



# THE WORLD OF WINTER CYCLING

**Timo Perälä 28.01.2015**

**Winter Cities Shake Up,  
Edmonton**





1984

Jari Kurri

1985

Jari Kurri  
Esa Tikkanen

1987

Jari Kurri  
Esa Tikkanen  
Reijo Ruotsalainen

1988

Jari Kurri  
Esa Tikkanen

1990

Jari Kurri  
Esa Tikkanen  
Reijo Ruotsalainen







- MSc IN CIVIL ENGINEERING (2000)
- FOUNDER AND CHAIRMAN OF THE **WINTER CYCLING FEDERATION** (WCF)
- CEO AT NAVICO LTD.
- CYCLING COORDINATOR FOR THE CITY OF OULU (2013 -> )
- MEMBER OF THE FINNISH CYCLING EMBASSY
- BASED IN OULU, FINLAND







# WINTER CYCLING CONGRESS 2013, OULU



# 2016?

[www.wintercycling.org/conferences](http://www.wintercycling.org/conferences)





# WINTER CYCLING FOR EVERYONE





**WWW.WINTERCYCLING.ORG**



**WINTER CYCLING DATABANK**

**WINTER CYCLING MANUAL** *Project starts 02/2015*

**WINTER CYCLING BAROMETER** *First survey in 03/2015*





## **1. Vocabulary and definitions**

1. *In order to discuss and share knowledge we should be able to talk about the same things...*

## **2. The world of winter cycling**

1. *Winter cycling and winter cycling characteristics in different parts of the world*
2. *Winter cycling statistics*

## **3. Winter cycling in land use planning**

1. *How to make the space for winter cycling*
2. *Snow storage planning in land use planning*

## **4. Winter cycling and street design**

1. *Winter cycling and cross section*
2. *What is important in street design for winter cycling?*

## **5. Winter maintenance of cycling routes**

1. *Winter maintenance policies*
2. *Different winter conditions require different maintenance methods*
3. *Winter cycling and maintenance contracts*
4. *Quality requirements for cycling route's winter maintenance*
5. *Winter maintenance equipment and winter cycling*
6. *Winter maintenance materials and winter cycling*
7. *Maintenance control, bonuses and sanctions*
8. *ITS in maintenance of cycle routes*

## **6. Bicycle parking in winter**

1. *Bicycle parking during winter, what to take into consideration?*
2. *Bicycle parking planning, the winter aspect*
3. *Best models and solutions*
4. *Bicycle parking winter maintenance*

## **7. Counting in the cold**

1. *How to measure winter cycling?*
2. *Light traffic surveys for winter time*
3. *Bicycle traffic counts*
4. *Citizens participation*

## **8. Winter cycling mobility management**

1. *How to boost winter cycling in your city?*
2. *Winter cycling campaigns*

## **9. Winter cycling gear**

1. *The bike in winter (best winter bikes, ebikes, cargo bikes, trailers in winter, fatbikes, etc.)*
2. *The people (how to prepare for winter cycling in different winter conditions)*
3. *Other stuff*
4. *Fancy stuff*

## **10. Winter cycling success stories**

1. *City / country examples*

# **WINTER CYCLING MANUAL, CONTENT**





# BECOME A MEMBER OF WINTER CYCLING CITIES

[www.wintercycling.org/membership](http://www.wintercycling.org/membership)





**3,85 BILLION PEOPLE (55 %) HAVE EXPERIENCED SNOW**



**THEY ALL HAVE TO GO SOMEWHERE...**



**CAIRO HAD SNOW FOR THE FIRST TIME IN 112 YEARS**









# CYCLING IN WINTER AROUND THE WORLD?

*Photo: Utrecht, Netherlands, Mobycon*





**1. WHERE?**

**2. WHO?**

**3. WHY?**

**4. WHY NOT?**

**5. DANGEROUS?**

**6. INFRASTRUCTURE?**

**7. MAINTENANCE?**

**8. SHOULD WE?**

**9. GEAR?**





**M**

**= MASTERS**

*Sweden, Finland, Denmark, Netherlands*

**C**

**= CLIMBERS**

*Norway, Austria, Switzerland, Germany...*

**N**

**= NOVICES**

*Canada, USA, Russia, Poland, France.*

**?**

**= MYSTERIES**











*China, Japan*

**1.**

**WHERE?**

# TOP TEN WINTER CYCLING CITIES

- Points were given from 1-7 in each category, then multiplied by the coefficients
- Cities over 50 000 inhabitants were taken into consideration
- Approximately 60 cities from 12 countries studied more closely

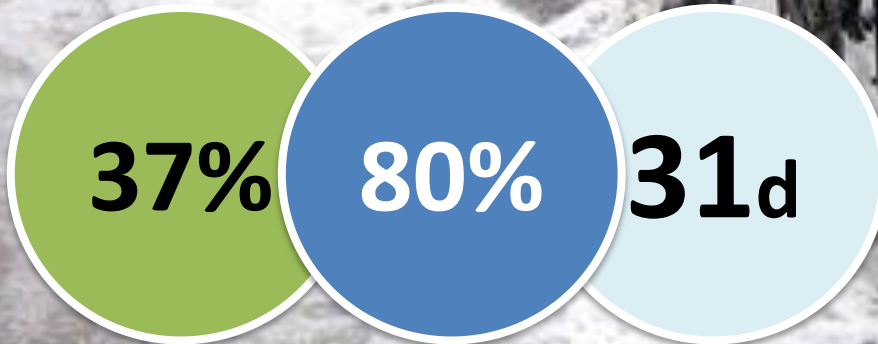
Rank	Country	City	Cycling mode split	Winter cycling share	Cycling network / inhab.	Average thermal winter length + snow days (sum)	Points
1.		Oulu	22 %	33 %**	<b>4,3 m</b>	256	27,5
2.		Linköping	30 %	40 %*	3,4 m	147	27,0
3.		Uppsala	28 %	41 %*	2,7 m	165	25,9
4.		Umeå	22 %	37 %*	2,8 m	225	25,7
5.		Örebro	28 %	<b>51 %**</b>	1,6 m	145	24,9
6.		Joensuu	<b>32 %</b>	19 %**	3,9 m	281	24,6
7.		Karlstad	18 %	50 %*	2,8 m	177	23,3
8.		Rovaniemi	12 %	28 %**	2,0 m	<b>321</b>	22,6
9.		Jyväskylä	13 %	20 %*	3,5 m	270	20,9
10.		Luleå	10 %	24 %*	1,7 m	249	18,9

\* Data from city webpages / surveys / questionnaires

\*\* Winter cycling share counted from automatic bike counters



# COPENHAGEN, DENMARK



# LINKÖPING, SWEDEN



30%

40%

99d

*Photo: University of Linköping*



# OULU, FINLAND

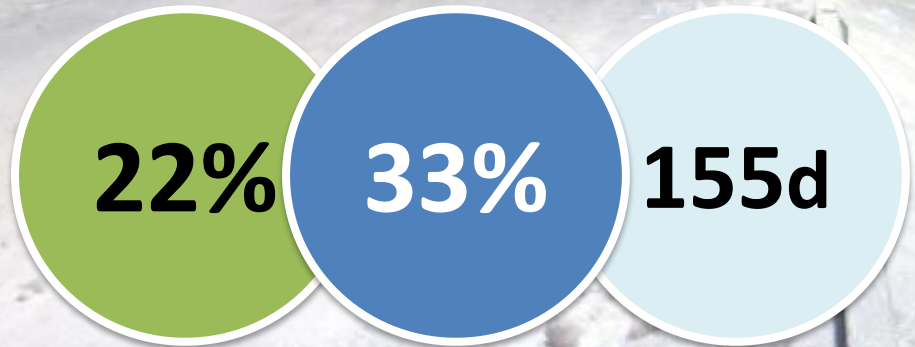
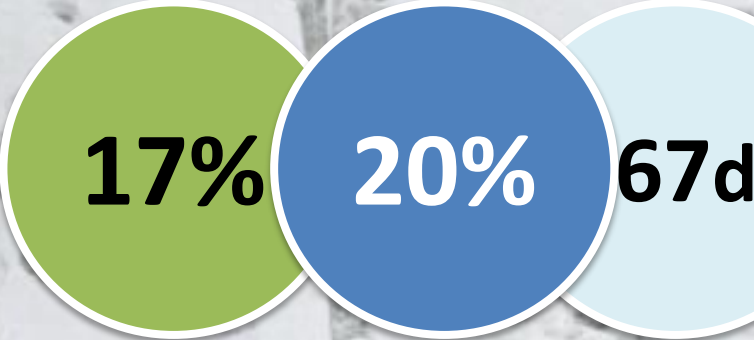


Photo: Jukka Talvi, City of Oulu





# MUNICH, GERMANY



# VIENNA, AUSTRIA

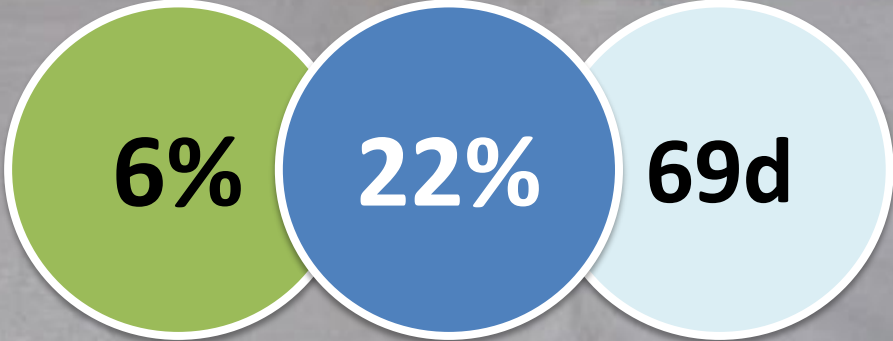
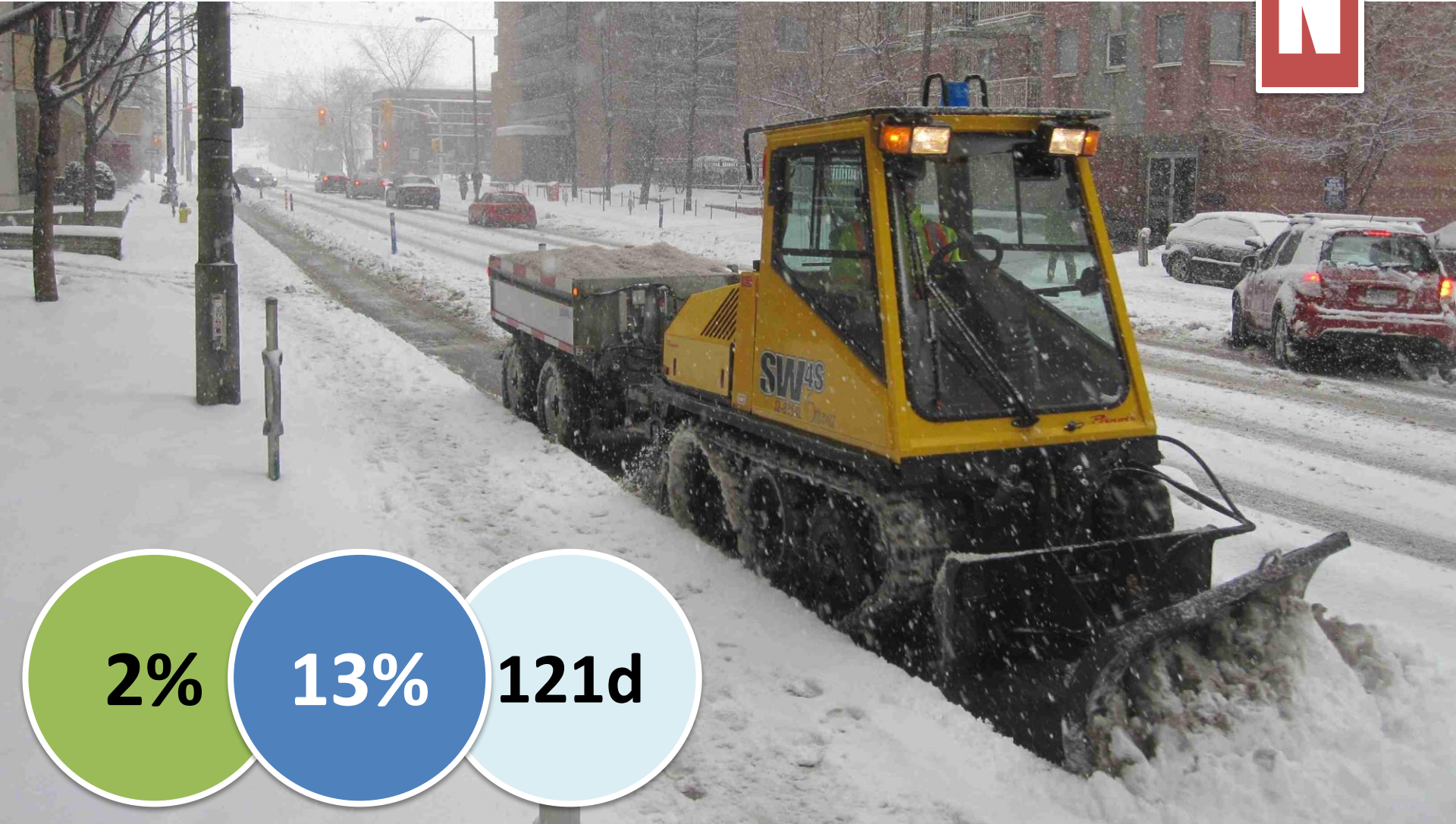


Photo: Michael Szeiler



# OTTAWA



2%

13%

121d

Photo: Urban Commuter Ottawa



# CALGARY

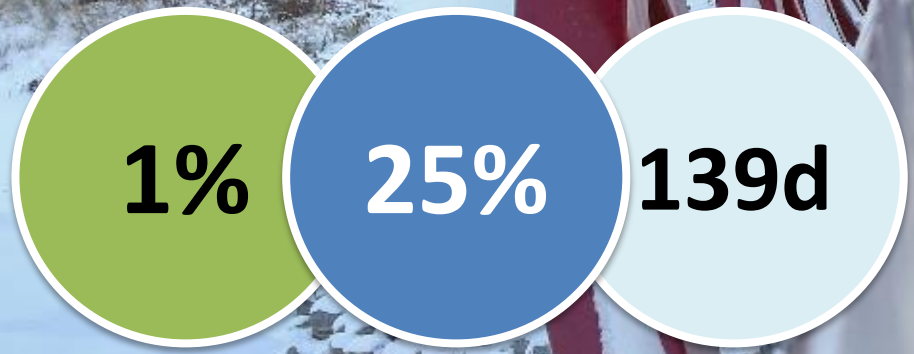


Photo: Tom Babin, Calgary Herald



# MADISON, WI





# SAPPORO



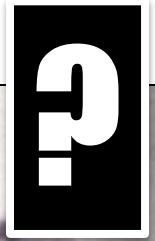
中央分岐

右通行しましょう  
進行方向

Photo: Robert Thomson



# CHINA





**WHO THE     **  
**RIDES A BIKE**  
**IN WINTER?**

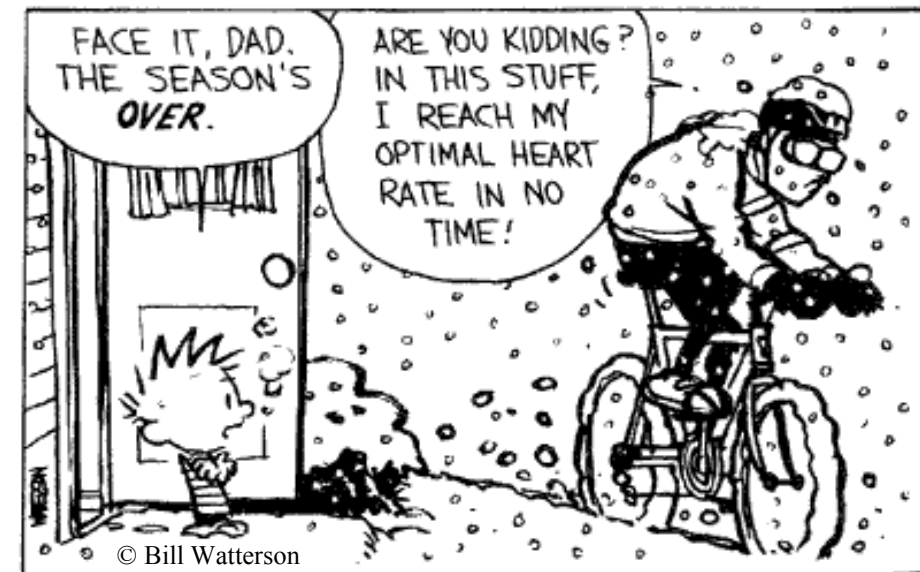




©bikeyface.com



CARtoons by Andy Singer www.andysinger.com



2.

**THE IMAGE...**

2.

## YOUNG CYCLING CULTURES

N

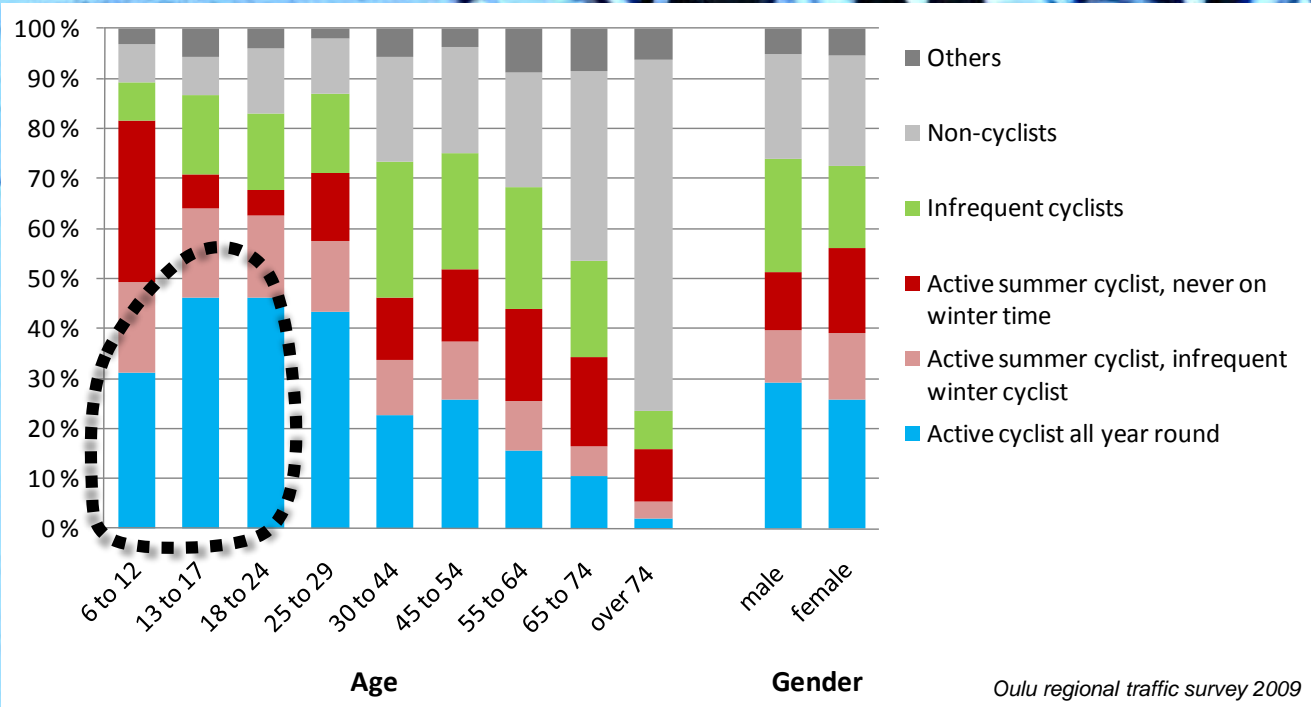
*“The average winter cyclist in Calgary is a middle-aged man who rides almost every day, usually to work, and will brave temperatures down to -20 C and colder to do so.*

Sadeghpour, Babin



# 2.

# ITS A BIT DIFFERENT OUT THERE...



Oulu regional traffic survey 2009

Photo: Timo Perälä



2.

OLD.....





2.

# ...AND YOUNG...



Photos: Timo Perälä



3.

# WHY PEOPLE CYCLE IN WINTER?



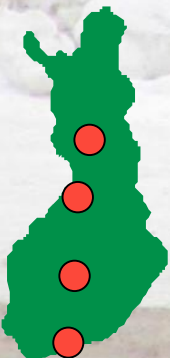
## CONVINIENCE

50%

*The easiest, fastest, cheapest mode of transportation*

## EXERCISE 25%

25%



*Finnish national winter cycling survey, 2002 (n=2 500 winter cyclists)*

*Photo: Anders Swanson*





3.

# WHY PEOPLE CYCLE IN WINTER?



**PART OF COMMUTING** **56 %**

**EXERCISE & RECREATION**

Winter Cyclists Survey, Calgary, Sadeghpour, 2013  
(n=2100 cyclists)





4.

# WHY PEOPLE STOP CYCLING...



**COLD** 32%

**SLIPPERY** 23%

**DANGEROUS** 15%

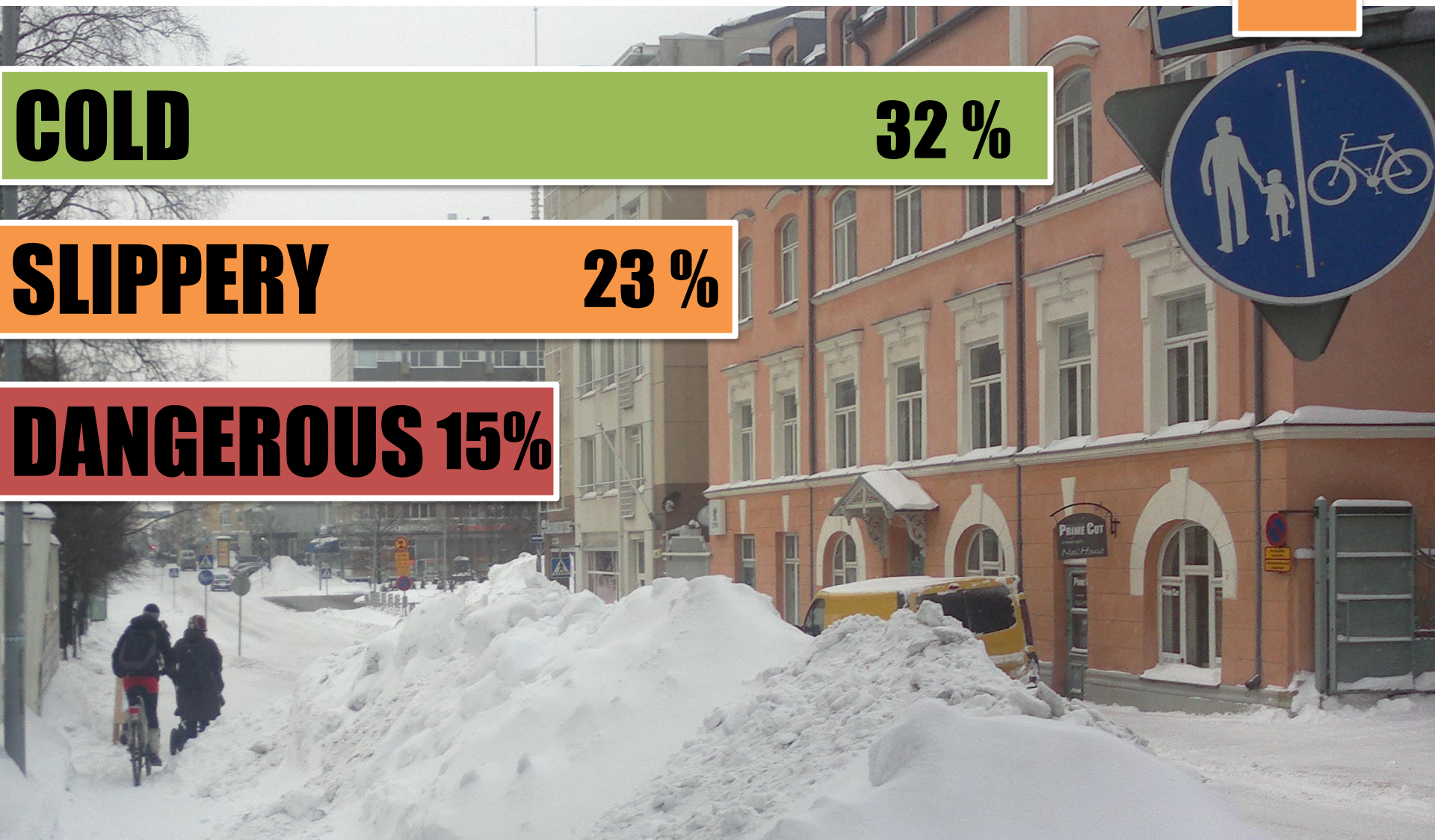


Photo: Timo Perälä

Finnish national winter cycling survey, 2002 (n=1300, summer cyclists)



# 4. BIGGEST SAFETY CONCERNS



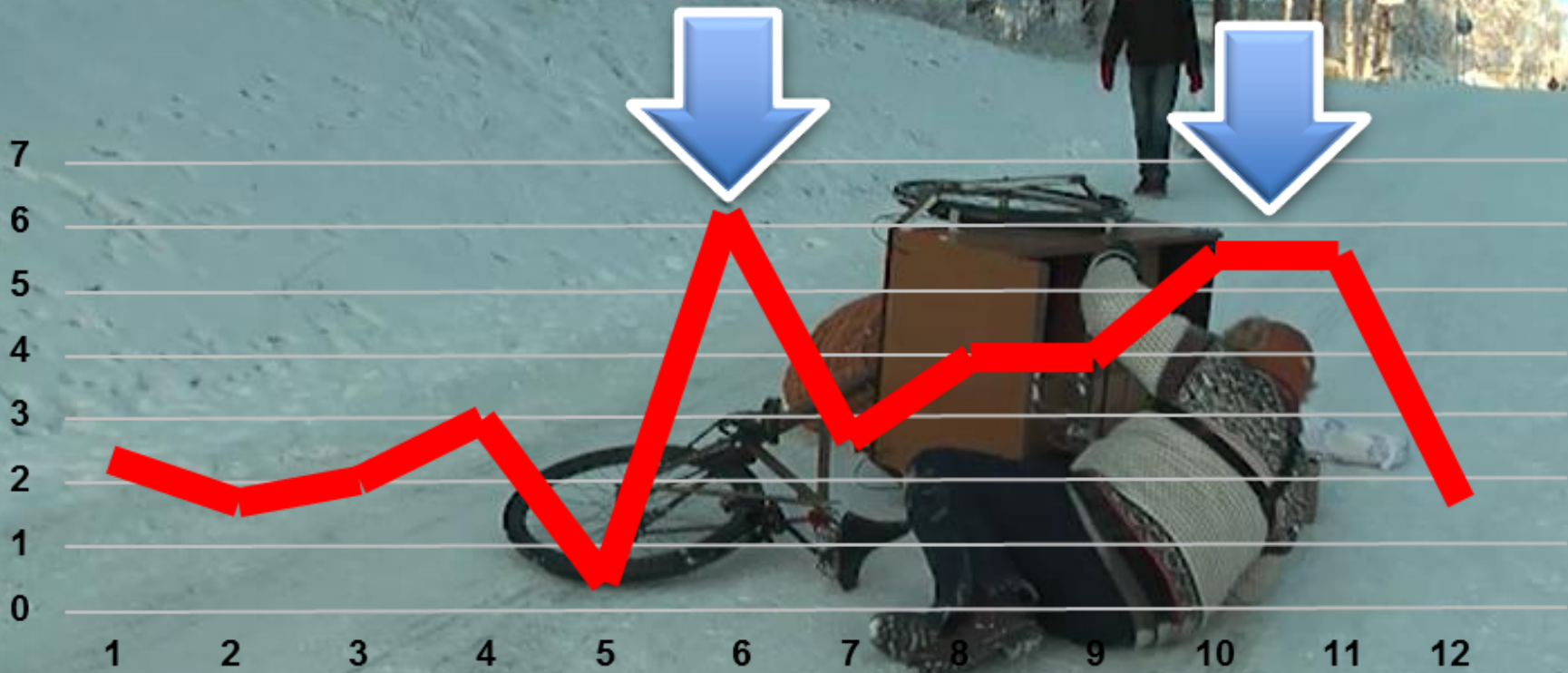
**ICE&SNOW** **30%**

**LANE WIDTH**

**POOR PAVEMENT**

Winter Cyclists Survey, Calgary, Sadeghpour, 2013  
(n=2100 cyclists)

# 5. WINTER CYCLING SAFETY



Accidents leading to injury / 1000 cyclists (Data from the city of Oulu)

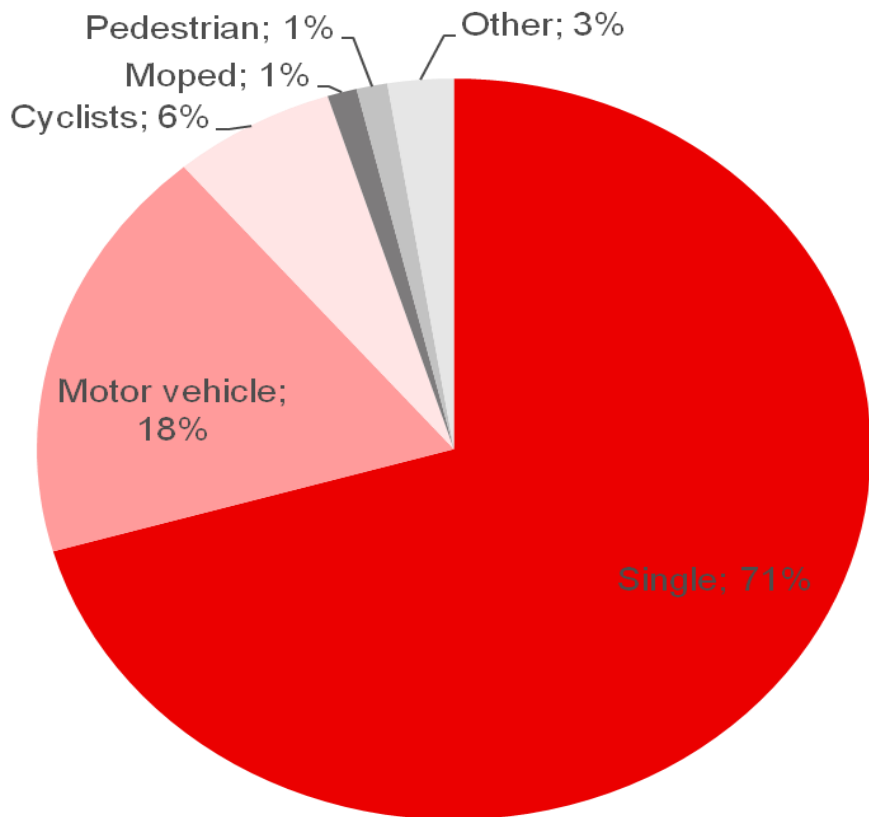


# 5.

# WINTER CYCLIGN SAFETY



Accident type distribution



## Accident cause of single bicycle accidents

	All injured	Seriously injured
<b>Maintenance and operation</b>	17%	27%
•Slipperiness (ice, grit, etc.)		
•Uneven road surface		
•Loose objects		
•Sharp/high road edges		
<b>System design</b>	12%	20%
•Curb stone, Firm objects, Tram rails		
<b>Bicycle - Cyclist</b>	17%	27%
•On/off, Bicycle failure, Brakes		
<b>Cyclist behaviour</b>	9%	15%
•High speed, Alcohol, Playing, Own dog		
<b>Interaction with other road users</b>	6%	11%
•Avoiding conflicts, Dogs, Animals		
<b>Unknown</b>	39%	



Seriously injured cyclists in Sweden (n=775), Swedish hospital data, STRADA, 2007-2011

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# 6. LAND USE PLANNING IS THE BED

## Problems in winter maintenance

- Disordered network of cycle routes
- Non-homogeneous cycle routes
- Too little space for snow storage
- Expensive snow removal
- Attitude of maintenance staff
- Expertise of maintenance staff
- Unsuitable equipment
- Unsuitable methods
- Modest quality requirements
- Lack of money
- Etc.







**6. SNOW LOGISTICS IS EXPENSIVE**

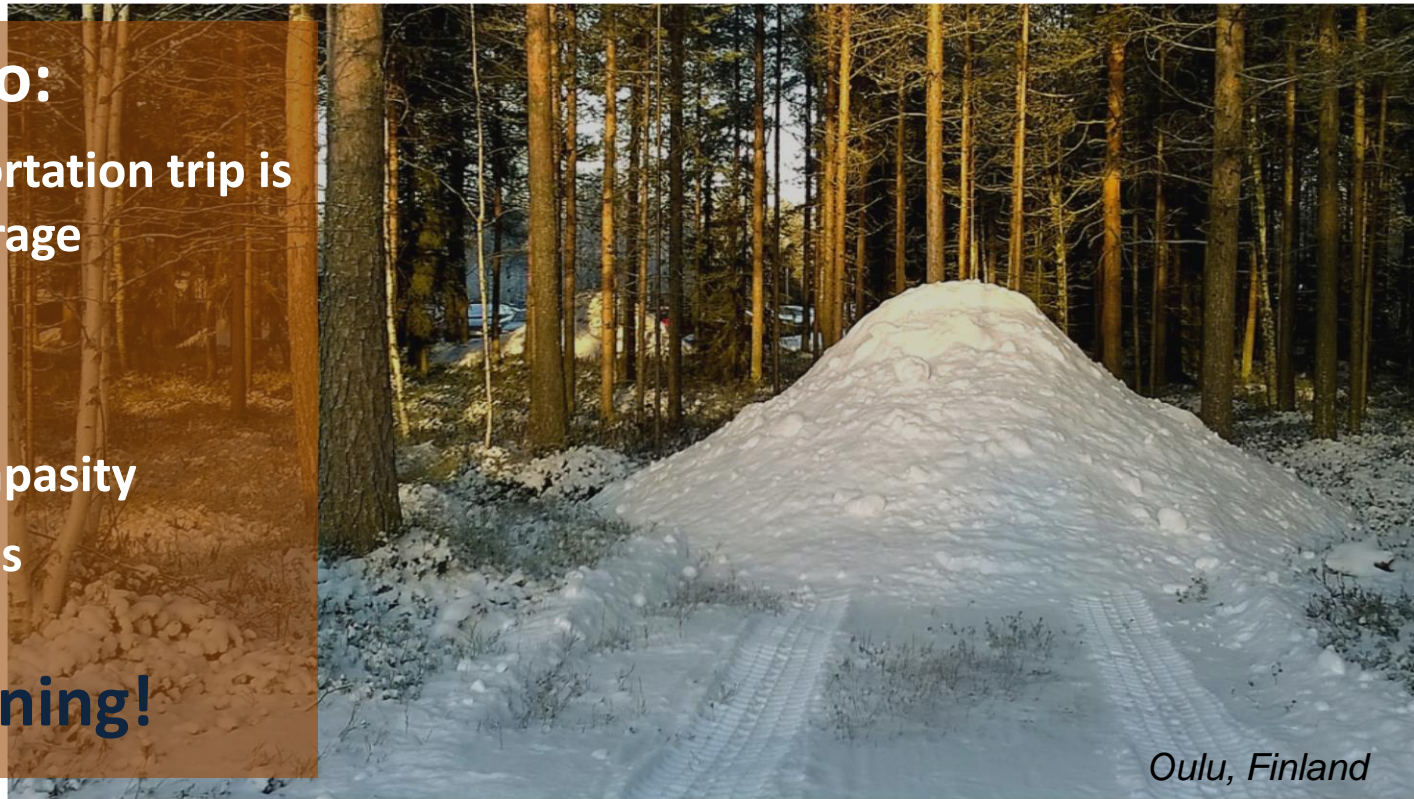
*Photo: Kalle Vaismaa, Verne*



## Pay attention to:

- Maximum transportation trip is 200 metres in average
- Topography
- Glacier water
- Ground bearing capacity
- Groundwater areas

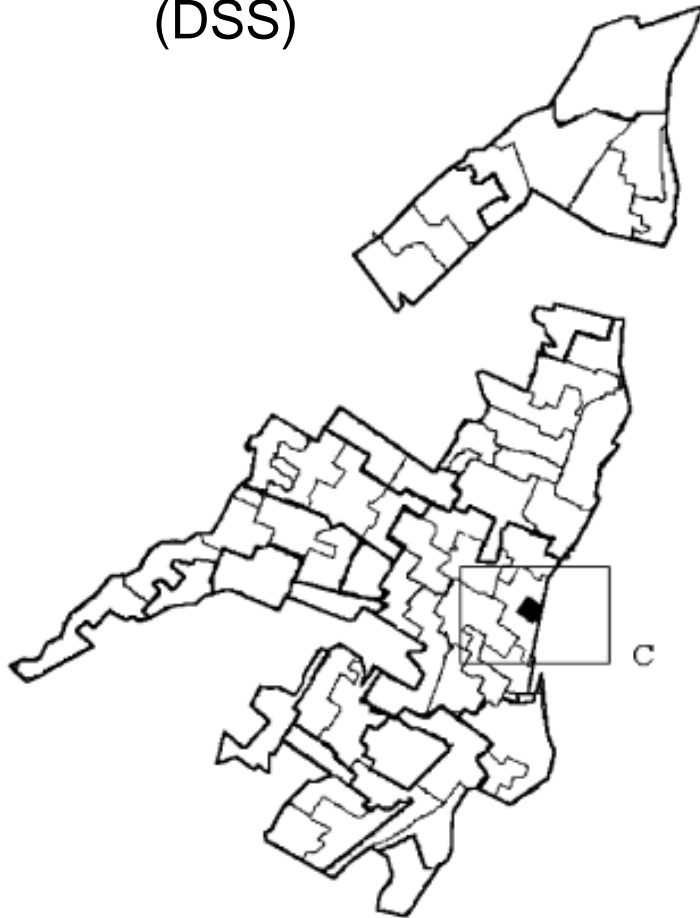
**Areal planning!**



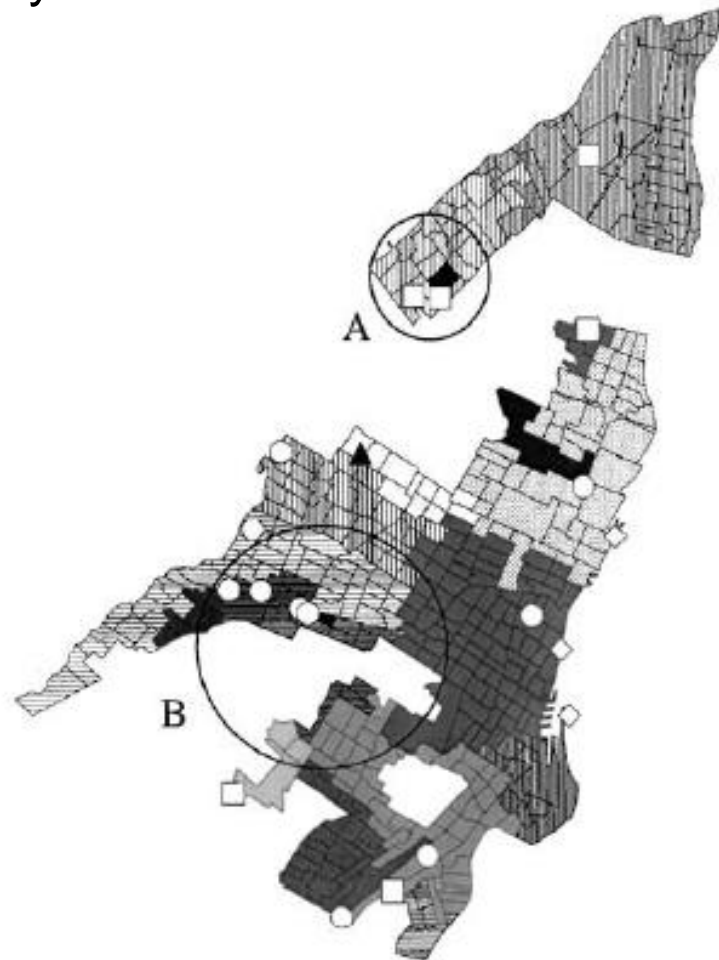
*Oulu, Finland*

## Case: Montreal

- Based on Decision Support System (DSS)



60 sectors



20 snow disposal places

Quarry	▲
River site	◇
Sewer Chute	□
Surface site	○





6.

**SNOW HOW**



6.

# BAD CROSS SECTION



BERGHEMS RESTAURANG  
Grill, Pizzeria & Sallad  
090-14 15 29  
www.berghems.se

BJÖRKSTADENS TRAFIKSKOLA  
Svensk  
1900 - 12 00 00  
www.bjorkstadens.se



# 6. CYCLING LANES IN WINTER



# 6. PROTECTED CYCLING LANES







Photo: Eltis.org

7.

**DO IT RIGHT, THEN MAINTAIN IT RIGHT!**



7.

**IF YOU BUILD IT, MAINTAIN IT**

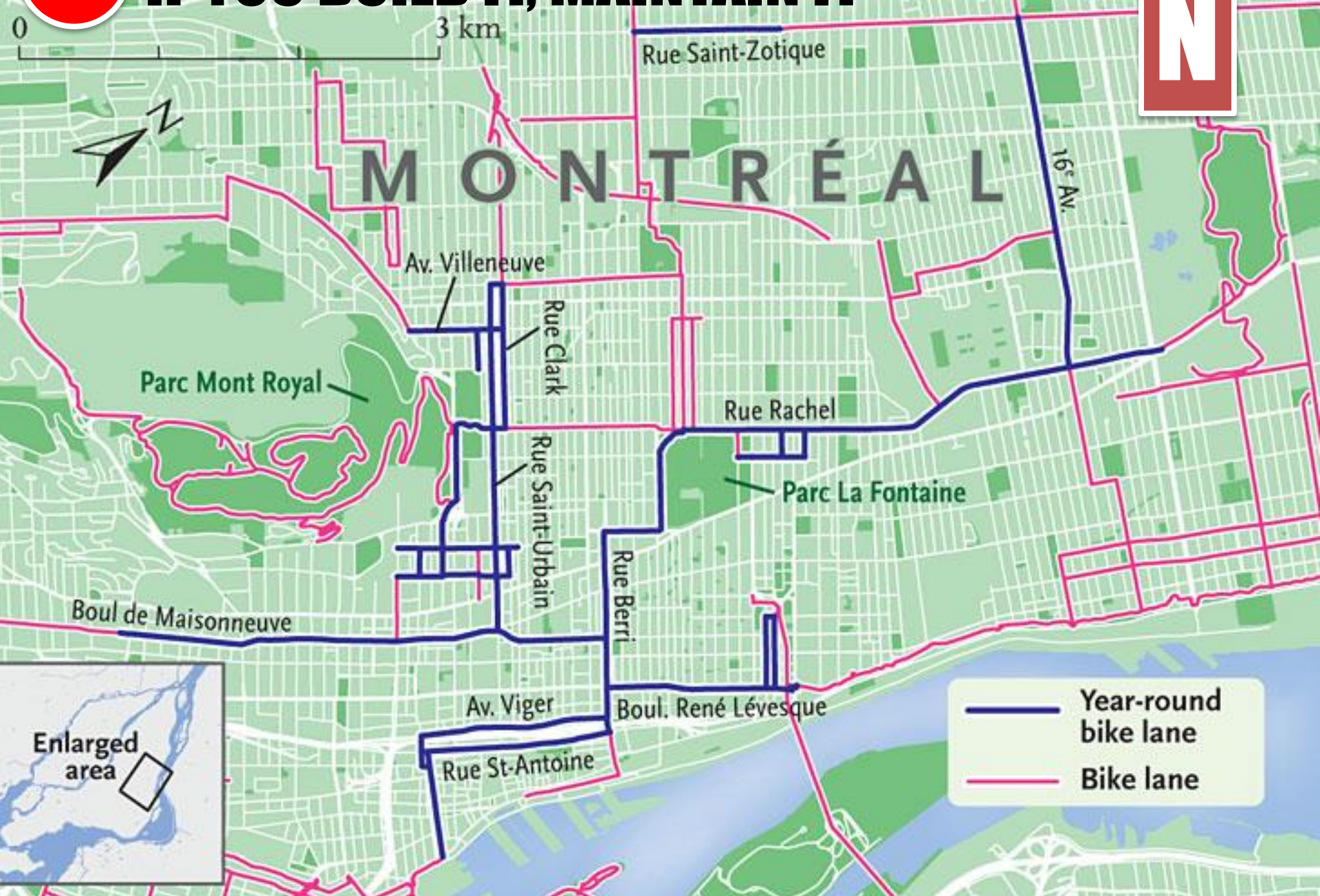


**95 – 100 % MAINTAINED**



7.

# IF YOU BUILD IT, MAINTAIN IT



MONTREAL

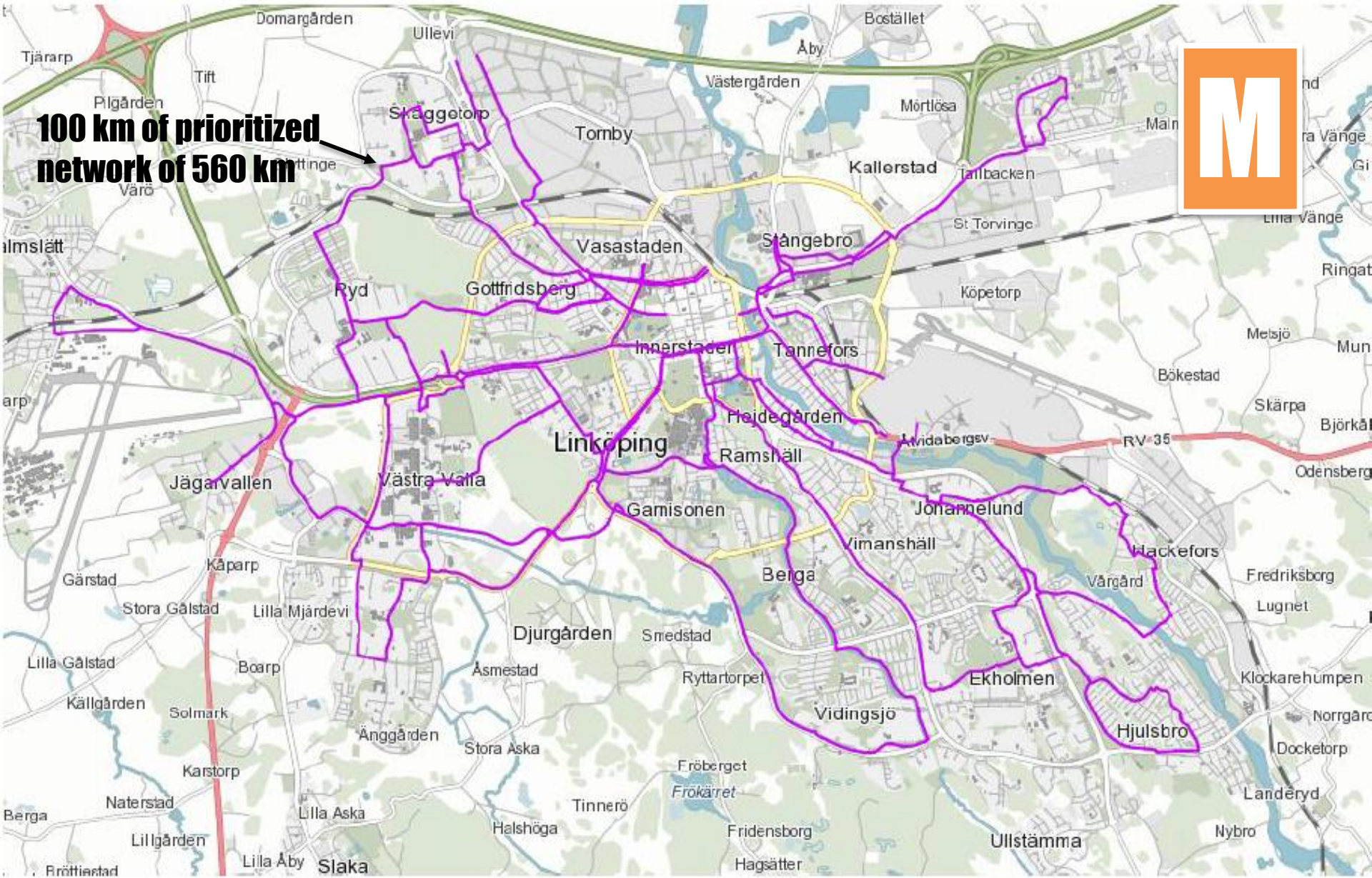
Parc Mont Royal

Parc La Fontaine

- Year-round bike lane
- Bike lane

Enlarged area





7.

1 cm, 4 hours, 100 times/winter



7.

# IMPORTANCE OF MAINTENANCE

  
-60 %

  
-40 %



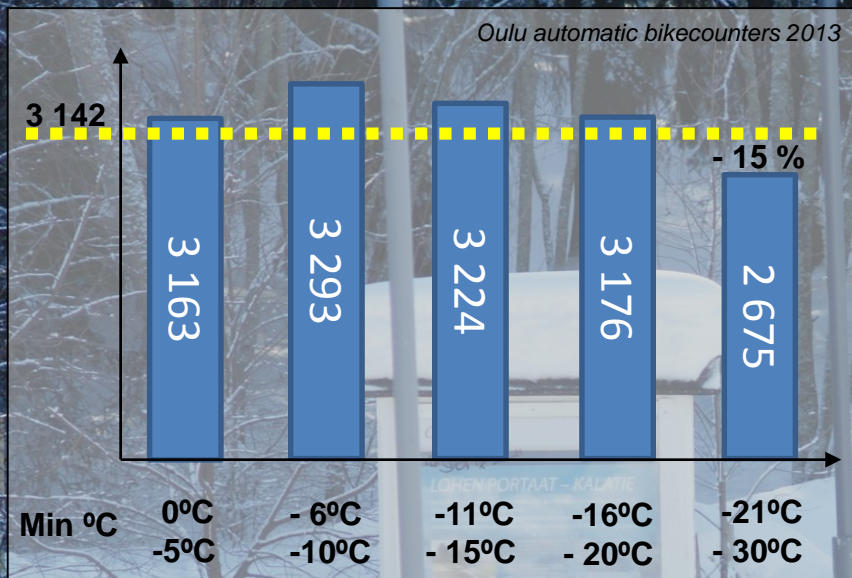


7.

# BIKE PARKING MAINTENANCE

Photo: Timo Perälä





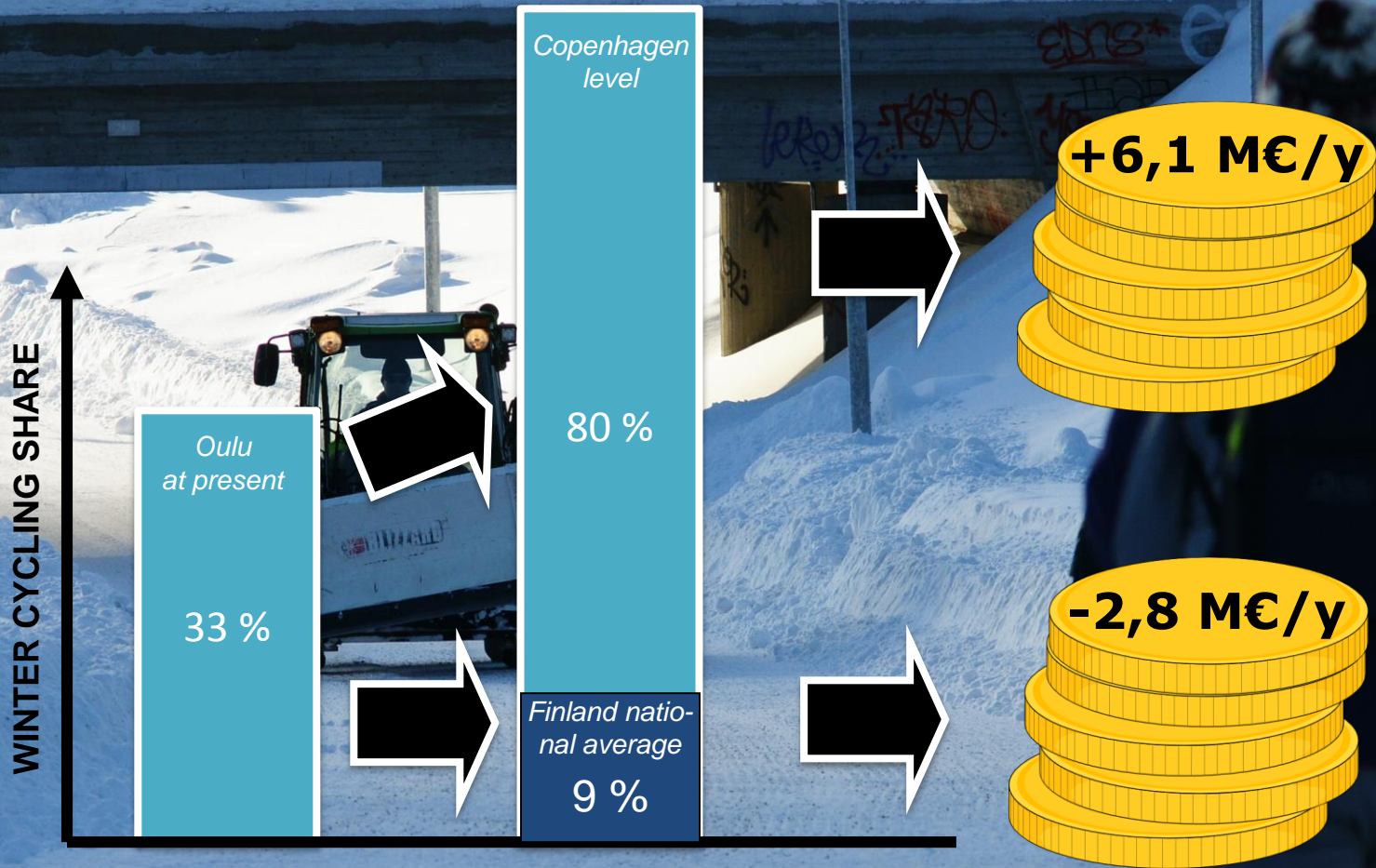
M

N

7.

**COLDNESS HAS NOTHING TO DO WITH IT**





MAINTENANCE BUDGET ~2,0 M€

8.

# WINTER CYCLING BENEFITS THE CITIES



9.

# WINTER CYCLING GEAR



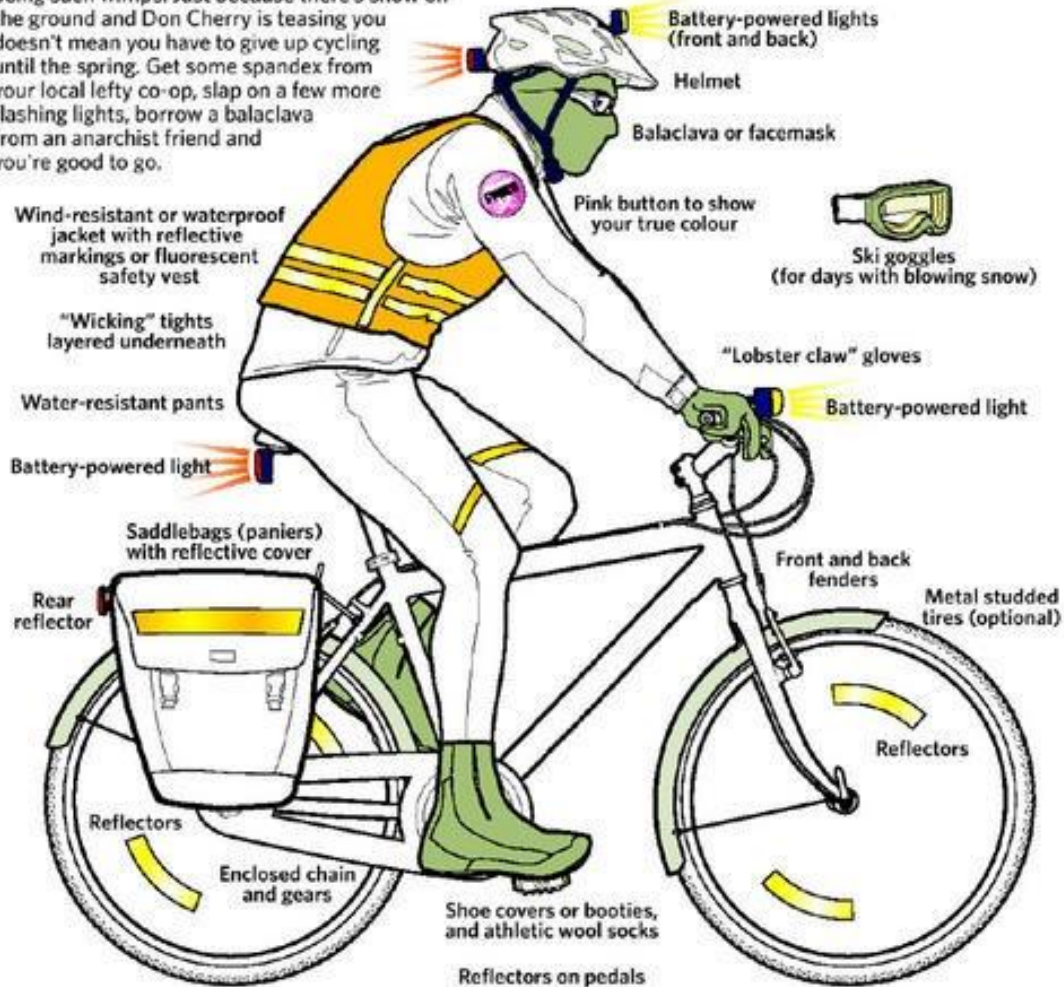
Photo: Pekka Tahkola

# 9.

# WINTER CYCLING GEAR

## Winter cycling

All you fair-weather bike-riding pinkos! Stop being such wimps. Just because there's snow on the ground and Don Cherry is teasing you doesn't mean you have to give up cycling until the spring. Get some spandex from your local lefty co-op, slap on a few more flashing lights, borrow a balaclava from an anarchist friend and you're good to go.



ERIC HUGHES/TORONTO STAR



# So! You want to cycle in the winter?

## Guide for Cyclists

## Guide for the Rest of Us

wardrobe of regular clothes -  
includes winterwear € varies

wardrobe of regular clothes -  
includes winterwear € varies

gear for winter cycling:

clothes for winter cycling:

longsleeve merino sweater € 75

total € 0

kneewarmers € 25

glasses € 20

short sleeve merino vest € 75

windproof fleece €110

waterproof cycling boots €230

cycling socks € 15

cycling shorts € 75

cycling cap € 20

cycling gloves for winter € 60

helmet €150

buff € 15

BIKE LOVE, BABY!!! free

total €870

Fancy bike customised for  
'winter use' not calculated.

Regular bike (in garage/bought at  
flea market) not calculated.

Source: [www.copenhagene.com](http://www.copenhagene.com)

9.

# WINTER CYCLING GEAR

**MEANWHILE**



**IN FINLAND**



c/o Navico Oy

Isokatu 56,  
90100 Oulu, Finland  
+358(0)407060415  
[www.wintercycling.org](http://www.wintercycling.org)

[timo.perala@wintercycling.org](mailto:timo.perala@wintercycling.org)

Photo: Memeful.com

MEMEFUL