

# **Stormwater Management Policy Discussion December 23<sup>rd</sup>, 2008**

Minnehaha Creek Watershed District

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# Previous Discussion

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- Staff/Board identified 3 major elements of Rule N for New Development:
  - Volume Control - abstraction of ? volume of runoff from site
  - Water Quality - no net increase in P load from site
  - Rate Control - no net increase in runoff rates

# What are the standards?

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- What are we trying to achieve?

# What's the Volume Control Standard?

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## First need to determine the goal of volume control

- Helps meet water quality goals of regulation (P load)
- Helps meet the rate control goal of regulation (CFS)
- Recharges groundwater supply
- Enhances base flow in streams through sub surface flow
- Approach historic hydrology of our watershed

# What's the Water Quality Standard?

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## First need to determine the goal of water quality

- Stop the incremental impact of development on water resources
- “No net increase” in P load (from what baseline; pre-settlement or existing conditions)
- Meet water body goals identified in 3<sup>rd</sup> Generation Plan

# What's the Rate Control Standard?

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First need to determine the goal of rate control

- Minimize flooding associated with large, infrequent storms (100 yr)

# Direction from Board

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## 1. Volume Control:

1. Apply a standard of zero volume increase from pre-settlement conditions.

## 2. Water Quality:

1. Limit phosphorus to no net increase or better through a performance standard (pre-settlement, NOT existing)

## 3. Rate Control:

1. Reduce 100 year proposed rate to 10 year existing level in areas prone to flooding.

# Engineers Analysis

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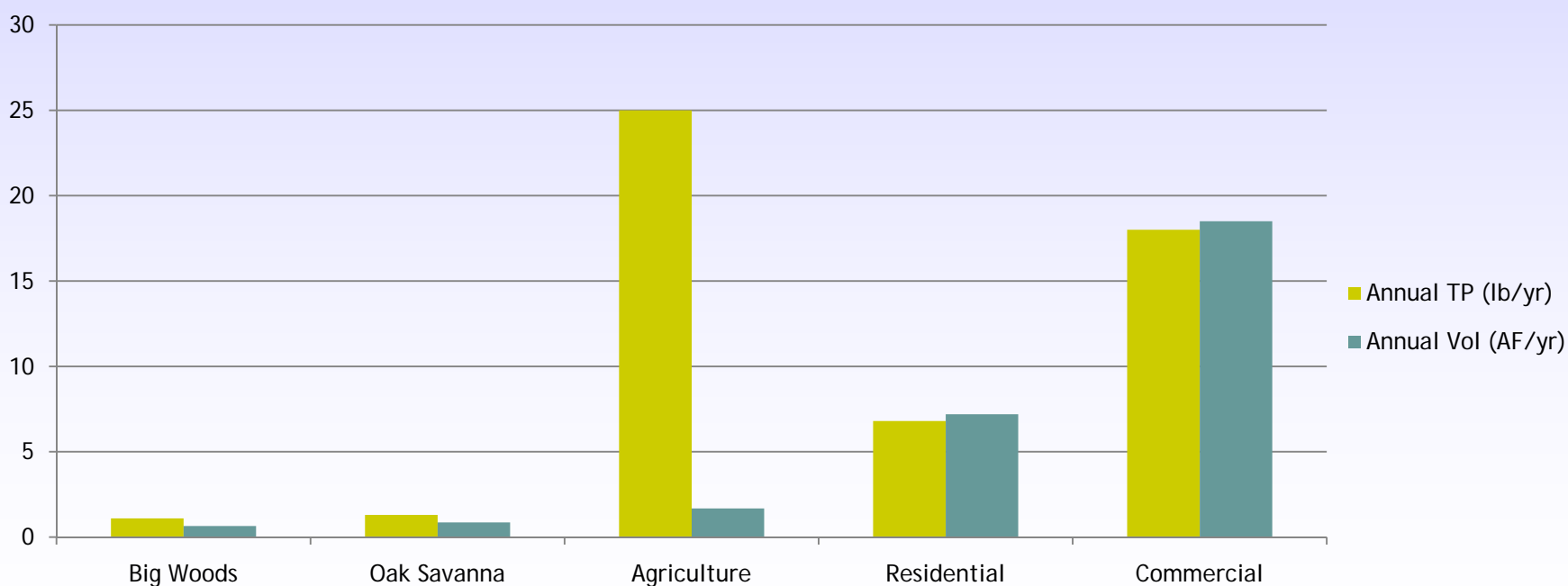


- Wenck modeled the volume and P load discharged from an undisturbed site based on soils and vegetation.
  - Soils - grouped by AB & CD
  - Vegetation - grouped by Oak Savanna and Big Woods

# Engineers Analysis



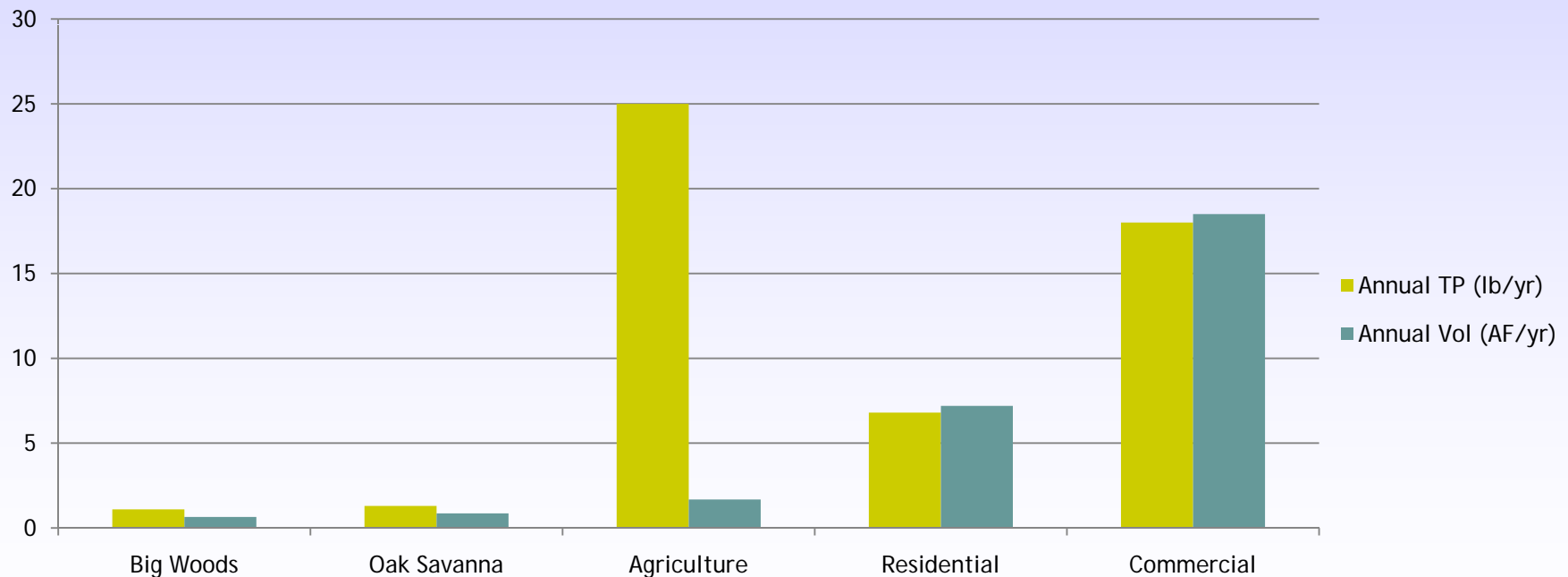
- Also modeled the volume and P load from agricultural, residential and commercial.



# Engineers Analysis



- Then asked: What standard of abstraction would be needed to maintain volume and P load from undisturbed?



# Conclusions

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- To keep volume at undisturbed level:
  - AB Soils - 1.5" abstraction
  - CD Soils - 1.0" abstraction
  
- To keep P load at undisturbed level:
  - AB Soils - 1.0" abstraction
  - CD Soils - 1.0" abstraction

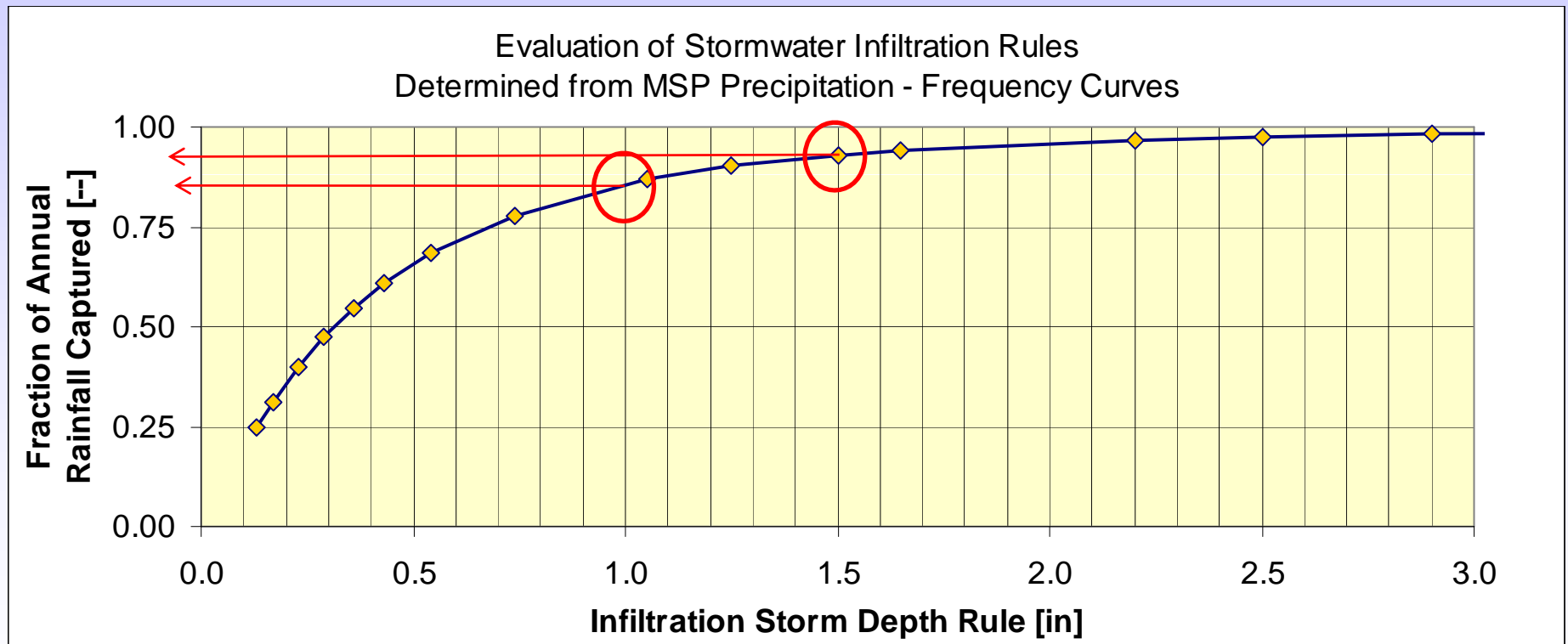
# Conclusions (cont.)

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- If the goal is to maintain volume AND P load to undisturbed level:
  - A 1.5" standard is needed for AB soils; and
  - A 1.0" standard is needed for CD soils
  
- If the goal is to only achieve no net increase in P load, a 1.0" standard is sufficient for all soil types

# Effect of extra 0.5" abstraction



# Recommendation

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- Require 1" abstraction for New Development in AB soils.
- Require 0.5" - 0.75" abstraction for New Development in CD soils
- Require no net increase in P Load
- Require no net increase in runoff rates, and/or decrease 100 year proposed to 10 year existing.

# Pause for Discussion

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