Meeting Agenda

9:00 -9:30 a.m.	**Open House**
9:30 -10:30 a.m.	**Public Official's Workshop** **Welcome** **Presentation** **Public Officials Q&A**
10:30 -11:30 a.m.	**Open House**

Watershed Management Plan, Implementation Plan, and Stormwater Policies

Public Official's Workshop
February 14, 2009

Papillion Creek
Watershed Partnership (PCWP)

Welcome and Introductions

- **Welcome:** Jim Thompson, Papio-Missouri River NRD, Chair
- **Introduction of Elected Officials**
- **Presenter:** Marty Grate, City of Omaha
- **Workshop Objectives:** To update and inform public officials on the development of the watershed management plan, implementation plan, and stormwater policies for the Papillion Creek Watershed.

Presentation Overview

- Background
- Watershed Management Plan
- Implementation Plan
- Stormwater Policies

Papillion Creek Watershed Partnership (PWCP) Mission

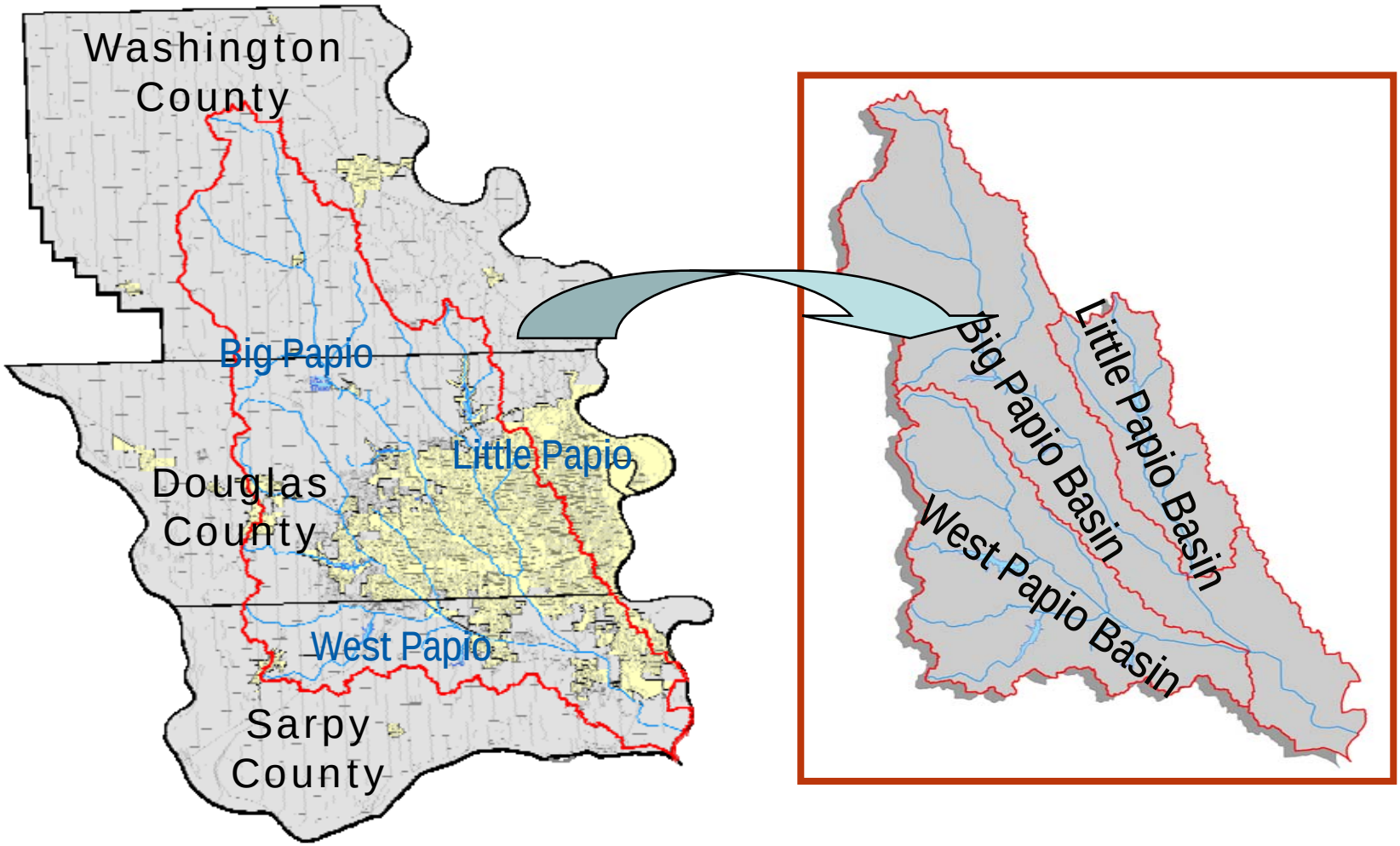
"Address issues related to water quality and storm water quantity in the Papillion Creek Watershed by establishing regionally common goals and standards for the development of the watershed through 2040."

Established August 2001

What is and who is the PCWP?

- The Papillion Creek Watershed is a common thread that joins our communities
  - 402 Square Miles - Portions of three counties
  - One third of Nebraska's population
- The PCWP is comprised of 11 local governments that are wholly or partially in the Papillion Creek Watershed
- The guiding principles of the PCWP are cooperation, community participation and comprehensive watershed planning

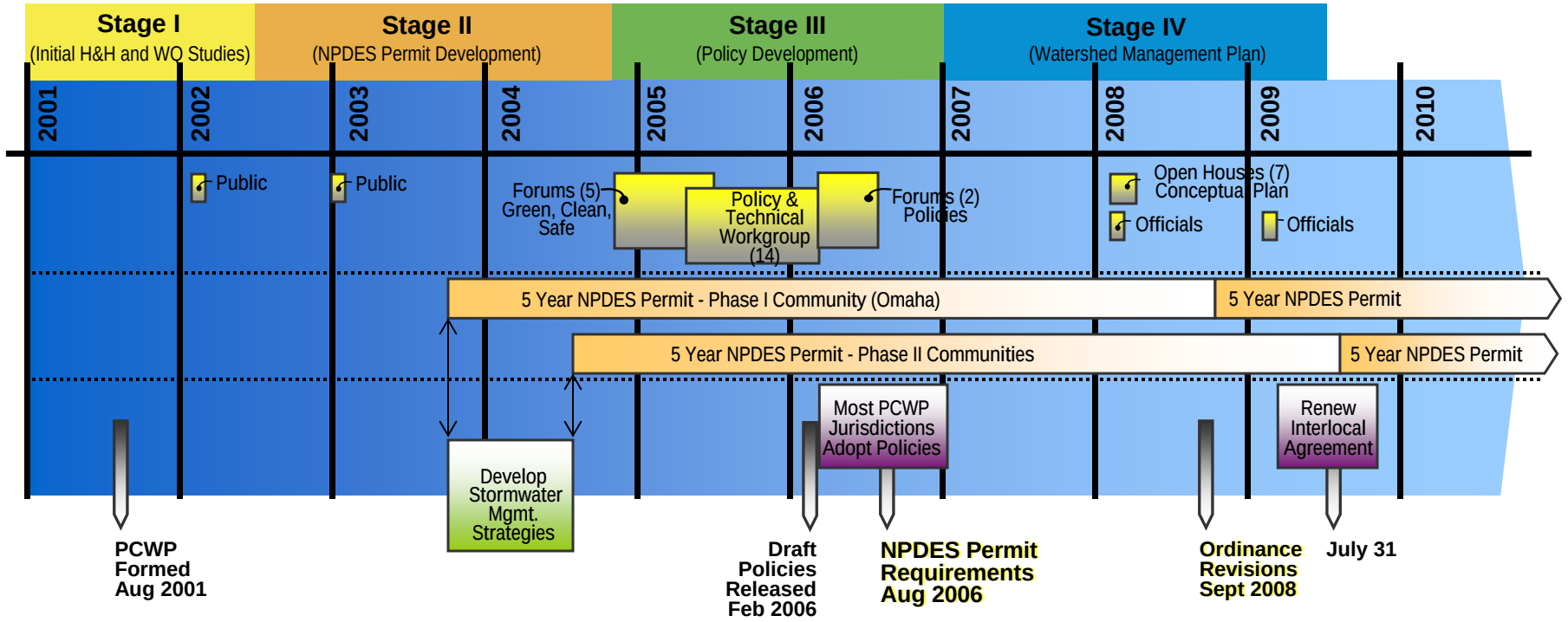
Papillion Creek Watershed



The Need for a Comprehensive Watershed Management Plan

- Creeks and lakes have existing water quality impairments
- Peak flow reduction measures must be employed. Recent studies illustrate…
  - flooding threat exists and has increased since current FEMA mapping (1970s)
  - Increases in flooding areas and depths since 1970s
- Current water quality and flood control measures will not meet future needs.

Stormwater Management Timeline



August 2006 Permit Requirements

- Establish Local Ordinances to Include Controls on Runoff During and After Development
- Revise Stormwater Design Manual to Include Post-Construction Water Quality BMPs
- Develop a Watershed Master Plan (Policies)

Sept. 2008 Ordinance Revisions

- Makes LID mandatory for new developments
- Defines LID
- Adopts control of first 1/2” runoff as target for Post Construction

Review of Policies (2006)

Group

- #1 Stormwater Management Financing
- #2 Peak Flow Reduction
- #3 Pollution Control
- #4 Landscape Preservation, Restoration, and Conservation
- #5 Erosion and Sediment Control
- #6 Floodplain Management

#1: Stormwater Management Financing

Root Policy: Create a dedicated, sustainable funding mechanism to accommodate new development and significant redevelopment

Sub-Policies:

1) Adequate earmarked funds
2) Regional Detention Fee established.
3) Framework for fee classifications, cost apportionments, inter-local agreements for funds handling, public-private partnerships at detention sites, and 3-year review cycle.

#2: Peak Flow Reduction

Root Policy: Maintain or reduce stormwater peak discharge during development and after full build-out

Sub-Policy:

1) Regional stormwater detention facilities located in general conformance with watershed drainage plan

#3: Pollution Control

Root Policy: Reduce pollution from contributing sources including, but not limited to agricultural activities and combined sewer overflows.

Sub-Policies:

1) Protect surface resources from contamination
2) Preserve, protect and mitigate wetlands
3) Support NDEQ in TMDL development
4) Implement BMPs

#4: Landscape Preservation, Restoration, and Conservation

Root Policy: Utilize landscape preservation, restoration, and conservation techniques to meet stormwater management objectives

Sub-Policies:

1) Incorporate stormwater strategies
2) Define natural resources
3) Encourage low-impact development
4) Dedicate a creek setback (3:1 plus 50')
5) Minimum creek setback for maintenance (3:1 plus 20')

#5: Erosion & Sediment Control

Root Policy: Promote uniform erosion and sediment control measures, including adoption of the Stormwater Design Manual and implement consistent rules for regulatory compliance

Sub-Policies:

1) Both erosion and sediment controls
2) Consideration of permanent BMPs
3) Sediment storage upstream of regional detention facilities

#6: Floodplain Management

Root Policy: Update floodplain mapping and enforce floodplain regulations to full build-out, base flood elevations (BFE)

Sub-Policies:

1) Coordination between jurisdictions and P-MRNRD required
2) Updated mapping developed with current and full-build out land use conditions
3) Encroachments less than 1-foot of the full-build out BFE

#6: Floodplain Management (Cont'd.)

Sub-Policies:

4) Development in floodway fringe limited to 25% of plan area
5) Bridge low chord at 1-foot above full-build out BFE
6) Lowest first floor elevation of building upstream of regional detention facilities at 1-foot above 500-yr pool elevation

Stage IV Activities from August 2006 to the Present

- Additional public involvement (7 open houses & 2 public officials meetings)
- Additional technical study on some of the potential regional detention sites and water quality basins
- Evaluation of LID alternatives
- Coordinate with development and the logical extension of infrastructure

Stage IV Conclusions

- LID is needed in all new developments to protect water quality
- LID for flood control would likely decrease density/increase sprawl
- Reservoirs offer some flood control benefits that cannot be duplicated through LID alone
- In some parts of the Watershed, opposition to new dams makes regional detention basins politically impractical

Proposed Partnership Recommendations—

- Watershed Management Plan
- Implementation Plan
- Stormwater Policies

Partnership Recommendations— *The Watershed Management Plan*

Water Quality Element

- Water Quality LID for all development
- Water Quality Basins

Peak Flow Reduction (Water Quantity) Element

- Maximum LID in the Watershed located in Washington County
- Regional Detention Basins in Douglas and Sarpy Counties

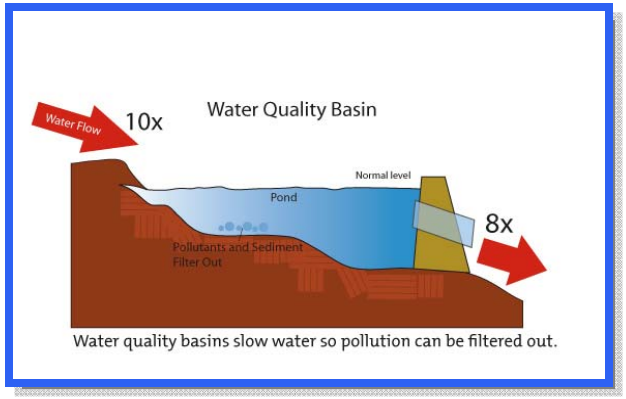
Water Quality LID

- Water Quality LID in all new and significant redevelopment areas where BMPs are to be designed to control the first ½-inch of runoff and maintain a “no net increase” of the 2-year storm peak discharge
  - LID mimics natural hydrology
  - LID helps improve stormwater quality and quantity
  - LID can help reach watershed goals

Water Quality Basins

12 water quality basins located upstream of existing or new regional detention basins

- WQ basins trap pollutants and “pretreats” stormwater and improves water quality
- WQ basins increase longevity of downstream regional detention basins
- Implements community-based watershed plan for existing reservoirs



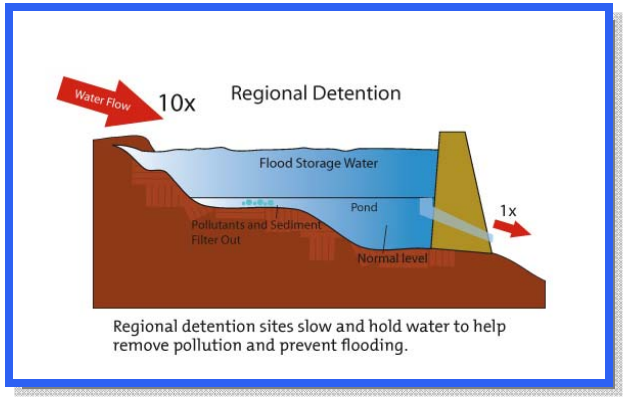
Water quality basins slow water so pollution can be filtered out.

Maximum LID (Max LID)

- Max LID in the Watershed located in Washington County where BMPs are to be designed to not exceed peak discharge rates of 0.2 cfs/acre for the 2-year storm event and 0.5 cfs/acre for the 100-year storm event
  - Reduce flood flows to approximately the same level as regional detention
  - Consistent with Douglas and Washington Counties stormwater policies

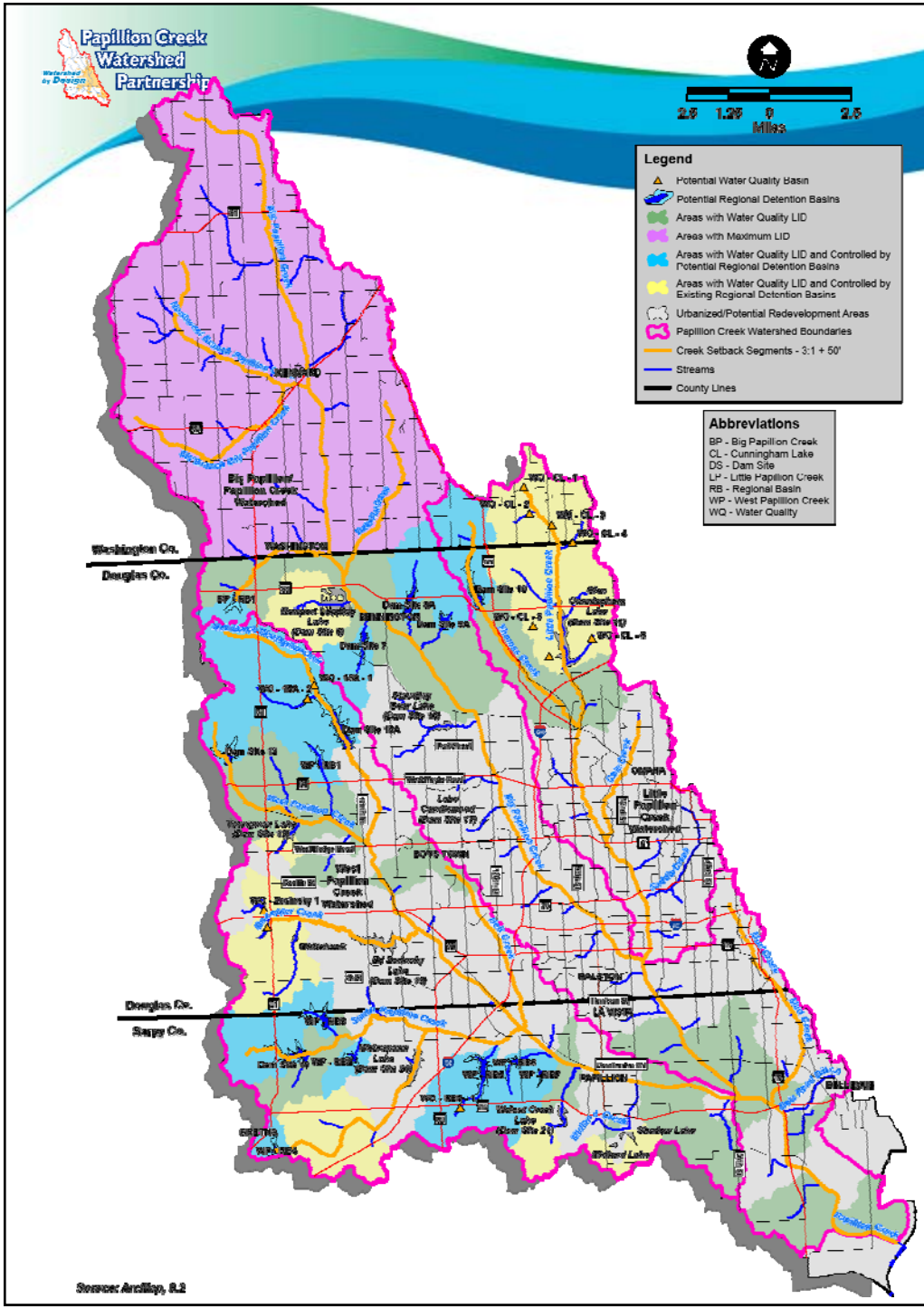
Regional Detention Basins

15 new regional detention basins strategically located throughout the Watershed



Regional detention sites slow and hold water to help remove pollution and prevent flooding.

- Regional detention provides flood relief in a timely fashion
- Regional detention O&M concentrated to a few sites
- Regional detention offers potential recreational and economic benefits



Watershed Management Plan

- Water Quality Elements
  - Water Quality LID
  - 12 Water Quality Basins
- Water Quantity Elements
  - Max LID in Washington County
  - 15 regional detention basins in Douglas and Sarpy Counties

Benefits of Watershed Management Plan

- Water quality controls applied throughout Watershed
- Strengthens Water Quality LID to control 2-year peak flow
- Able to address existing flooding problems in a timely fashion
- Proven method of flood control recognized by FEMA
- Manageable level of structures requiring O&M
- Maintain development densities and reduce urban sprawl
- Regional detention provides peak flow reduction from existing and proposed development

Partnership Recommendations—

- Watershed Management Plan
- Implementation Plan
- Stormwater Policies

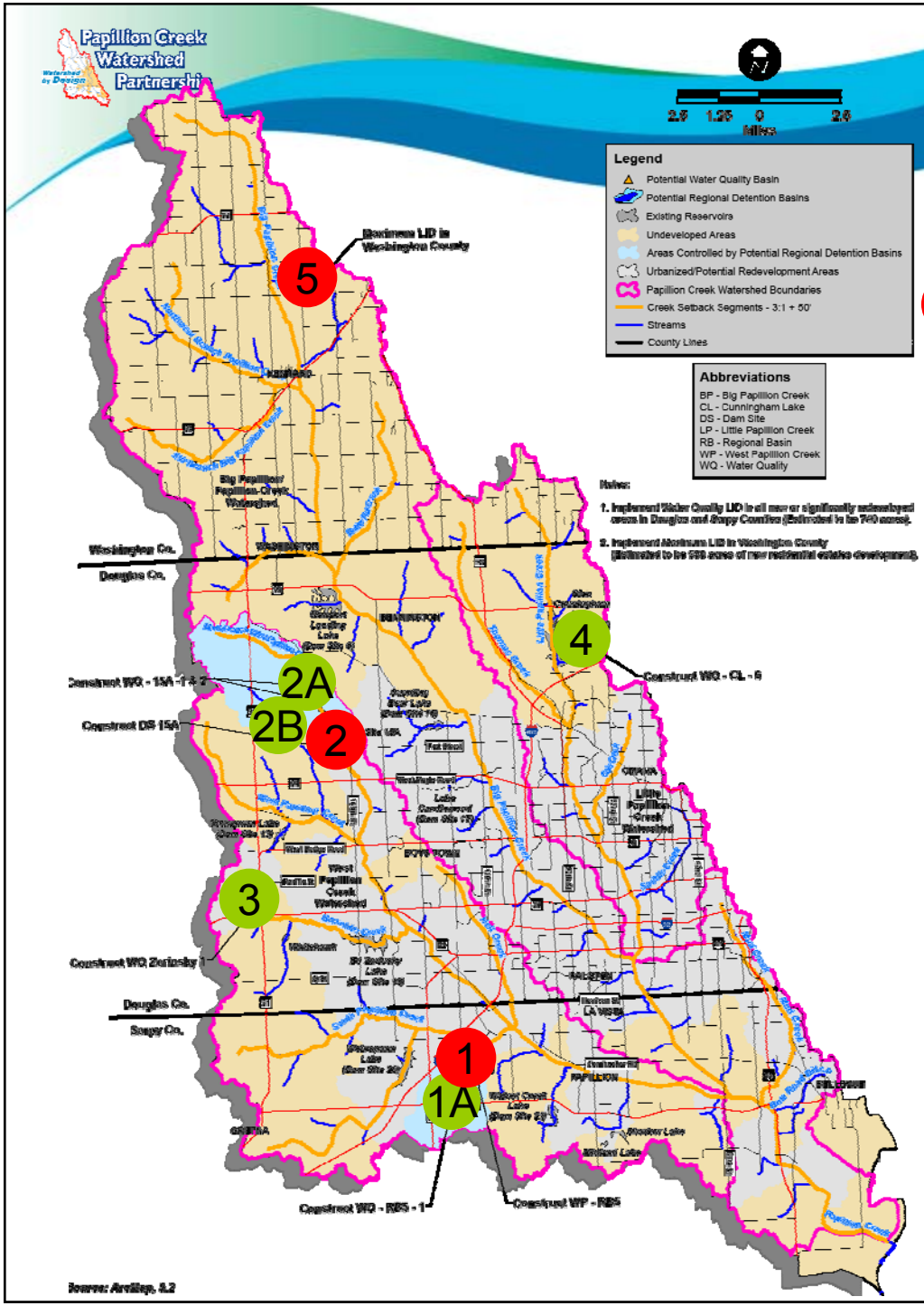
Partnership Recommendations—*The Implementation Plan*

Non-Structural Elements

- Renew interlocal agreement and adopt revised stormwater polices and ordinances
- Establish stormwater capital fund fee system

Structural Elements

- Construct regional detention and water quality basins in Douglas and Sarpy Counties
- Fund flood control portion of Max LID in Washington County



Implementation Plan for Years 2011-2013

1. WP-RB5 on South Papillion trib.
   - 1A WQ -RB5-1
2. DS 15A on North Branch West Papillion Creek
   - 2A WQ-15A-1
   - 2B WQ-15A-2
3. WQ-Zorinsky 1 upstream of Zorinsky Lake
4. WQ- CL-6 upstream of Cunningham Lake
5. Max LID in Washington County

Estimated Costs for Implementation Plan Elements

- Water Quality LID funded by development
- Flood control portion of Max LID (est. 930 acres or $1.4M in 2010 dollars) in Washington County
- Regional detention and water quality basins ($134 M in 2010 dollars) in Douglas and Sarpy Counties

Partnership Recommendations—

- Watershed Management Plan
- Implementation Plan
- Stormwater Policies

Partnership Recommendations—*The Policies*

Water Quality Improvement

Erosion and Sediment Control and Other Best Management Practices

Peak Flow Reduction

Floodplain Management

Landscape Preservation, Restoration, and Conservation

Stormwater Management Financing

Water Quality Improvement

- WQ LID required for all new developments
  - Control of ½-inch runoff
  - No net increase in 2-year peak discharge
- Encourage establishment of buffer strips and riparian corridors along stream segments
- Mitigate impacted wetlands at a 3:1 ratio
- Water quality basins as identified in Watershed Management Plan

Peak Flow Reduction

- Regional detention basins as identified in Watershed Management Plan
- Max LID as identified in Watershed Management Plan. Not to exceed peak discharge rates of:
  - 0.2 cfs/acre for the 2 year storm event
  - 0.5 cfs/acre for the 100 year storm event
- Significant redevelopment no net increase in 2-, 10- & 100-year peak discharges

Landscape Preservation, Restoration, and Conservation

- Natural features and stormwater management techniques generally to be placed in public right of way or easement
- 3:1 plus 50 ft creek setbacks along streams as identified in Watershed Management Plan

Erosion and Sediment Control and Other Best Management Practices

- No significant changes

Floodplain Management

- Limit filling in the floodway fringe to 25% of total floodplain area per development application. Remaining fringe area to be designated as a floodway overlay zone.

Stormwater Management Financing

- Water Quality LID funded by development
- Flood control portion of Max LID funded by pooled watershed funds
- Stormwater utility encouraged for on-going O&M of city and county NPDES BMPs

Next Steps

Call for Boards/Councils located within Douglas, Sarpy and Washington Counties to….

- Renew PCWP Interlocal Agreement (5-year term) and adopt:
  - Watershed Management Plan
  - Implementation Plan
  - Stormwater Policies

Papillion Creek Watershed Partnership

Questions?

www.papiopartnership.org