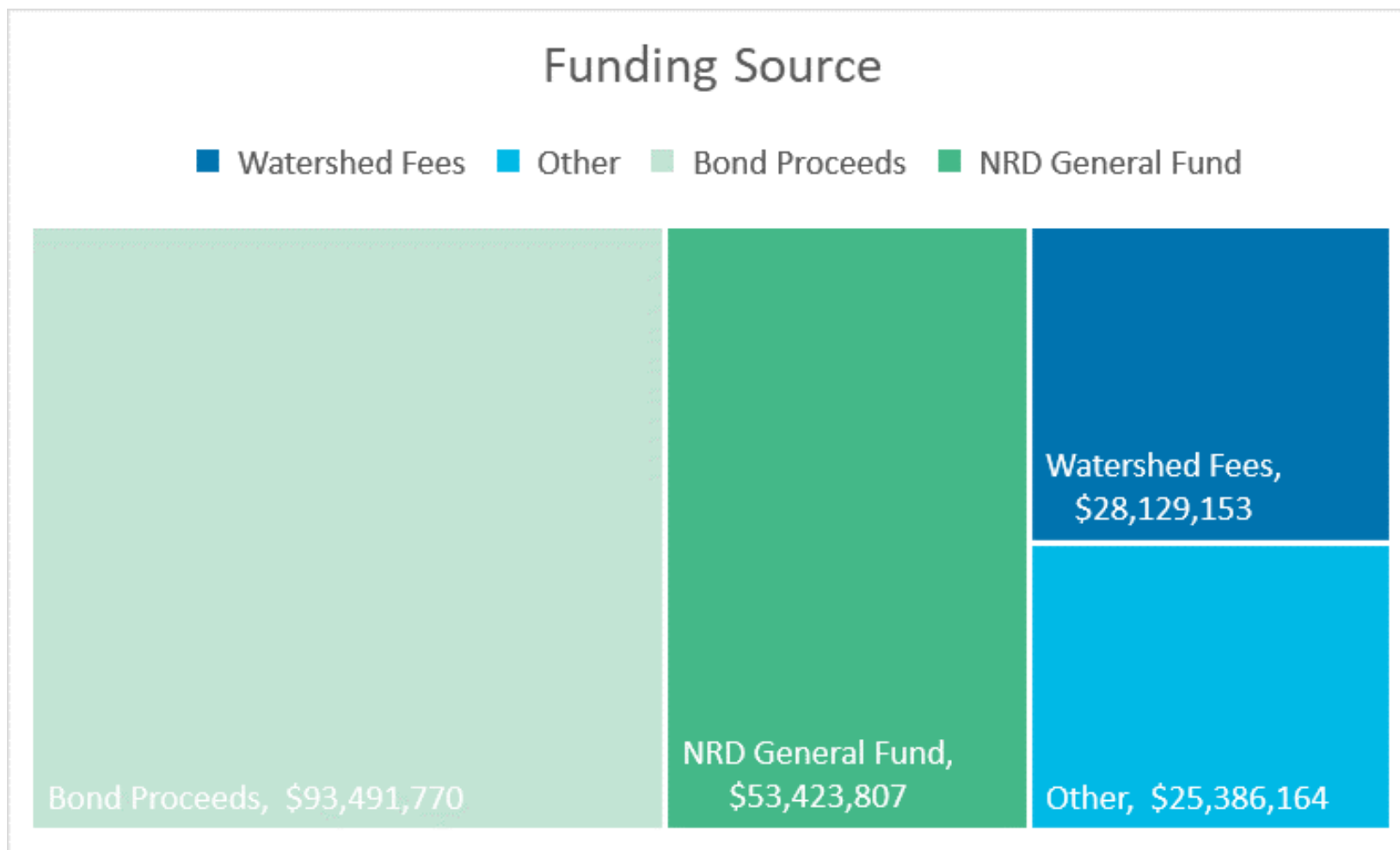
Revenue  
\$203.1 million

Watershed Fees – 14%

NRD Bonds – 46%

NRD General Fund – 26%

Other – 12%



## Total to Date

Expenditures  
\$203.1 million

Completed Projects – \$121.8 M

Projects in Progress - \$20.7 M

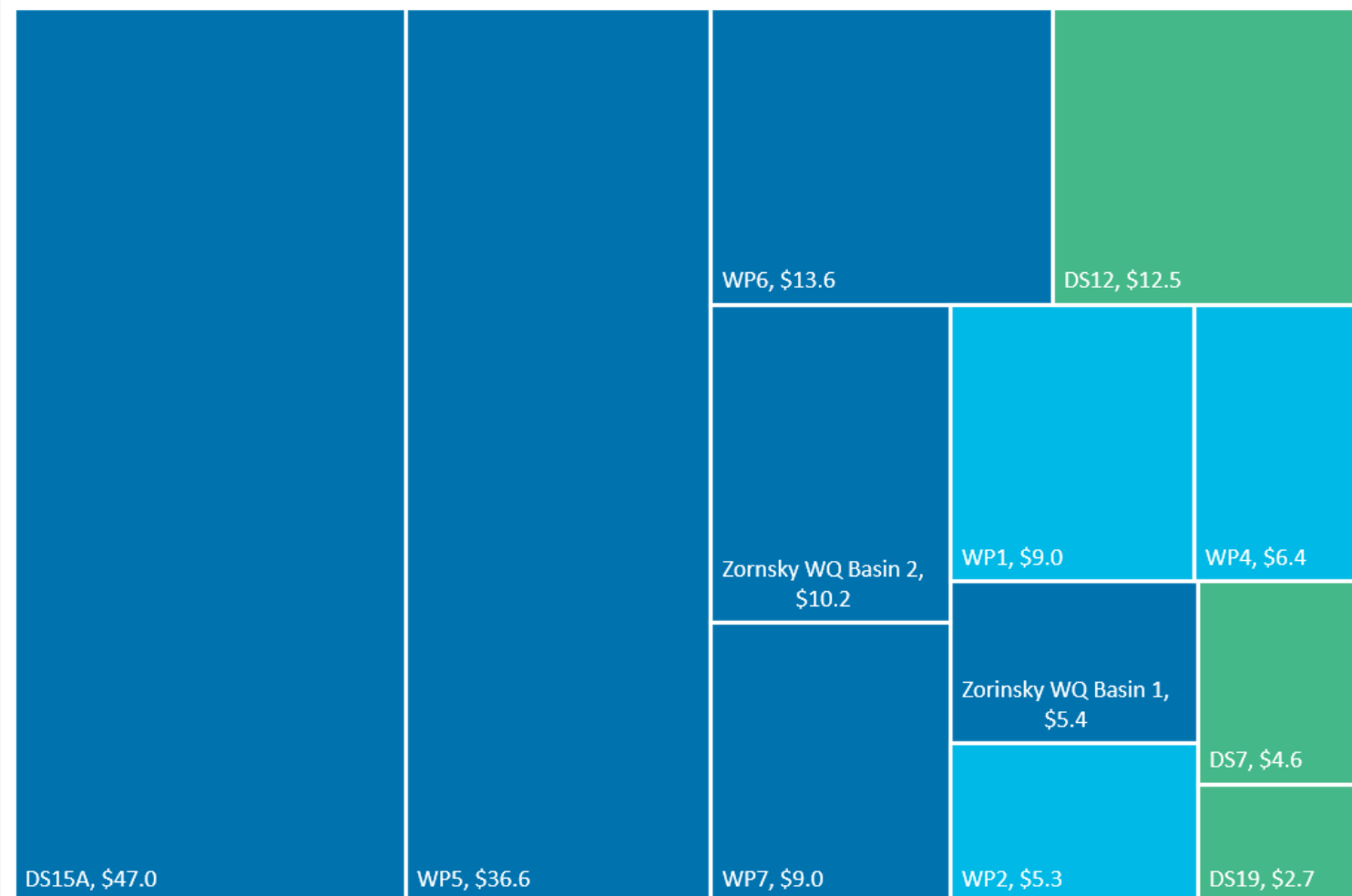
Future Projects - \$19.8 M

Bond Payments - \$40.8 M

## Remaining Bond Payments

\$98.4 million

Project Costs To Date (in millions)



# Appendix C

## Attachment 2

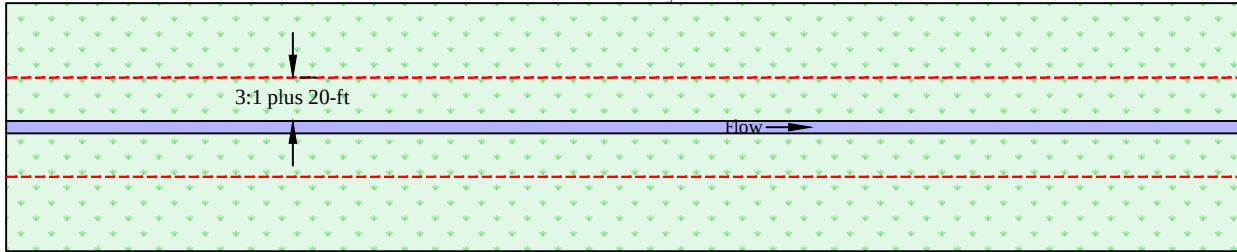
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# PCWP Setback Policy Comparison

## 12/3/2020

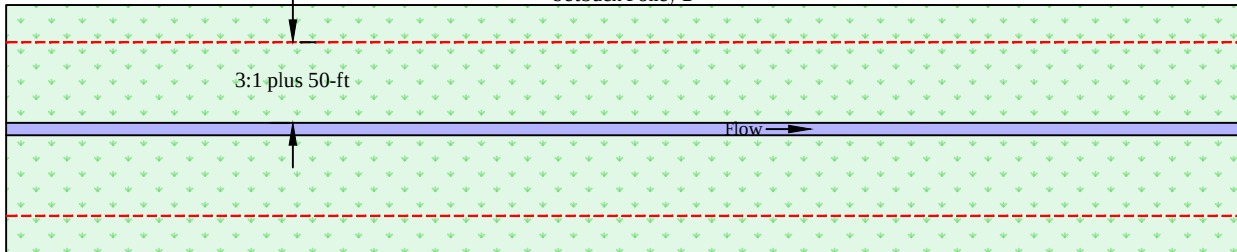
Assuming channel is  
10-ft wide, 5-ft deep,  
1320-ft long,  
@1.5% slope

Setback Policy A



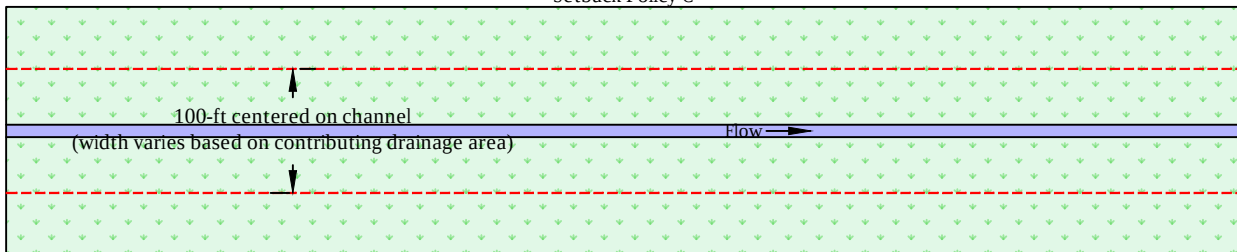
80-ft  
Total width

Setback Policy B



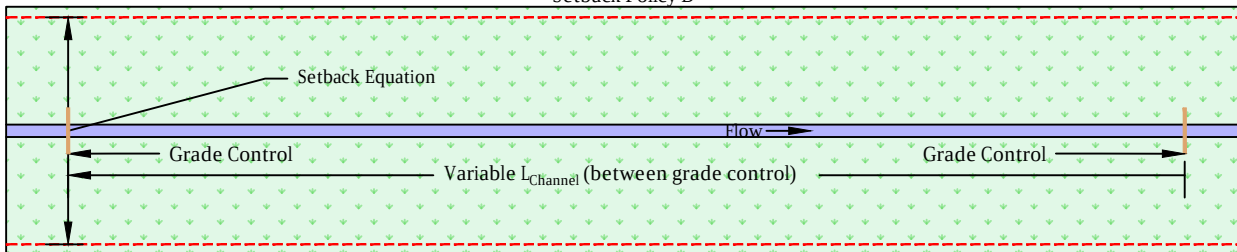
140-ft  
Total width  
(1.8-ac increase  
in setback)

Setback Policy C



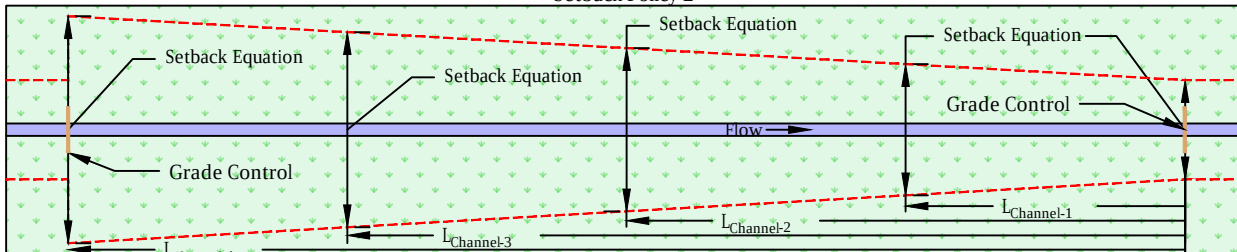
100-ft  
Total width  
(0.6-ac increase  
in setback)

Setback Policy D



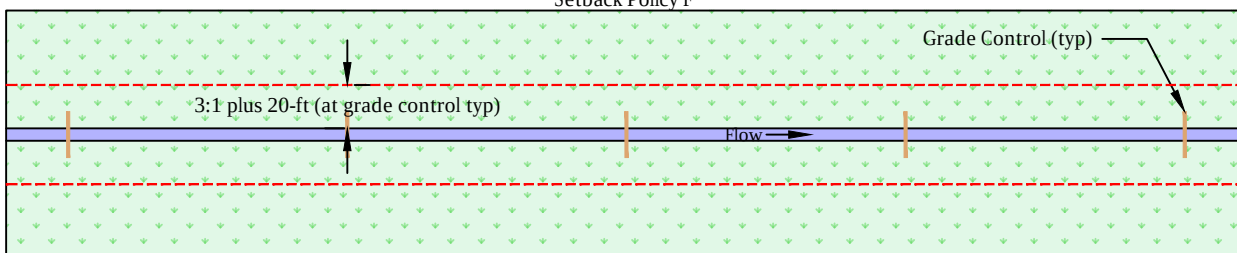
183-ft  
Total width  
(3.1-ac increase  
in setback)

Setback Policy E



80 to 183-ft  
Variable width  
(1.6-ac increase  
in setback)

Setback Policy F



80-ft  
Total width  
(No increase  
in setback)

### PCWP Stream Setback Policy Matrix - 12/3/2020

| Setback Policy Option          |                                                                                                                                                                                                           | Pros                                                                                                                                                                                                                                    | Cons                                                                                                                                                                                                                                                                            |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Existing stream setback policy |                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• No change to setback policy</li> <li>• No increase in setback</li> </ul>                                                                                                                       | <ul style="list-style-type: none"> <li>• Does not address survey timing (old data used)</li> <li>• Subjectivity of water surface and watercourse definitions</li> <li>• Does not account for grade control</li> <li>• Does not adequately address future degradation</li> </ul> |
| <b>A</b>                       | Existing policy with minor modifications (survey timing, water surface, watercourse definition)                                                                                                           | <ul style="list-style-type: none"> <li>• Easiest to implement</li> </ul>                                                                                                                                                                | <ul style="list-style-type: none"> <li>• Does not account for grade control</li> <li>• Does not adequately address future degradation</li> </ul>                                                                                                                                |
| <b>B</b>                       | Policy A with modifications to buffer width (50-ft buffer all streams)                                                                                                                                    | <ul style="list-style-type: none"> <li>• Better fit to address future degradation</li> <li>• Easier to implement</li> </ul>                                                                                                             | <ul style="list-style-type: none"> <li>• Does not account for grade control</li> <li>• Does not adequately address future degradation</li> <li>• Increased setback compared to existing policy</li> </ul>                                                                       |
| <b>C</b>                       | Contributing drainage area defines setback width (i.e. $DA < 100\text{-ac} = 90\text{-ft}$ , $100\text{-ac} < DA < 200\text{-ac} = 100\text{-ft}$ , $DA > 200\text{ac} = \text{equation based setback}$ ) | <ul style="list-style-type: none"> <li>• Simplified process to determine setback widths</li> <li>• Allows for variable setback widths (based on drainage area)</li> <li>• Similar to proposed City of Lincoln setback policy</li> </ul> | <ul style="list-style-type: none"> <li>• Does not account for grade control</li> <li>• Does not adequately address future degradation</li> <li>• Increased setback compared to existing policy</li> </ul>                                                                       |
| <b>D</b>                       | Grade control at variable intervals with <u>constant</u> setback width determined by equation at upstream end                                                                                             | <ul style="list-style-type: none"> <li>• Promotes grade control</li> <li>• Adequately addresses future degradation (accounts for varying stream slopes)</li> </ul>                                                                      | <ul style="list-style-type: none"> <li>• Increased setback compared to existing policy</li> <li>• Constant buffer width may be overly conservative</li> </ul>                                                                                                                   |
| <b>E</b>                       | Grade control at variable intervals with <u>variable</u> setback width determined by equation at 200-ft intervals                                                                                         | <ul style="list-style-type: none"> <li>• Promotes grade control</li> <li>• Adequately addresses future degradation (accounts for varying stream slopes)</li> <li>• Variable buffer width increases developable land</li> </ul>          | <ul style="list-style-type: none"> <li>• Increased setback compared to existing policy</li> </ul>                                                                                                                                                                               |
| <b>F</b>                       | Stream stabilization with geomorphic stream assessment and natural channel design considerations (similar to current exemption)                                                                           | <ul style="list-style-type: none"> <li>• Promotes grade control</li> <li>• Variable buffer width increases developable land</li> </ul>                                                                                                  | <ul style="list-style-type: none"> <li>• Requires additional engineering/regulatory review</li> <li>• Additional costs associated with assessment and design/construction</li> </ul>                                                                                            |

# Papillion Creek Watershed Partnership Stream Setback Policy Recommendations

**DRAFT** - January 7, 2021

## SUB-POLICIES

- 1) For new development or significant redevelopment, provide a stream setback on all watercourses the greater of (a) 3:1 plus 50 feet from the future degradation point or (b) top of high bank plus 50 feet as displayed in Figure 1 below. The future degradation depth shall be calculated at 200-ft intervals maximum along the stream with channel length being cumulative from the downstream grade control. Cross sections shall be provided at 200-ft intervals maximum showing existing grades, ordinary high water mark (OHWM), future degradation depth, 3:1 slope projections, and 50-ft setbacks. All measurements of the existing stream shall be determined by current topographic survey.

$$\text{Future Degradation Depth} = L_{\text{Channel}} \times S_{\text{Channel}} - L_{\text{Channel}} * 0.0015$$

Where:  $L_{\text{Channel}}$  = Channel length – feet (along stream centerline, measured from downstream grade control)

$S_{\text{Channel}}$  = Channel slope – foot/foot (average slope of the channel along the channel length as determined by ordinary high water marks)

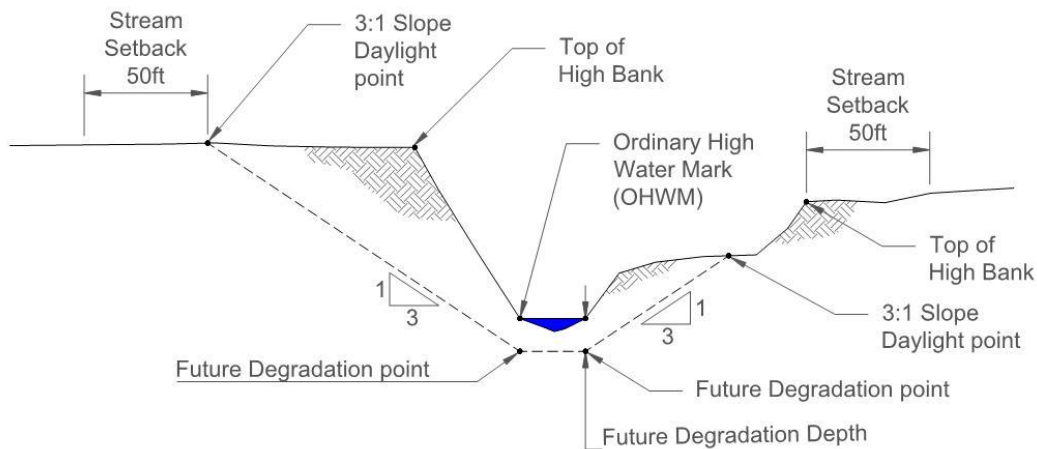


Figure 1 – Creek Setback Schematic

- 2) For streams with a geomorphic stream assessment and stream stabilization design completed by a licensed professional engineer or other natural sciences professional with training and experience in stream stabilization/restoration; or along streams already stabilized or improved by a licensed professional engineer or natural sciences professional with training and experience in stream stabilization/restoration, the stream setback can be modified as shown in Figure 2 below:

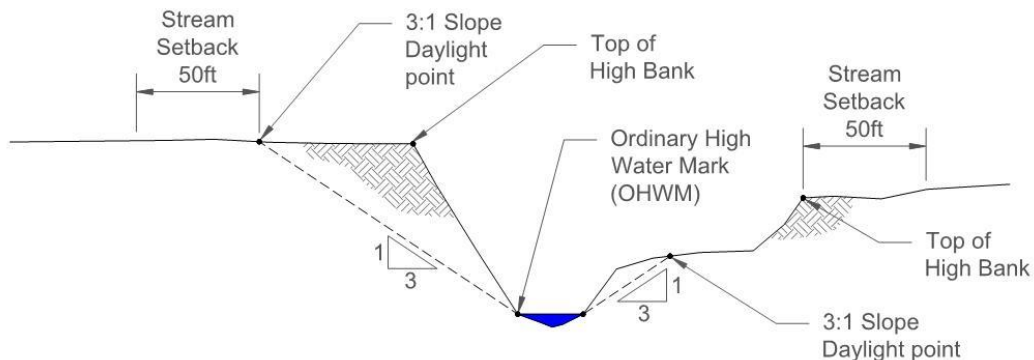


Figure 2 – Creek Setback Schematic with Stream Assessment

The stream stabilization design must demonstrate that future degradation along the entire project stream reach will be addressed and that “natural channel design” and “bioengineering techniques” have been considered as part of that design. In the event that the project stream reach has been channelized or otherwise improved by any agency of government, a certification as to the adequacy and protection of the improvements installed by such governmental agency must be provided. In all cases the stream stabilization design must adhere to all local, state, and federal regulations which may be more stringent.

- 3) Grade control shall be installed at a minimum at the following locations:
  - a. Arterial roadway crossings
  - b. Sanitary sewer crossings and other public utilities less than 10-ft below stream bed (measured from top of pipe to stream bed)

## DEFINITIONS

- 1) Stream setback. A stream setback as calculated using the equation(s) above shall be required for any above or below ground structure exclusive of stream/bank stabilization structures, poles or sign structures adjacent to any watercourse. Grading, stockpiling, and other construction activities are not allowed within the setback area and the setback area must be protected with adequate erosion controls or other Best Management Practices (BMPs). The setback area shall be used only for purposes compatible with open space, recreational, or wetland/channel management practices. The outer 30 feet adjacent to the stream setback limits may be credited toward meeting the landscaping buffer and pervious coverage requirements.
- 2) Watercourse. Any depression below the surrounding land which serves to give direction to a current of water from at least 40-acres of contributing drainage area.
- 3) Current Topographic Survey. Topographic survey shall be conducted by a land surveyor licensed in the State of Nebraska and shall be obtained within two years from date of submittal of documentation for approval by the local jurisdiction.
- 4) Ordinary High Water Mark (OHWM). The “ordinary high water mark” observed along the project stream reach as defined by the U.S. Army Corps of Engineers.
- 5) Top of High bank. Location where stream bank slope breaks (inflection point) and flattens to surrounding terrain.
- 6) 3:1 Slope Daylight point. Location where the 3:1 slope projection intersects the existing grade.
- 7) Stream bed. Bottom ground surface of the stream.
- 8) Stream Centerline. The midway point between the ordinary high water marks on each bank.
- 9) Channel slope. Average slope of the channel as determined by ordinary high water marks.
- 10) Channel length. Distance along stream centerline.
- 11) Grade control. Any structure that has been designed to control stream bed degradation to a minimum depth of 10-ft below the designed downstream bed elevation.
- 12) Natural channel design. The application of fluvial geomorphology to create stable channels that do not aggrade or degrade over time and that maximize stream functions given site constraints.
- 13) Bioengineering techniques. The use of living, riparian grasses, trees, and other natural materials to stabilize stream banks.



# Working Group

November 15, 2023





# Agenda

- Why Are We Here?
- 2021 Proposed Policy
- Comments Received
- Interim Actions
- Policy Proposals
- Group Feedback and Discussion







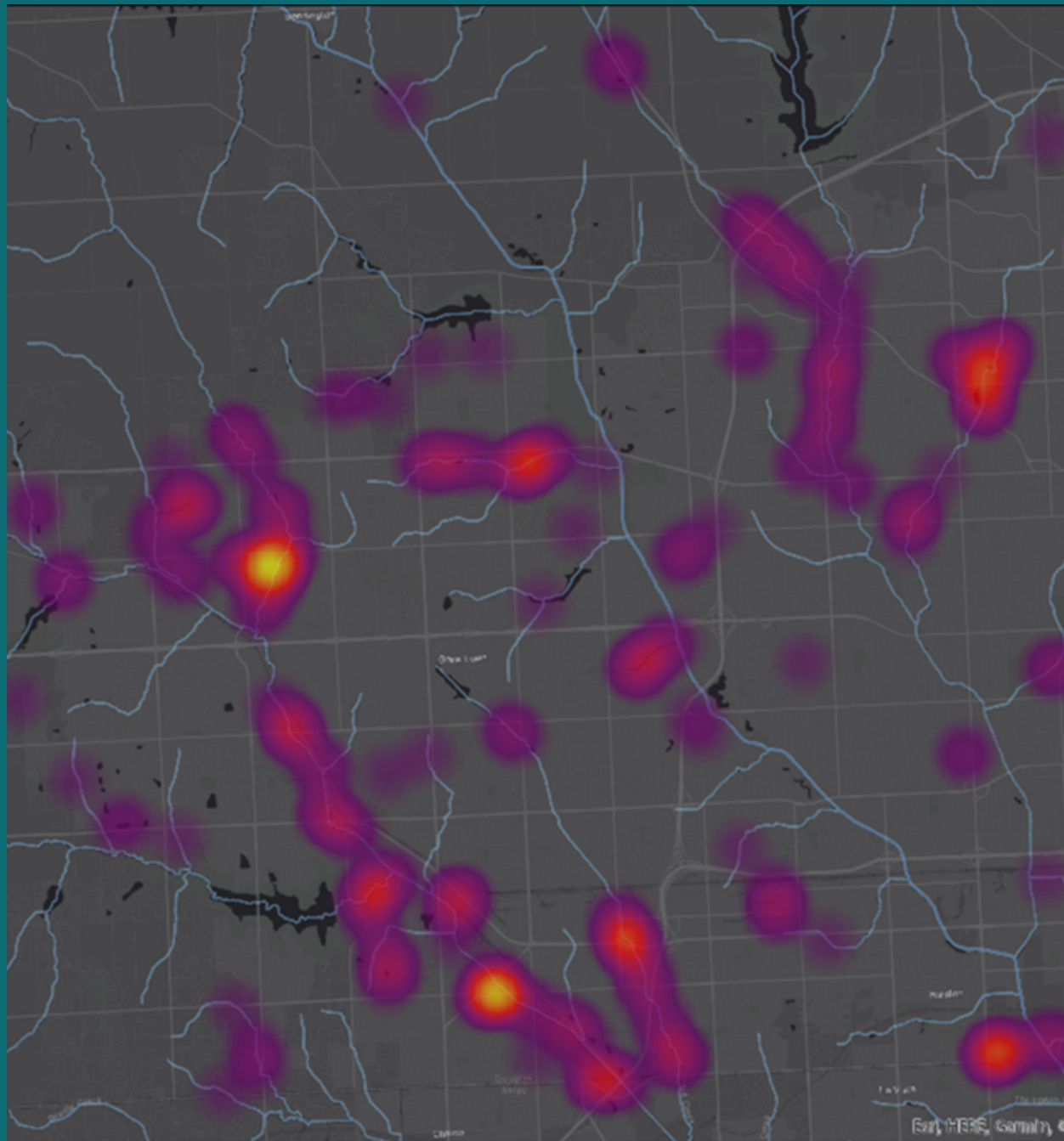
# Why Are We Here?







# Why Are We Here?



There is a lack of funding to address all the known stream degradation issues.

In many cases the current setback policy is insufficient to protect private property and public infrastructure.

The proposed policy updates based on multiple stream degradation studies were concerning to many stakeholders.

# 2021 Proposed Policy



- 3:1 + 50 feet based on projected degradation
- Grade Control could be installed to reduce future degradation therefore reducing total setback width



# Comments Received

1

Broad  
Brush

2

USACE  
Permitting  
Process

3

Additional  
Costs

4

Too  
Conservative



**1** Additional Analysis

**2** USACE Coordination

**3** Revisit Policy

# Interim Actions



# Lateral Migration Analysis

- Change Detection Analysis
- 12 year period
  - 2004, 2010, and 2016 LiDAR
- Largely Undeveloped Watersheds
- Average stream widening of 5-10 feet over a 12-year period in undeveloped watersheds





# USACE Coordination

- Discussion with Omaha District Regulatory Office
- Technical Advisory Group
- Permitting templates and guidance for grade control structures.
- USACE and NDEE reviewed templates and provided input





# Revisit Policy

- PCWP Update Listening Sessions
- Member Jurisdiction Discussions
- Potential Policy Modifications



1

3:1+50 feet setback  
No future degradation  
consideration

2

Allowance for passive  
recreation features in outer  
30 feet of setback area

3

Grade Control Incorporated  
at stream crossings

# Policy Proposals



# Discussion

[PapioPartnership.org](https://PapioPartnership.org)

# Appendix C

## Attachment 4

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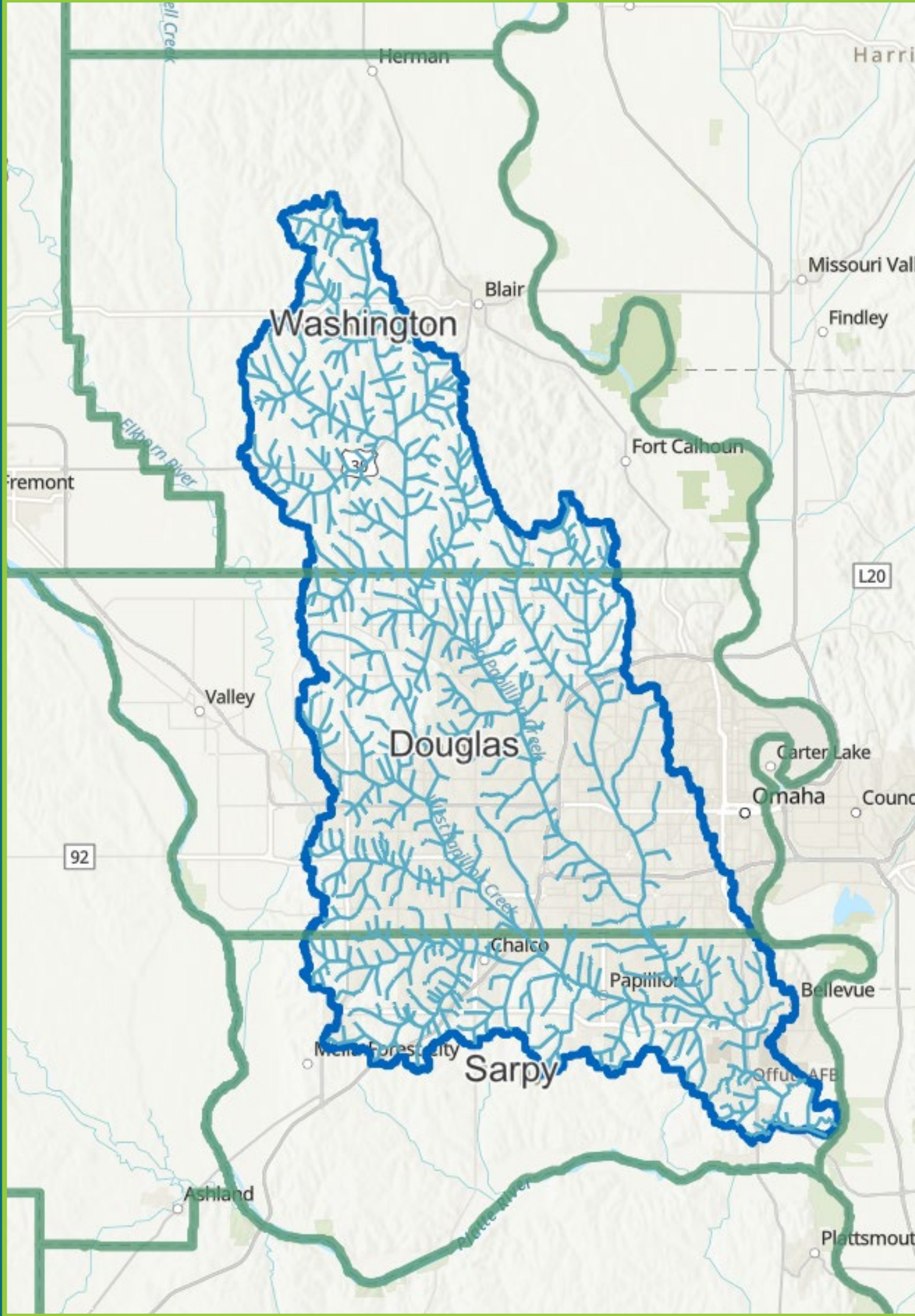


# Partnership Briefing

March 2024



# Papillion Creek Watershed



- **402 Square Miles**
- **Three Counties**
  - **Washington**
  - **Douglas**
  - **Sarpy**
- **11 Cities**
- **Approximately 1/3 of Nebraska's Population**





# Papillion Creek Watershed Partnership

## Mission Statement

*Our mission is to address issues related to water quality and storm water quantity in the Papillion Creek Watershed by establishing regionally common goals and standards for the development of the watershed through 2040.*





# PCWP Members



# Papio NRD



- **Administering Agent for PCWP**
  - Hold and disburse funds
  - Execute and manage contracts on behalf of PCWP
  - Record keeping
- **Construct Priority Projects of the PCWP**
- **Provide Technical Assistance**
- **Provide Cost Share Programs**



# PCWP Management Drivers



- Accommodating Growth in the Watershed
- Regulatory Obligations
- Flooding Potential in Major Tributaries
- Aesthetics and Quality of Life

From July 20, 2006 Public Forum

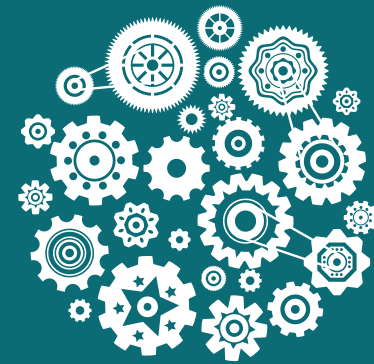
# Plan Development Process

## 2001-2009



### 3 Workgroups

Technical  
Policy  
Finance



### Technical Analysis

Water Quality  
Water Quantity  
Alternatives Analysis



### Public Outreach

Small Group Presentations  
Open Houses  
Elected Official Forums



### Adopt

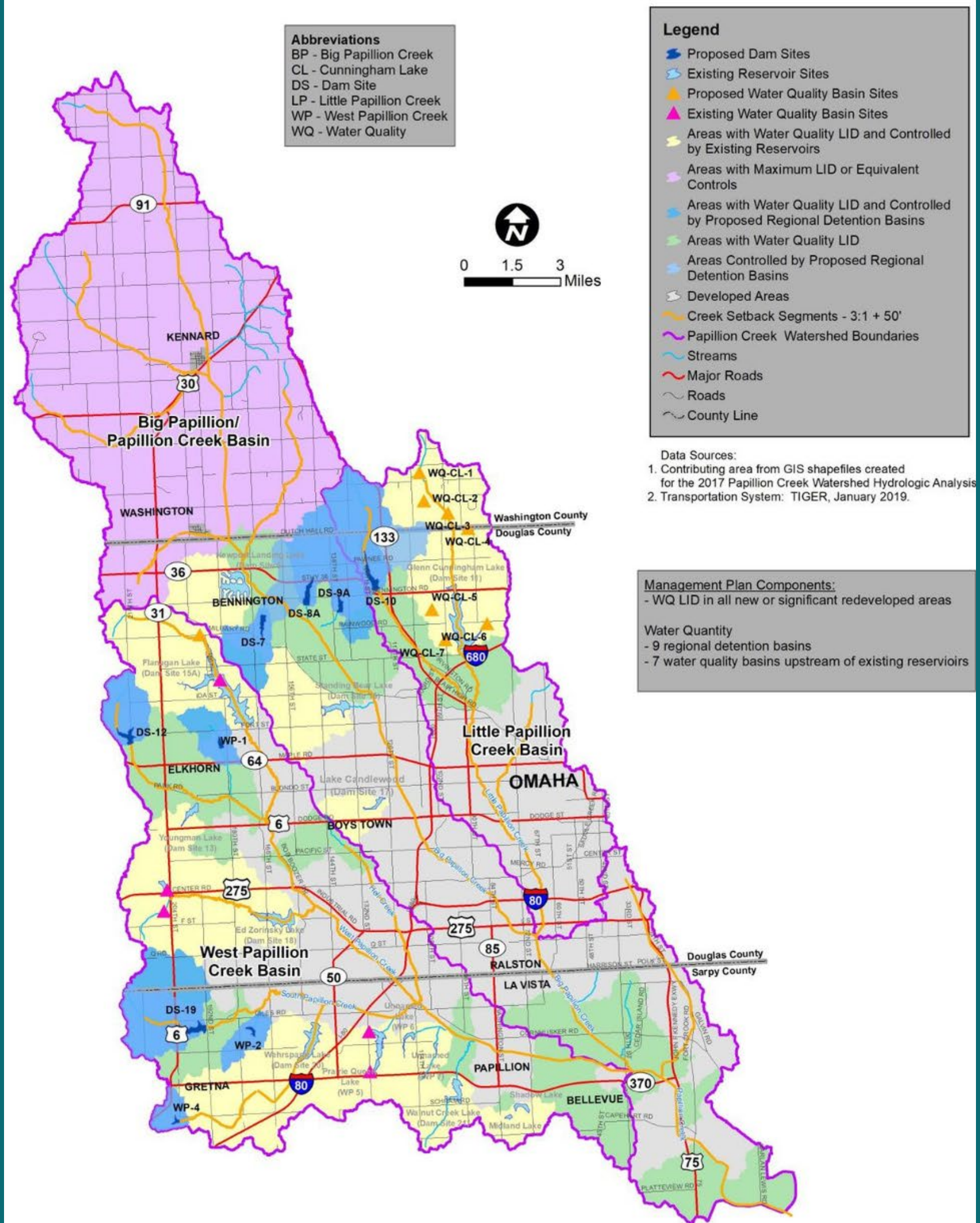
Interlocal  
Agreement  
Municipal  
Code

# Stormwater Policies



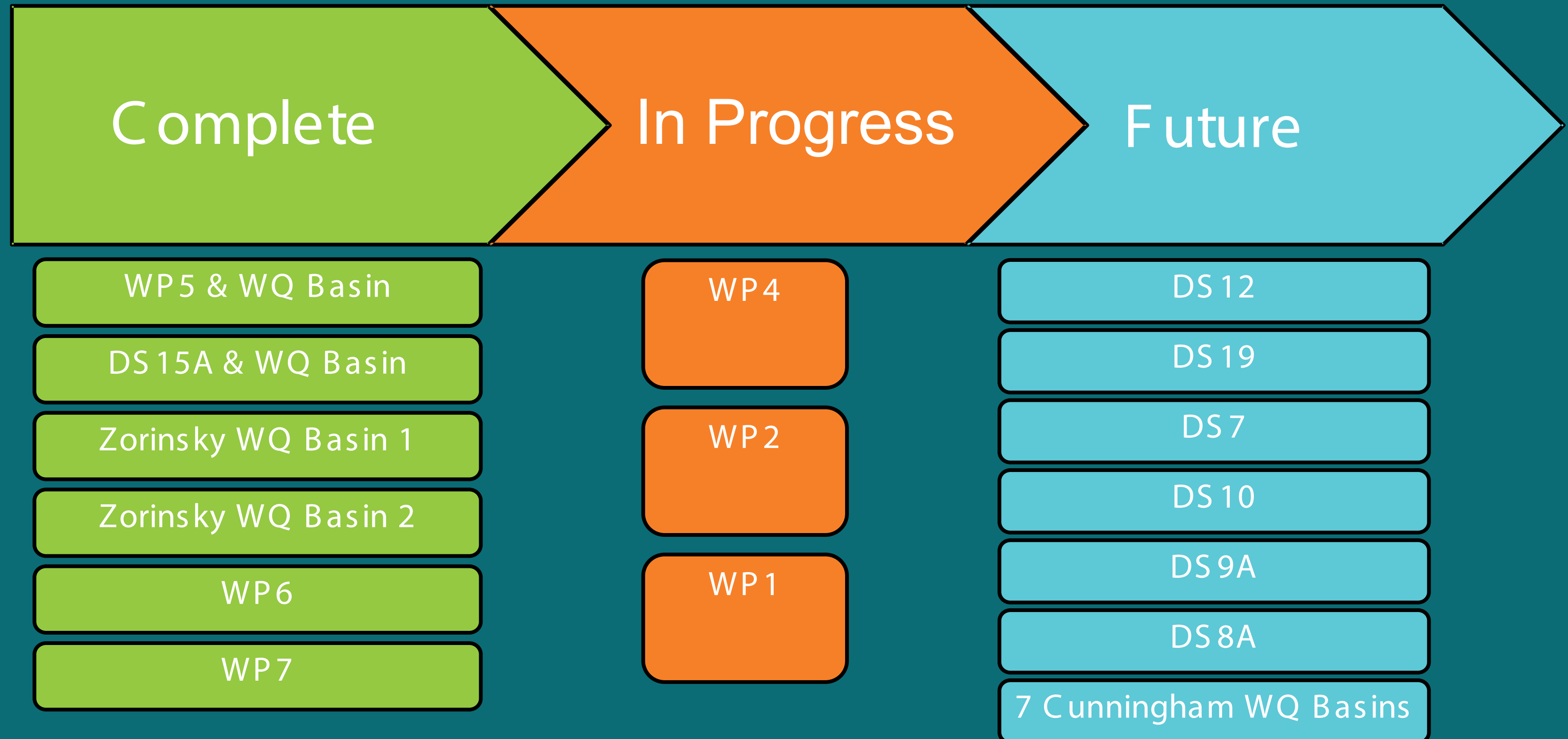
- 1** Water Quality Improvement
- 2** Peak Flow Reduction
- 3** Landscape Preservation, Restoration, and Conservation
- 4** Erosion and Sediment Control and Other Best Management Practices
- 5** Floodplain Management
- 6** Stormwater Management Financing





# PCWP Watershed Management Plan

# Structural Flood Control Projects





# Stormwater Management Shared Elements



| A. Public Education and Outreach                                        |  | Lead Partnership Member(s) |
|-------------------------------------------------------------------------|--|----------------------------|
| Develop Education and Outreach Plan                                     |  | City of Omaha, PMRNRD      |
| Maintain and Update Outreach Materials                                  |  | City of Omaha              |
| B. Public Participation and Involvement                                 |  | Lead Partnership Member(s) |
| Create Opportunities for Citizen Participation                          |  | City of Omaha, PMRNRD      |
| C. Illicit Discharge Detection and Elimination                          |  | Lead Partnership Member(s) |
| Track IDDE complaints                                                   |  | City of Omaha              |
| D. Construction Site Runoff                                             |  | Lead Partnership Member(s) |
| Perform Construction Site Inspections                                   |  | City of Omaha              |
| Maintain Construction Site Reporting Website                            |  | City of Omaha              |
| Conduct Workshops on Construction Site Runoff                           |  | City of Omaha              |
| E. Post Construction Runoff Control                                     |  | Lead Partnership Member(s) |
| Update Omaha Regional Stormwater Design Manual as standards are updated |  | City of Omaha              |
| Maintain PCSMP Application Reporting, and Project Database Website      |  | City of Omaha              |
| F. Pollution Prevention and Good Housekeeping                           |  | Lead Partnership Member(s) |
| Education and Training                                                  |  | City of Omaha              |



# Budgeting

- Partnership Fund

$$\text{Contribution\%} = \left( 0.5 \frac{\text{Population}_{\text{jurisdiction}}}{\text{Population}_{\text{Total}}} + 0.5 \frac{\text{Area}_{\text{jurisdiction}}}{\text{Area}_{\text{Total}}} \right) \times 0.757$$



# Current Contributions

|                          |        |           |
|--------------------------|--------|-----------|
| Bellevue                 | 9.9%   | \$36,400  |
| Boys Town                | 0.2%   | \$750     |
| Gretna                   | 1.6%   | \$5,700   |
| LaVista                  | 2.9%   | \$10,750  |
| Omaha                    | 50.0%  | \$184,400 |
| Papillion                | 6.3%   | \$23,250  |
| Ralston                  | 0.6%   | \$2,250   |
| Sarpy County             | 4.2%   | \$15,500  |
| Papio-Missouri River NRD | 24.3%  | \$90,000  |
|                          | 100.0% | \$369,000 |



# Current Annual Obligations

|                        |           |
|------------------------|-----------|
| Omaha<br>Reimbursement | \$275,997 |
| NRD<br>Reimbursement   | \$34,400  |
| SEC Seminar<br>Support | \$3,000   |
| Total                  | \$313,397 |



# Proposed Contributions

|                          |        |           |
|--------------------------|--------|-----------|
| Bellevue                 | 9.1%   | \$33,700  |
| Boys Town                | 0.2%   | \$600     |
| Gretna                   | 3.6%   | \$13,200  |
| LaVista                  | 2.6%   | \$9,500   |
| Omaha                    | 51.8%  | \$191,000 |
| Papillion                | 6.0%   | \$22,000  |
| Ralston                  | 0.5%   | \$2,000   |
| Sarpy County             | 2.0%   | \$7,000   |
| Papio-Missouri River NRD | 24.2%  | \$90,000  |
|                          | 100.0% | \$369,000 |



# Periodic Updates



- Update the plan every 5 years
  - Projects Completed
  - Changes to Regulations
- Prioritize Next Structural Projects
- Adjust Policies
- Updates Completed 2014, 2019
- 2024 Update in Progress

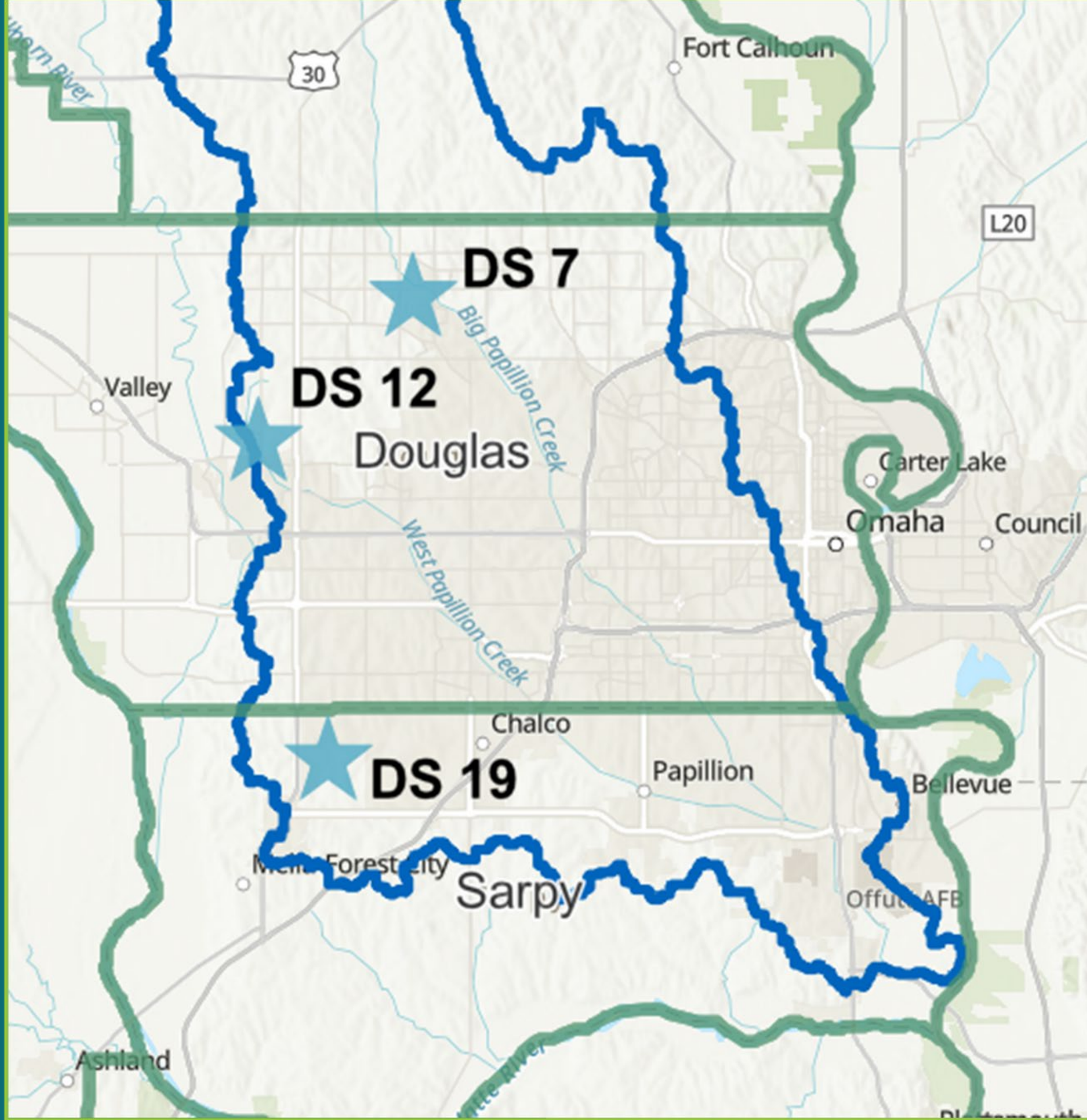






# 2024 Update

- Regional Detention Basins
  - Dam Site 12
  - Dam Site 7
  - Dam Site 19, based on USACE funding
- Policy Updates
  - No major policy updates proposed at this time





# The Future

1

Complete Watershed Plan  
Update for 2024

Adoption by June 2024

2

Continue work with  
developers and other  
stakeholders to find a  
solution for stream  
degradation issues

3

Support efforts to  
identify barriers to  
creating affordable  
housing at a lesser risk  
from erosion and  
flooding

4

Work towards creation of  
green space corridors  
through efforts such as  
Climate Action Plan, park  
plans, and active  
transportation plans.

# Questions?



[PapioPartnership.org](https://PapioPartnership.org)

# Appendix C

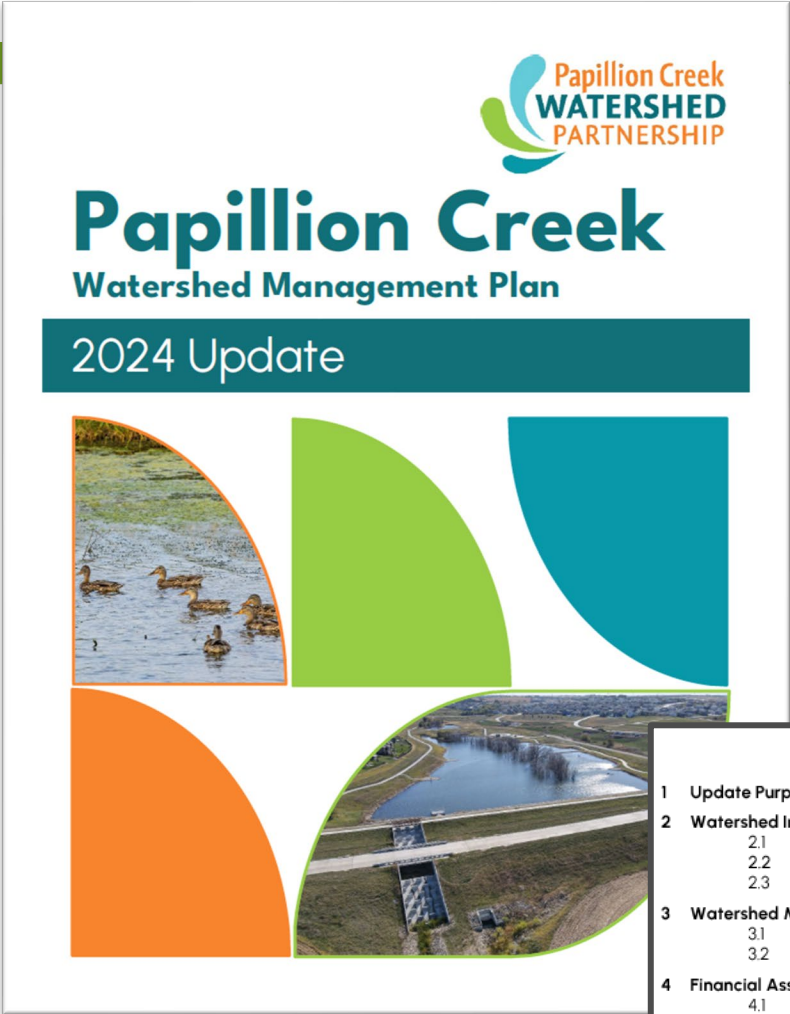
## Attachment 5

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# 2024 Plan Update Summary



- 1. Purpose
- 2. Watershed Information
- 3. Watershed Management Plan
  - Policies
  - Program Projects
- 4. Financial Assessment
- 5. 5-Yr Implementation Plan



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Partnership Website Updates

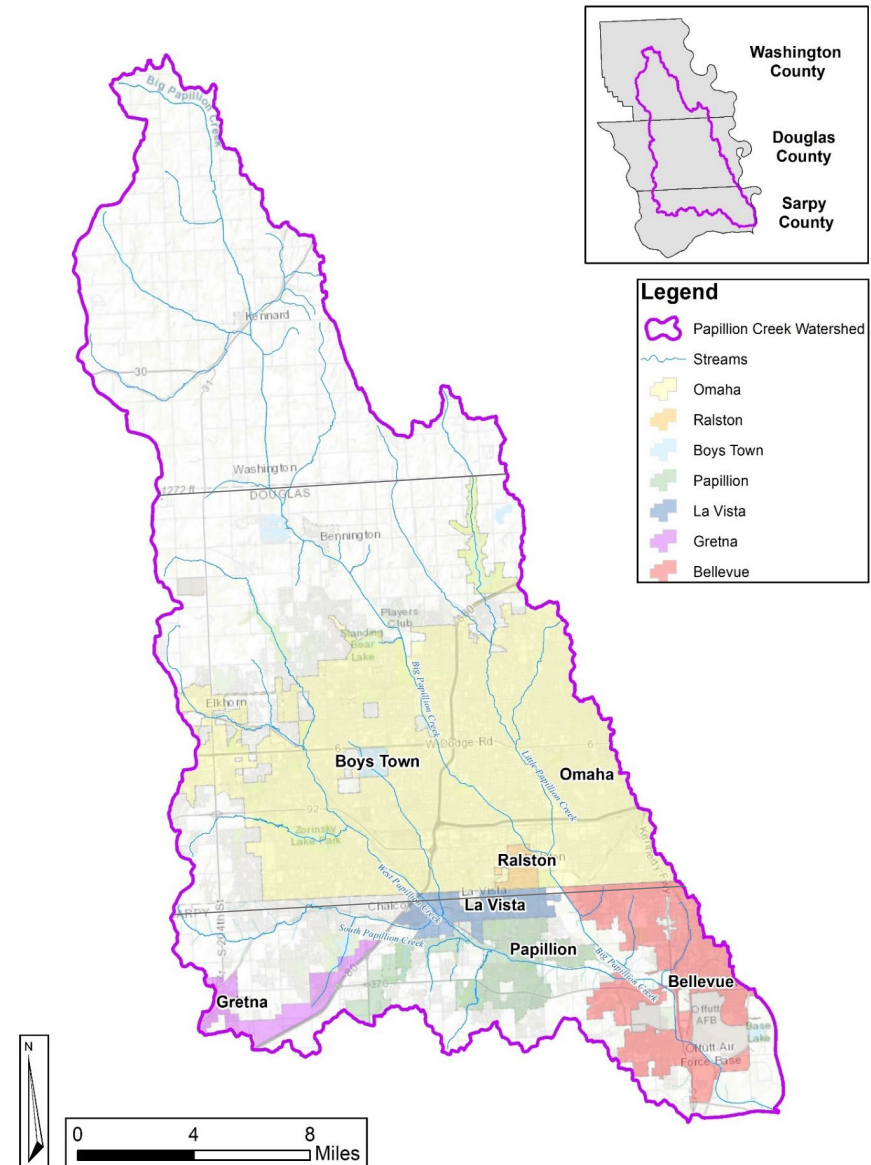
[Papillion Creek Watershed Partnership \(papiopartnership.org\)](http://papiopartnership.org)



# Purpose



- Document progress from last 5-year implementation period (FY 2020 - FY 2024)
- Policy review and update efforts
- Remaining structural Program Projects cost updates
- Watershed Fee rate updates
- Develop next 5-year implementation plan (FY 2025 - FY 2029)
- Update Interlocal Agreements

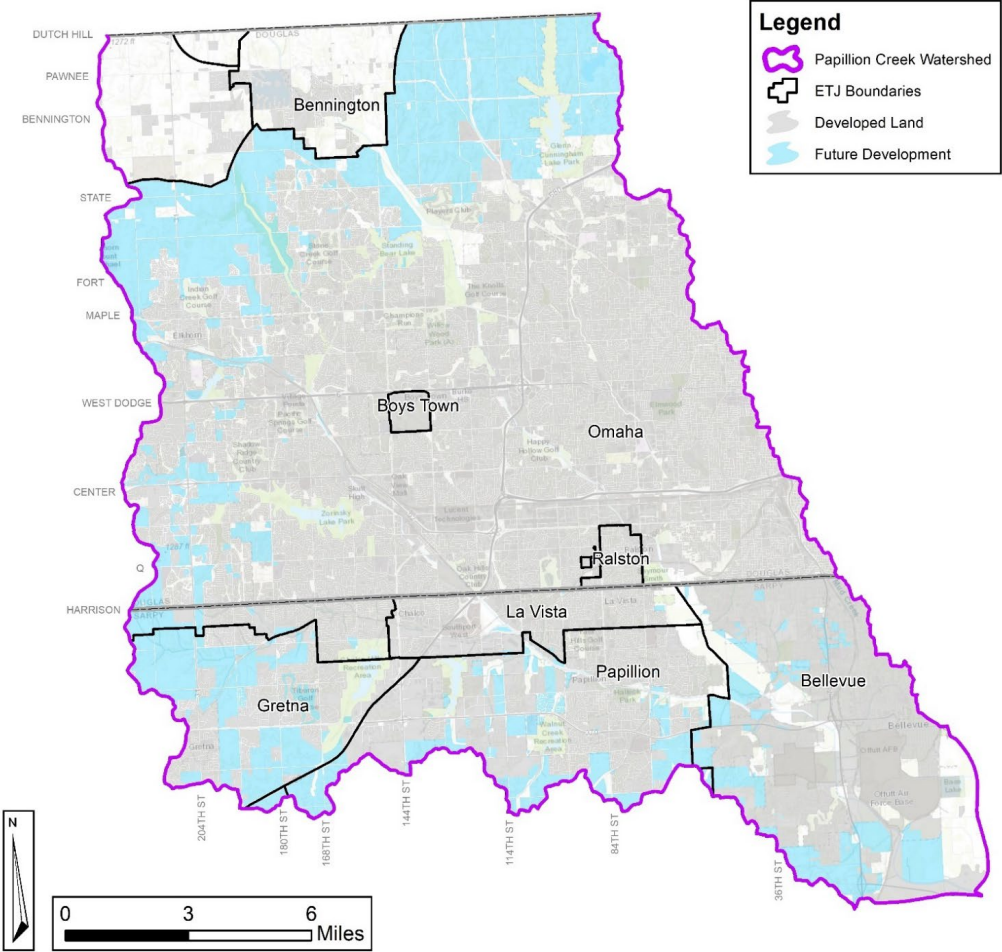






- Status of development w/in Partnership’s ETJs
- Concurrent and related work in Watershed
  - *USACE Reevaluation Study* – plan to address flood risks in Watershed, includes Program Projects DS-19 and DS-10
  - *WFPO Study* – NRCS program to address water resource concerns, includes grade stabilization, stream restoration, and sediment control basin.
  - *Supplemental Funding* – grant applications to support FY 2020- FY 2024 Program Projects - **\$16.3 million total**

| Program Project | Grant Sources |             |             |           |                     |
|-----------------|---------------|-------------|-------------|-----------|---------------------|
|                 | WSF           | FEMA/BRIC   | NGPC/FWS    | EPA 319   | Total               |
| WP-1            | \$4,735,048   | ---         | \$500,000   | \$200,000 | \$5,435,048         |
| WP-2            | \$4,171,204   | ---         | \$325,000   | ---       | \$4,496,204         |
| WP-4            | \$726,900     | \$5,335,650 | \$350,000   | ---       | \$6,412,550         |
| Total           | \$9,633,152   | \$5,335,650 | \$1,175,000 | \$200,000 | <b>\$16,343,802</b> |





- Policies

- Reviewed policies, updated terminology, and simplified document

POLICY GROUPS

- |                                 |                                    |
|---------------------------------|------------------------------------|
| 1. Water Quality Improvements   | 4. Erosion and Sediment Control    |
| 2. Peak Flow Management         | 5. Floodplain Management           |
| 3. Stream Corridor Preservation | 6. Stormwater Management Financing |

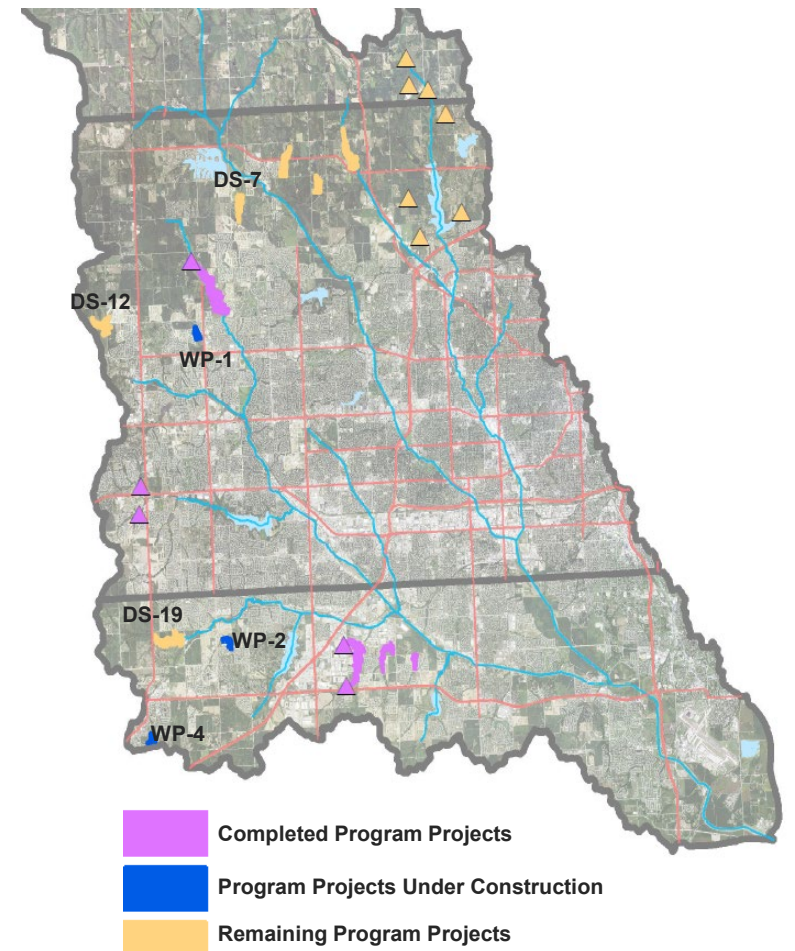
- Revisited stream setback definition and pursued modifications
  - **Proposed compromises to the stream setback policy presented in 2021.**
  - **After stakeholder discussions, there remained opposition to updating the policy so no changes were made.**

# Watershed Management Plan



- Structural Components – Program Projects
  - FY 2020 – FY 2024 Status Update

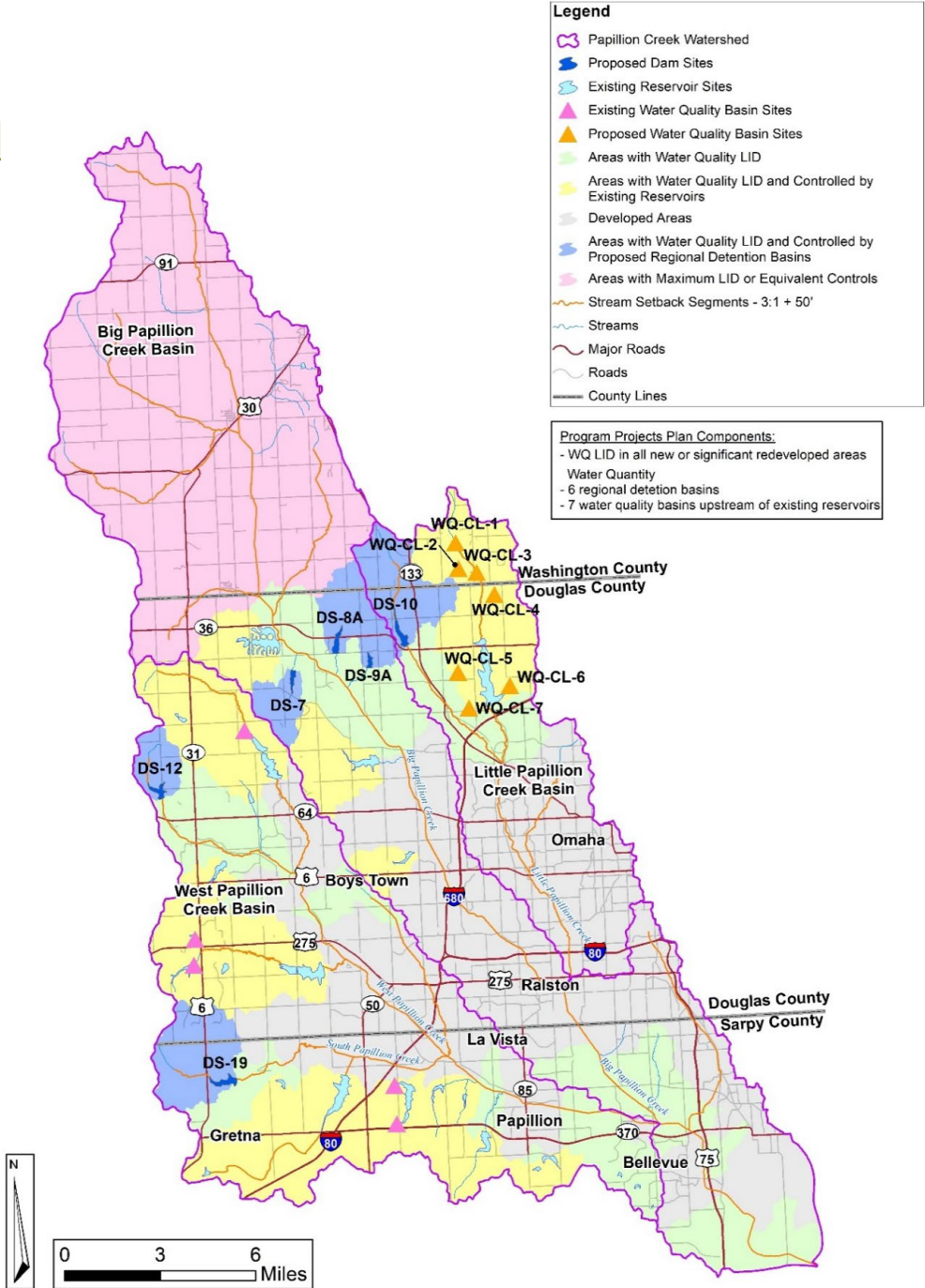
| Structure Name                                     | Approx. Location & Planning Jurisdiction         | Drainage Area (acres) | Project Funding Sources (Millions of \$) |        |                            | Current Status                                                                                        |
|----------------------------------------------------|--------------------------------------------------|-----------------------|------------------------------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------|
|                                                    |                                                  |                       | NRD Fund & Watershed Fees                | Other¹ | Total Project Expenditures |                                                                                                       |
| 2019 Program Projects for Years FY 2020 to FY 2024 |                                                  |                       |                                          |        |                            |                                                                                                       |
| WP-1                                               | 180th & Fort Streets                             | 865                   | \$4.2                                    | \$8.8  | \$13.0                     | Construction Begins Fall 2024 - completion in Winter 2025                                             |
| WP-2                                               | 180th St & Giles Road                            | 705                   | \$7.7                                    | \$4.5  | \$12.2                     | Under construction - completion in Spring 2025                                                        |
| WP-4                                               | 204th St & Schram Road                           | 670                   | \$8.9                                    | \$6.4  | \$15.3                     | Under construction - completion in Fall 2024                                                          |
| 2019 Program Projects Subtotal                     |                                                  |                       | \$20.8                                   | \$19.7 | \$40.5                     | ---                                                                                                   |
| Land Rights Purchase in FY 2020 to FY 2024         |                                                  |                       |                                          |        |                            |                                                                                                       |
| DS-12                                              | 216th & Fort Streets; Omaha                      | 1,660                 | \$12.5                                   | ---    | \$12.5                     | Preliminary design complete<br>Land rights purchase underway                                          |
| DS- 7                                              | 168th Street & Bennington Road; Bennington/Omaha | 1,675                 | \$11.6                                   | ---    | \$11.6                     | Preliminary design complete<br>Land rights purchase underway                                          |
| DS- 19                                             | 192nd Street & West Giles Road; Sarpy County     | 2,750                 | \$7.7                                    | ---    | \$7.7                      | Preliminary design complete<br>Land rights purchase underway<br>USACE final design scheduled for 2025 |
| Land Rights Subtotal                               |                                                  |                       | \$31.8                                   | ---    | \$31.8                     | ---                                                                                                   |
| Total                                              |                                                  |                       | \$73.5                                   | \$39.4 | \$112.9                    | ---                                                                                                   |



# Watershed Management Plan

- Structural Components – Program Projects
- Remaining Projects

| Structure Name              | Approx. Location           | Drainage Area (acres) | Total Project Capital Cost, 2023 Basis (Millions of \$) <sup>1</sup> | Current Status                                                                                        |
|-----------------------------|----------------------------|-----------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| DS-12                       | 216th & Fort Streets       | 1,660                 | \$30.4                                                               | Preliminary design complete<br>Land rights purchase underway                                          |
| DS-7                        | 168th St & Bennington Road | 1,675                 | \$27.2                                                               | Preliminary design complete<br>Land rights purchase initiated                                         |
| DS-19                       | 192nd St & Giles Road      | 2,750                 | \$37.3                                                               | Preliminary design complete<br>Land rights purchase underway<br>USACE final design scheduled for 2025 |
| DS-8A                       | 144th St & Bennington Road | 1,850                 | \$19.2                                                               | ---                                                                                                   |
| DS-9A                       | 132nd St & Bennington Road | 1,280                 | \$13.0                                                               | ---                                                                                                   |
| DS-10                       | 120th St & Bennington Road | 2,950                 | \$20.4                                                               | USACE preliminary design complete                                                                     |
| Regional Detention Subtotal |                            |                       | \$147.5                                                              |                                                                                                       |
| WQ-CL 1 through 7           | Omaha & Washington Co.     | 4,470                 | \$102.1                                                              | ---                                                                                                   |
| Total Remaining             |                            |                       | \$249.6                                                              |                                                                                                       |







- Financial Approach for FY 2020 – FY 2024
  - Watershed Fees
  - Papio NRD General Funds + Awarded Grants
  - Bonding
    - 2019 authorization for a 5-year bonding authority extension
    - Bond funds used for completed Program Projects, expires in 2024
  
- Financial Assessment for Remaining Program Projects
  - Revenue and expenditure updates
  - Funding Mechanisms
    - Pay-As-You-Go (P-A-Y-G)
    - P-A-Y-G + Additional Bonding
    - P-A-Y-G + WIFIA Loan





- Cash Flow Modeling
  - Funding Scenarios

| Scenario | Funding Mechanism    | Watershed Fees               | Papio NRD Allocation                         | Financing Terms |                  |
|----------|----------------------|------------------------------|----------------------------------------------|-----------------|------------------|
|          |                      |                              |                                              | Interest Rate   | Repayment Period |
| 1.0      | P-A-Y-G              | Current Rates with Inflation | General Fund Contribution                    | ---             | ---              |
| 2.1      | P-A-Y-G + Bond       | Current Rates with Inflation | General Fund Contribution + \$20M Bond       | 3.0%            | 20 Yrs           |
| 2.2      |                      | Current Rates with Inflation | General Fund Contribution + \$20M Bond       | 4.5%            | 20 Yrs           |
| 3.1      | P-A-Y-G + WIFIA Loan | Current Rates with Inflation | General Fund Contribution + \$30M WIFIA Loan | 3.1%            | 35 Yrs           |
| 3.2      |                      | Current Rates with Inflation | General Fund Contribution + \$30M WIFIA Loan | 2.0%            | 35 Yrs           |
| 3.3      |                      | Current Rates with Inflation | General Fund Contribution + \$46M WIFIA Loan | 3.1%            | 35 Yrs           |
| 3.4      |                      | Current Rates with Inflation | General Fund Contribution + \$30M WIFIA Loan | 2.0%            | 20 Yrs           |
| 3.5      |                      | Current Rates with Inflation | General Fund Contribution + \$46M WIFIA Loan | 2.0%            | 35 Yrs           |
| 3.6      |                      | Current Rates with Inflation | General Fund Contribution + \$30M WIFIA Loan | 3.1%            | 20 Yrs           |



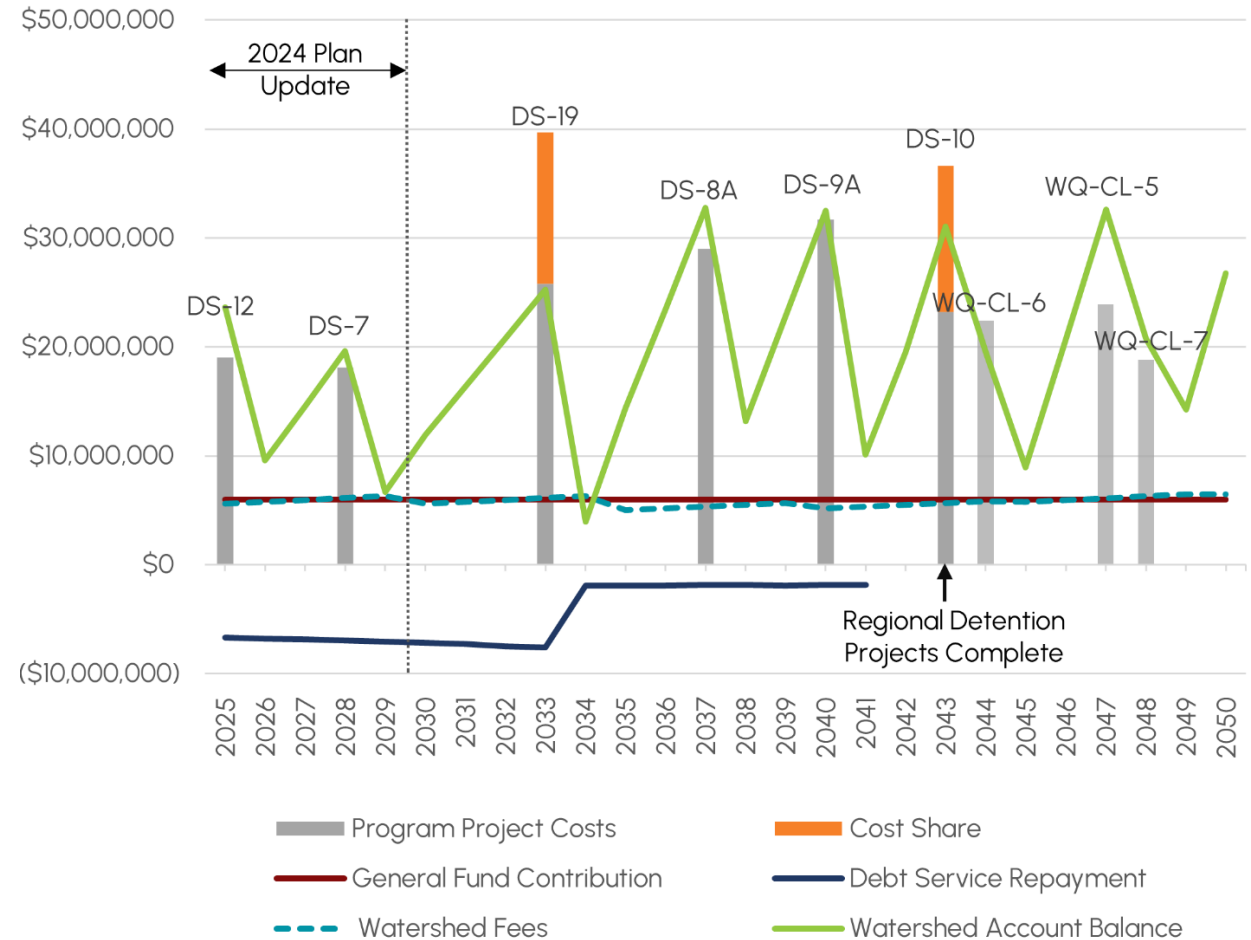


## ■ Cash Flow Modeling Results

### ■ Scenario 1. P-A-YG

#### ■ Key Model Outputs

1. Two (2) projects will be constructed in the next planning period (FY 2025 to FY 2029).
2. All regional detention structures will be complete by 2043.
3. Regional detention project cost of \$146.8 million (with no additional dept service).
4. Three (3) water quality basins can be constructed within the planning horizon (2050).



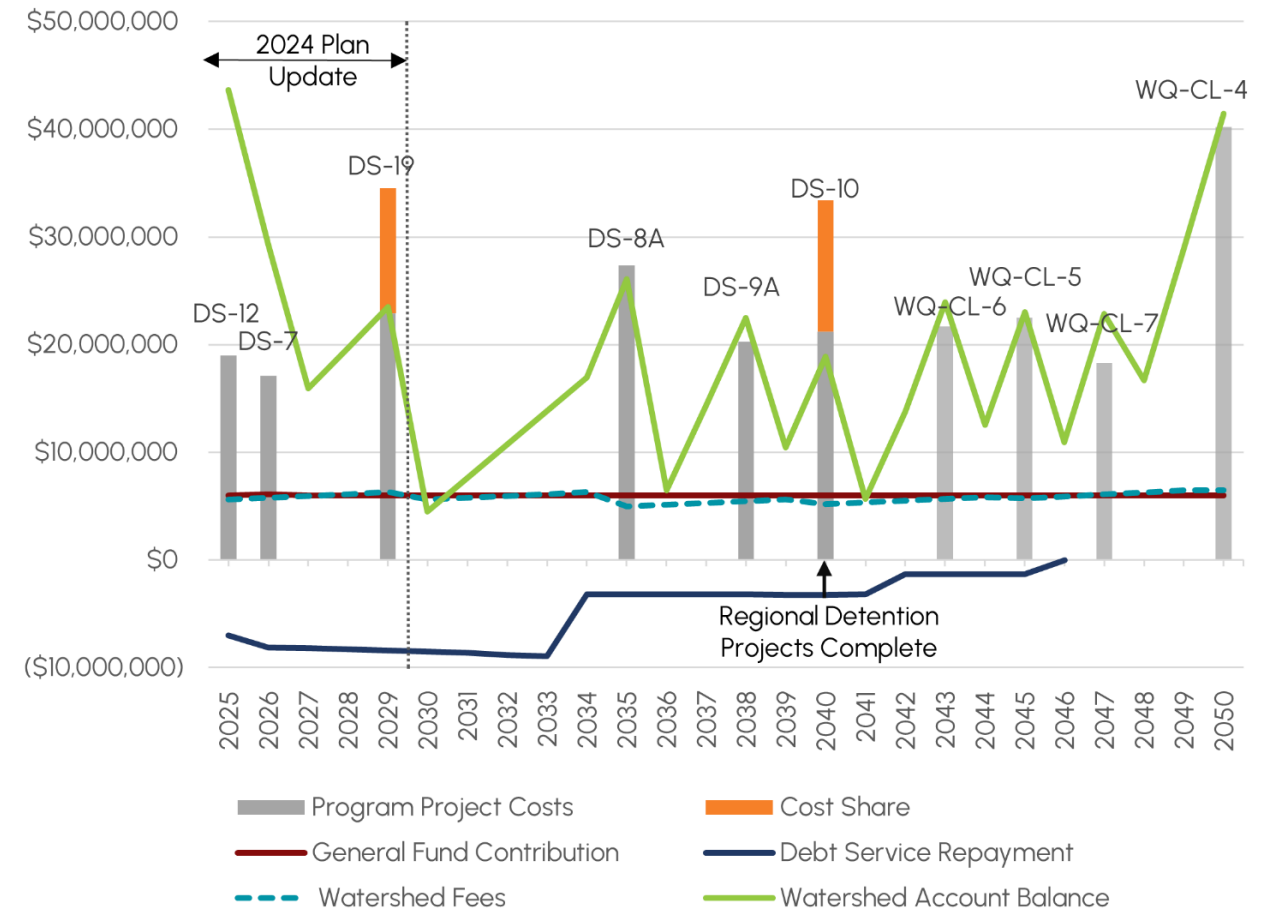


## ■ Cash Flow Modeling Results

### ■ Scenario 2.1. P-A-YG + \$20M Bond

#### ■ Key Model Outputs

1. Three (3) projects will be constructed in the next planning period (FY 2025 to FY 2029).
2. All regional detention structures will be complete by 2040.
3. Regional detention project cost of \$127.9 million, plus \$6.9 million in additional dept service for a total regional detention cost of \$134.8 million.
4. Four (4) water quality basins can be constructed within the planning horizon (2050).





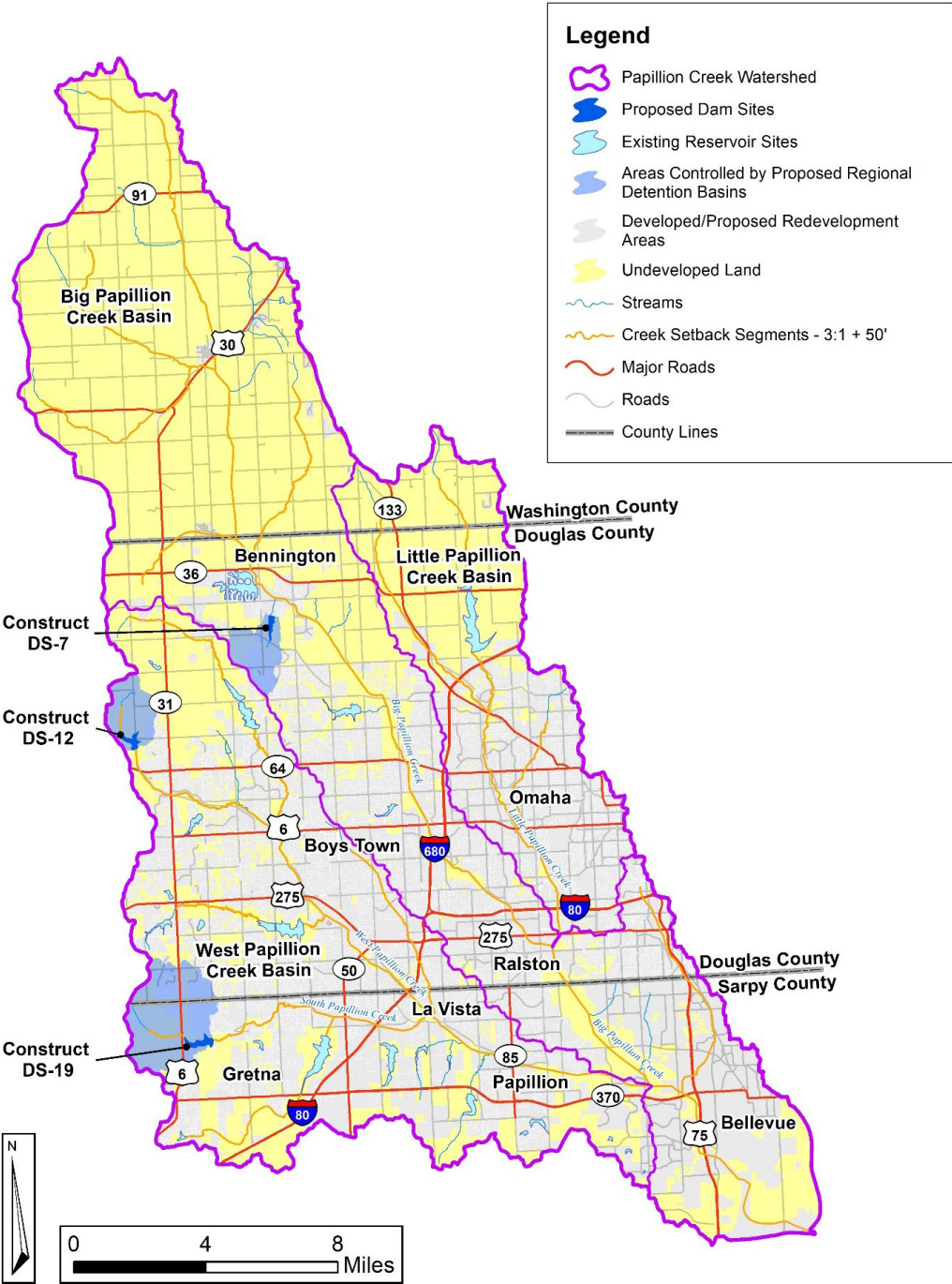
- Cash Flow Modeling Results
  - Summary Key Model Outputs for Range of (5) Scenarios

| Scenario                |               |                    | # Projects Complete 2025-2029 | Year Regional Detention Complete | Regional Detention Costs (\$ in Millions) | Additional Debt Service (\$ in Millions) | Total Regional Detention Cost (\$ in Millions) | # Water Quality Basins* |
|-------------------------|---------------|--------------------|-------------------------------|----------------------------------|-------------------------------------------|------------------------------------------|------------------------------------------------|-------------------------|
| Method                  | Interest Rate | Repayment Schedule |                               |                                  |                                           |                                          |                                                |                         |
| 1 - PAYG                | ---           | ---                | 2                             | 2043                             | \$146.8                                   | \$0.0                                    | \$146.8                                        | 3                       |
| 2.1 - PAYG + \$20M Bond | 3.0%          | 20 Yrs             | 3                             | 2041                             | \$127.9                                   | \$6.9                                    | \$134.8                                        | 4                       |
| 3.1 - PAYG + \$30M Loan | 3.1%          | 35 Yrs             | 3                             | 2040                             | \$126.0                                   | \$19.2                                   | \$145.2                                        | 3                       |
| 3.2 - PAYG + \$30M Loan | 2.0%          | 35 Yrs             | 3                             | 2039                             | \$124.6                                   | \$11.7                                   | \$136.3                                        | 4                       |
| 3.3 - PAYG + \$46M Loan | 3.1%          | 35 Yrs             | 4                             | 2038                             | \$119.1                                   | \$30.1                                   | \$149.2                                        | 4                       |

# 5-Yr Implementation Plan (FY 2025- FY 2029)

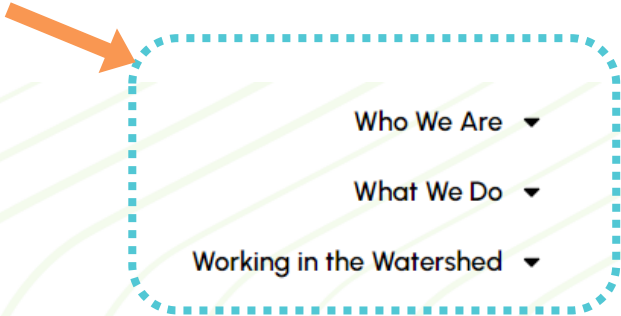
## ■ Program Projects

| Structure | Approx. Location                      | Drainage Area (acres) | Est. Project Capital Costs, 2018 Basis, \$ Millions |
|-----------|---------------------------------------|-----------------------|-----------------------------------------------------|
| DS-19     | 192 <sup>nd</sup> & Giles Road        | 2,750                 | \$37.3                                              |
| DS-12     | 216 <sup>th</sup> & Fort Streets      | 1,660                 | \$30.4                                              |
| DS-7      | 168 <sup>th</sup> and Bennington Road | 1,675                 | \$27.2                                              |
| Total     |                                       |                       | \$94.9                                              |





## ■ Navigation



- Who We Are ▼
- What We Do ▼
- Working in the Watershed ▼
- Resources ▼
- Events
- Contact

## Watershed by Design

### Upcoming Events

AUG 22 10:00 am - 11:00 am  
**August Partnership Meeting**

[View Calendar](#)

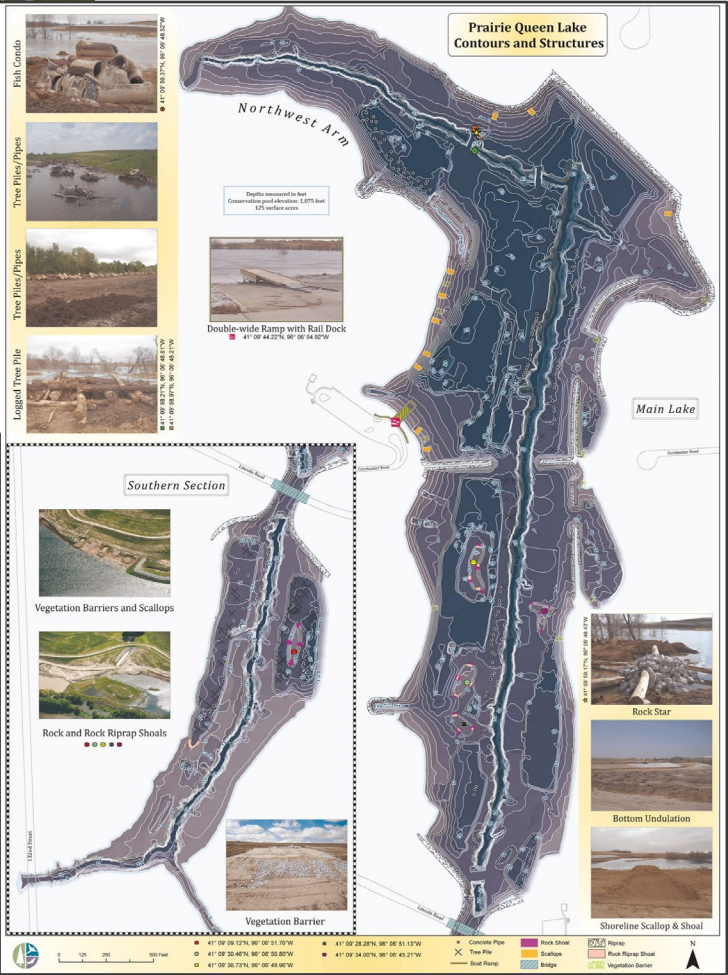
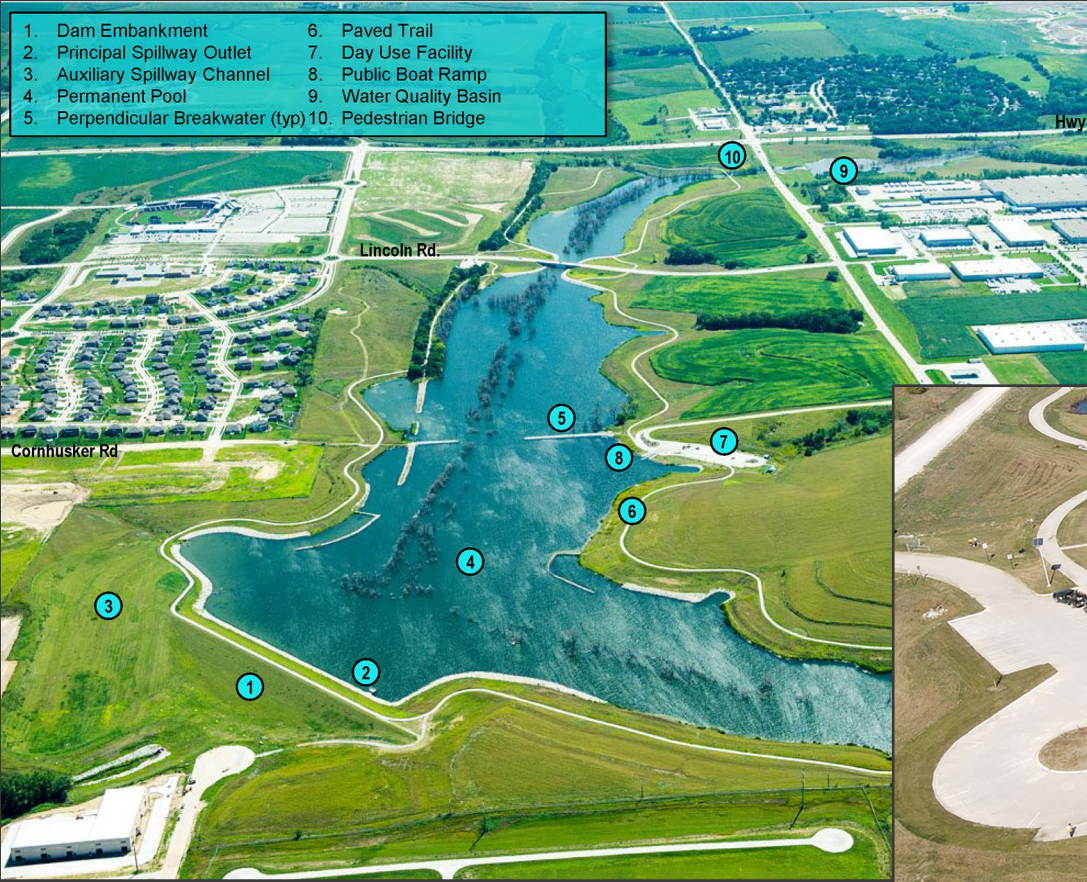
Our mission is to address issues related to water quality and storm water quantity in the Papillion Creek Watershed by establishing regionally common goals and standards for the development of the watershed through 2040.

The Papillion Creek Watershed consists of the land area that conveys water to the Missouri River from rain and snowmelt within the basin. The Watershed covers 402 square miles located in Washington, Douglas and Sarpy Counties and flows in a southeasterly direction to the Missouri River. There are three main tributaries that form the Papillion Creek system – Little Papillion Creek, Big Papillion Creek and West Papillion Creek. This watershed approach was adopted by the PCWP so that surface water which flows across numerous jurisdictional boundaries can be managed in a consistent and comprehensive manner.





## ■ Project Pages Content







## ■ Project Pages Content

