

Planning for Better Bikeway Maintenance

Center for Transportation Studies

Research Conference 11.2.2017



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Photo Credit: City of Rochester, MN and City of Brooklyn Park, MN

Bikeway Maintenance Study



Hennepin County Bicycling Vision:

“Riding a bicycle for transportation, recreation, and health is a comfortable, fun, routine part of daily life throughout the county for people of all ages and abilities.”

Maintenance Goal:

“Protect the county’s and the park district’s investments in the bikeway system and reduce seasonal hazards through partnerships.”

HENNEPIN COUNTY BIKEWAY MAINTENANCE STUDY



Technical Memorandums #1-4

December 30, 2016

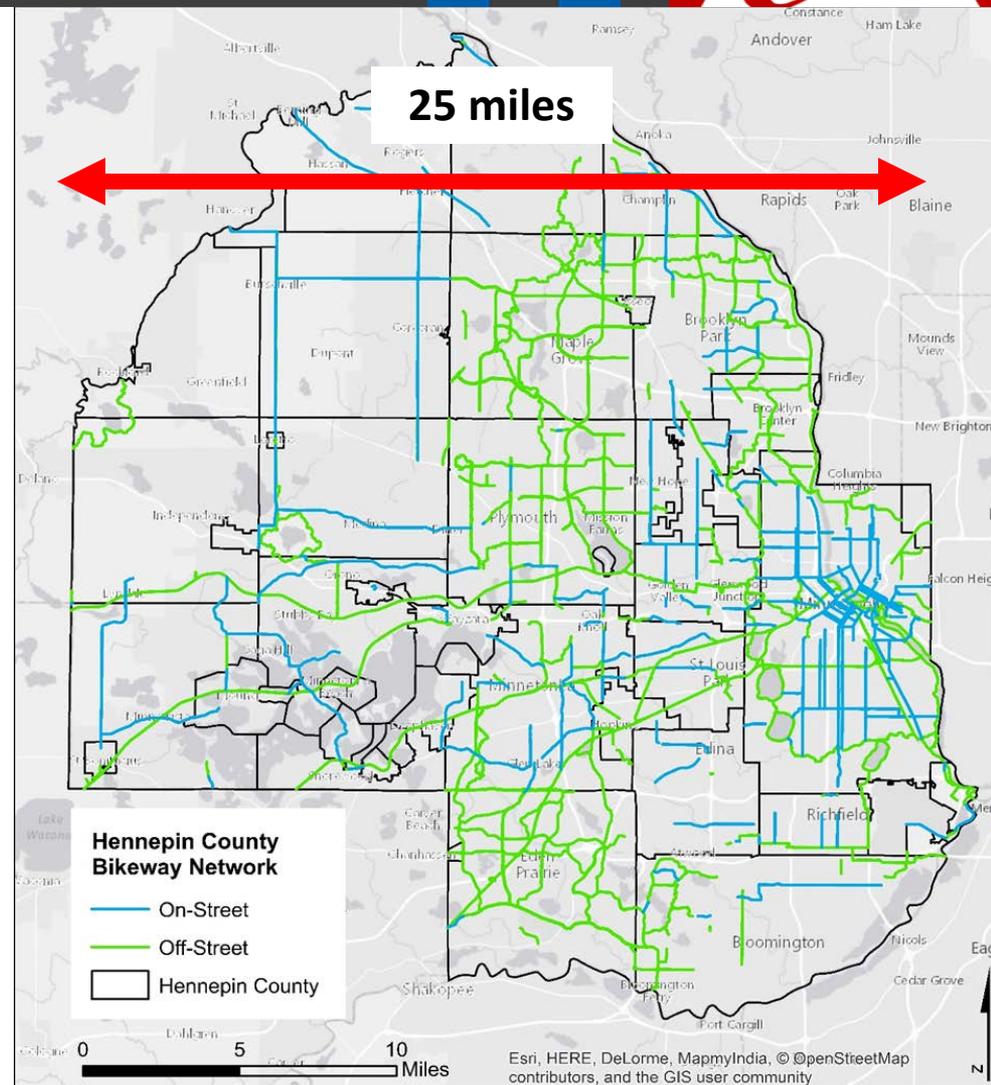


Hennepin County's Bikeways



Total Bikeways: 650 miles

- Off-street trails or sidepaths: 66%
- Standard bicycle lanes or bike boulevards: 33%
- Protected/separated/tracks on-street: 1%



Maintenance Issues



- Snow and ice removal concerns factored heavily into the decision by 49% of survey respondents to not bike at all during the winter
- Poor riding surface was cited by 25% as a barrier to bicycling more



Hennepin County

2040

Bicycle Transportation Plan:

Making bicycling safe and comfortable

April 14, 2015



All Topics

Hennepin



Agency Agreements



Drainage



Funding



Liability



Pavement Markings



Pavement Preservation



Performance Measures and Priority Routes



Signals and Lighting



Signs



Temporary Traffic Control



Vegetation Management



Volunteer Groups



Winter Maintenance

Study Scope



- Task 1: Literature search
- Task 2: Local interviews
- Task 3: National and international interviews
- Task 4: Cost estimates
- Task 5: Final recommendations



Literature Review



Kaisa Karhula

Best practices for cycle path winter maintenance processes

Part of PYKÄLÄ II research project

Tampere University of Technology. Transport Research Centre Verne
Tampere 2014

Literature Review



WINTER MAINTENANCE PROCESS

Before taking any action

- The contractors decide themselves when to start the maintenance actions. The City monitors the quality of the work.

During maintenance actions

- Field reviews are used to monitor the level of maintenance whenever possible. Customer feedback, in particular, is one criteria used to review possible quality issues.

Follow-up

- There is a monthly site meeting held between the City and contractors
- Contractors are required to follow the requirements stated in the quality cards when carrying out their duties.



Local Interviews



- **Cities:** Minneapolis, Brooklyn Park, Eden Prairie, Richfield
- **Park Districts:** Minneapolis and Three Rivers (suburban communities)
- **Hennepin County**
 - Transportation Operations
 - Road and Bridge
 - Transportation Planning
 - Design
 - Right of Way
- **MnDOT**



Local Maintenance Themes



- Agencies understand the importance of bikeway maintenance
- Bikeway networks are expanding, yet funding is limited
- Consistency across agency lines can be improved
- Design has a major impact on bikeway maintenance
- Separated bicycle lanes are an emerging issue
- Unique preferences should be honored



Nat'l & Int'l Interviews



- Aarhus, Denmark
- Anchorage, AK
- Arlington County, VA
- Blaine County, ID
- Broward County, FL
- Boulder, CO
- Calgary, Alberta
- Cambridge, MA
- Cedar Falls, IA
- Denver, CO
- Duluth, MN
- Fort Collins, CO
- Huron-Clinton Metro Authority, MI
- Howard County, MD
- Jeffersonville, IN
- Lake County, IL
- Madison, WI
- Madison County, IL
- Montreal, Quebec
- Oulu, Finland
- Park City, UT
- Pima County, AZ
- Rochester, MN
- St Louis County, MN
- Santa Barbara, CA
- Seattle, WA
- Urbana, IL



Nat'l & Int'l Key Findings



- The best winter maintenance practices were found in Oulu, Finland
- Counties across the U.S. have a wide array of bikeway maintenance responsibilities
- Many North American cities maintain street-level separated bike lanes in winter.
- Prioritized bikeway networks for winter maintenance exist in several locales.
- Several agencies have advanced pavement preservation evaluation and maintenance techniques for trails.
- Regional agreements have resulted in improved bikeway maintenance across administrative boundaries.



Targets

- Double the ratio of bike commuters who bike through the winter by 2040 (with a 25% increase by 2020, and 50% by 2030)
- Maintain 67% of bikeway riding surfaces at “good” or “better” ratings.



Hennepin County
2040

Bicycle Transportation Plan:
Making bicycling safe and comfortable

April 14, 2015



Cost Estimate Assumptions



- Winter maintenance and pavement preservation are the biggest need
- The focus is on off-street trails and separated bicycle lanes
- Maintenance work can be scaled from “basic” to “enhanced” (USD \$0.5 million to \$5.8 million)
- The county may share costs with the 45 municipalities and 2 park districts
- 30% of the bikeway network becomes “priority”
- 14 snowfall events of one inch or more occur annually



Cost Estimate Averages

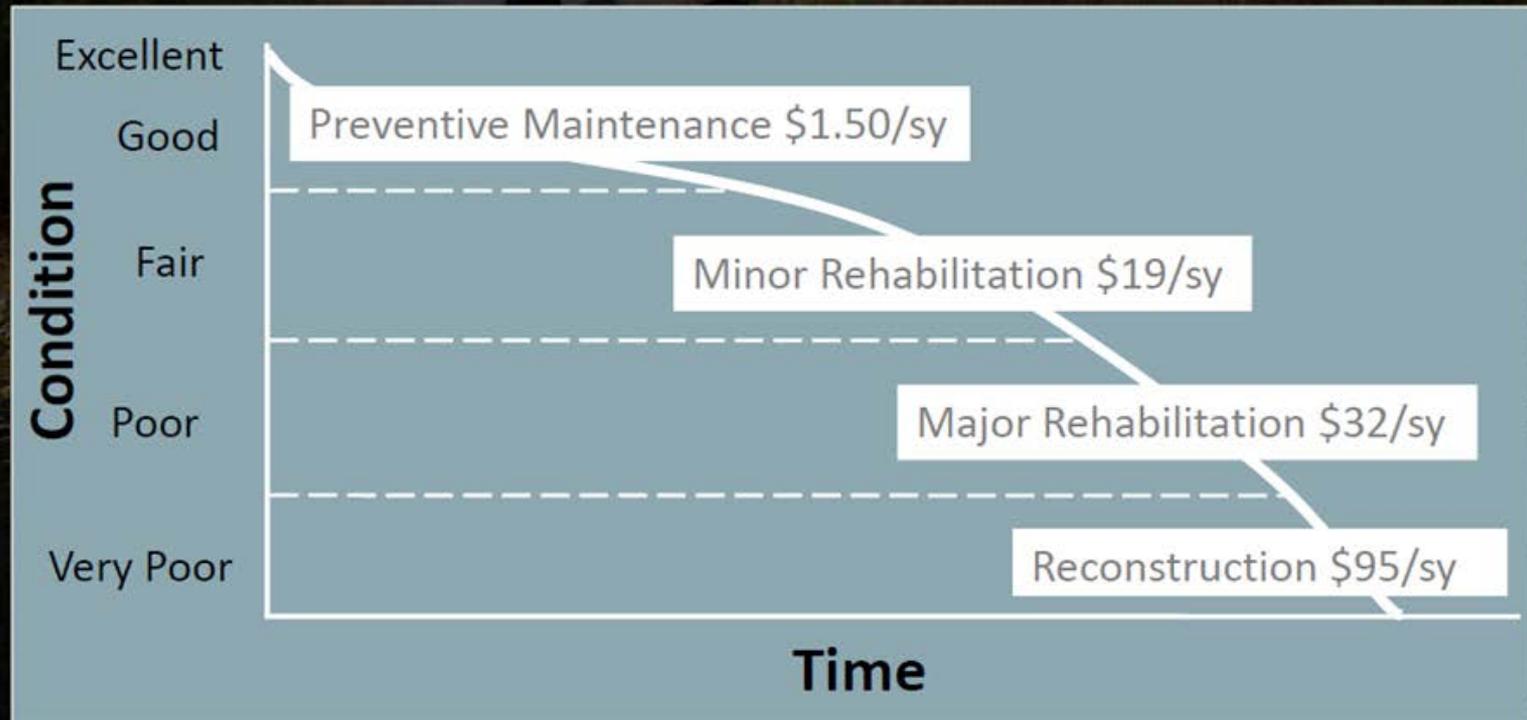


- Crack sealing
 - \$2,200-\$5,500 per mile
 - Or \$0.47 to \$1.17 per square yard
- Fog sealing
 - \$1,700-\$4,700 per mile
 - Or \$0.35 to \$1.00 per square yard
- Microsurfacing
 - \$15,700-\$19,000 per mile
 - Or \$3.35 to \$4.00 per square yard
- 2" Bituminous Overlay
 - \$53,000 per mile
 - Or \$100 per ton
- Reconstruction
 - \$350,000-\$550,000 per mile
 - Or \$75 to \$125 per square yard
- Plowing off-street trails
 - \$25 - \$250 per mile, per snow event

Trail Pavement Maintenance



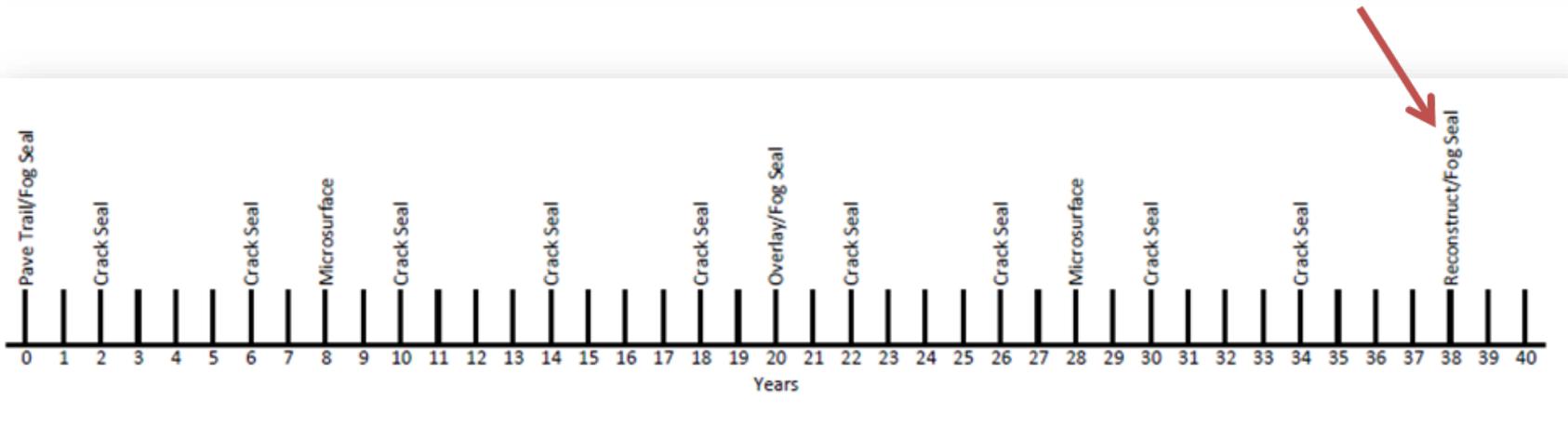
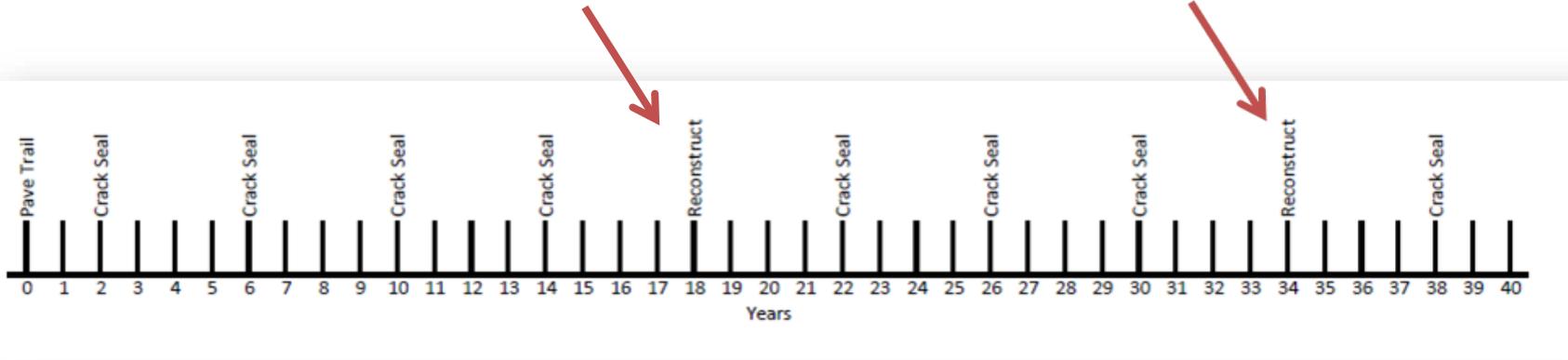
Pay Now or Pay More Later



Source: LRRB



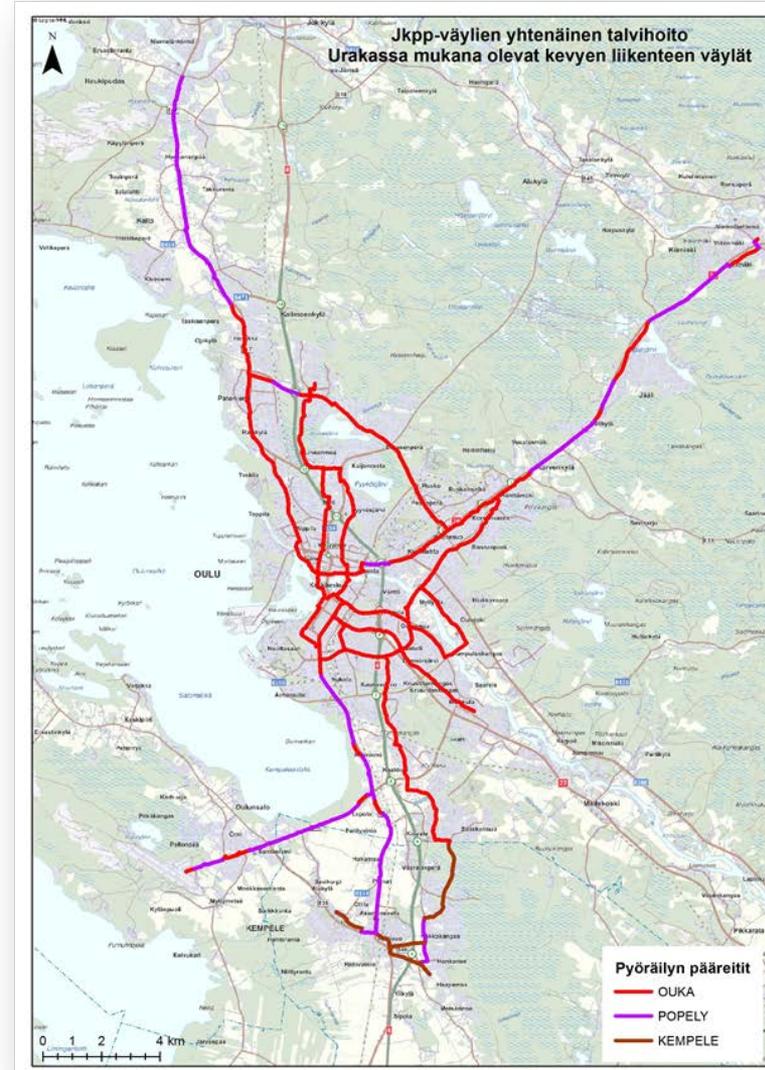
Fewer Trail Reconstructions



Overall Recommendations

Hennepin

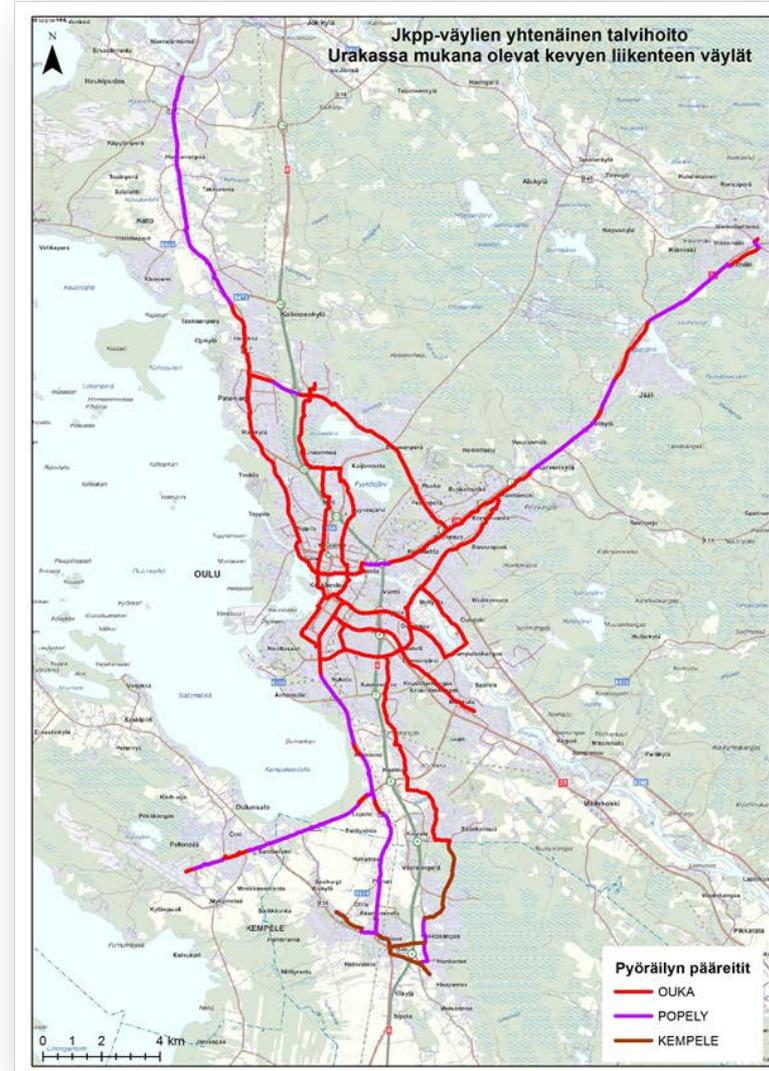
- A **prioritized** multi-use path and on-street protected bicycle lane **network**
- A **County Bikeway Maintenance Commission** that pools resources for bikeway maintenance
- A new and expanded **system for tracking the pavement surface quality** of multi-use paths, with the aim of reducing expensive reconstructions



Overall Recommendations

Hennepin

- A **bikeway design guide** which focuses on reducing maintenance costs and drainage issues
- **Evaluation** of winter maintenance of **standard bicycle lanes**
- An annual or biennial **conference on bikeway maintenance**





2040 Bicycle Transportation Plan

Plan Strategy 2.3 calls for the planning and designation of “an enhanced bicycle network composed of high comfort bikeways that provide physical separation from motor vehicles.”

Bikeway Types Addressed in this Study



Curb Protected/ Cycle Track



On-Street Protected



Project Goals



- Develop a comprehensive review of county roadways to determine the suitability for enhanced bicycle infrastructure.
- Evaluate the estimated construction and maintenance costs and provide recommendations for changes to the County's Cost Participation Policy.
- Develop a draft Enhanced Bikeway Network map and supporting report for board review.



Thank you!



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