Strategies to Enable Winter Cycling and Walking

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January 15, 2014

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Additional Resources

- *A Guide for Maintaining Pedestrian Facilities for Enhanced Safety* (FHWA-SA-13-037; October 2013). Addresses the needs for pedestrian facility maintenance; common maintenance issues; inspection, accessibility and compliance; maintenance measurers; funding; and construction techniques to reduce future maintenance.
- PBIC Webinar on the Guide here: http://www.pedbikeinfo.org/training/webinars_FHWA_120213.cfm
- Link to presentations from PDS 2013 session on Winter Maintenance: https://www.filesanywhere.com/fs/v.aspx?v=8b6c648d5d6072a76f9e
- "City officials unveil new winter sidewalk safety PSA after seeing high number of citations" - News report about the City of Madison's new PSA on winter accessibility

  Report: http://www.wkow.com/story/24412590/2014/01/09/city-officials-unveil-new-winter-sidewalk-safety-psa

  PSA: http://media.cityofmadison.com/Mediasite/Play/7fb5a3f9f17b4c9c952c76b76e20cd351d

Today's webinar presenters

Tyler Golly is a general supervisor for the Sustainable Transportation section at the City of Edmonton, where he manages active transportation. His experience includes developing transportation master plans and strategic plans for active transportation, transit-oriented development, and complete streets; translating these plans into policies; building infrastructure and implementing programs outlined in the policies and plans; and monitoring the progress toward achieving the goals and objectives defined by the plans.

Rob Green is the Assistant Director of Burlington Public Works, Right of Way. He has been employed by the city since 1987 working as a mechanic, storekeeper, fleet manager and now his current position. He brings experience maintaining, operating and purchasing all makes and models of municipal equipment.

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Today's webinar presenters

Marc Jolicœur has been Research Director at Vélo Québec since 1995. He has trained over 500 professionals across Canada in workshops on pedestrian and cyclist-friendly infrastructure while coordinating technical support to over 300 municipalities and organizations involved in the development and operation of the Route verte. He is the lead author of *Planning and Design for Pedestrians and Cyclists* (2010). In 2011, Marc received the Professional of the Year – Private Sector award from the Association of Pedestrian and Bicycle Professionals. A professional engineer involved in transportation for over 20 years, he is a year-round bicycle commuter in Montréal.

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Today's webinar presenters

Since 2005, **Nicole Losch** has been Burlington's Transportation Planner and Bicycle and Pedestrian Program Manager. She focuses on long term planning, small project implementation, and grant procurement. Nicole's efforts emphasize transparency and collaboration, both in-house and in the public process, working to bridge the gap between planning and engineering in the department's Office of Plangineering.

Arthur Ross is the Pedestrian and Bicycle Coordinator for the city of Madison, Wisconsin, a position he has held for the past 26 years. He has been involved in the planning and design of all types of bicycle and pedestrian facilities. Arthur is a year-round bicycle commuter, walker and transit user in winter climate zones, with experience in urban, suburban and rural environments. He has served on the Board of Directors of the Association of Pedestrian and Bicycle Professionals, the League of American Bicyclists, and the Bicycle Federation of Wisconsin.

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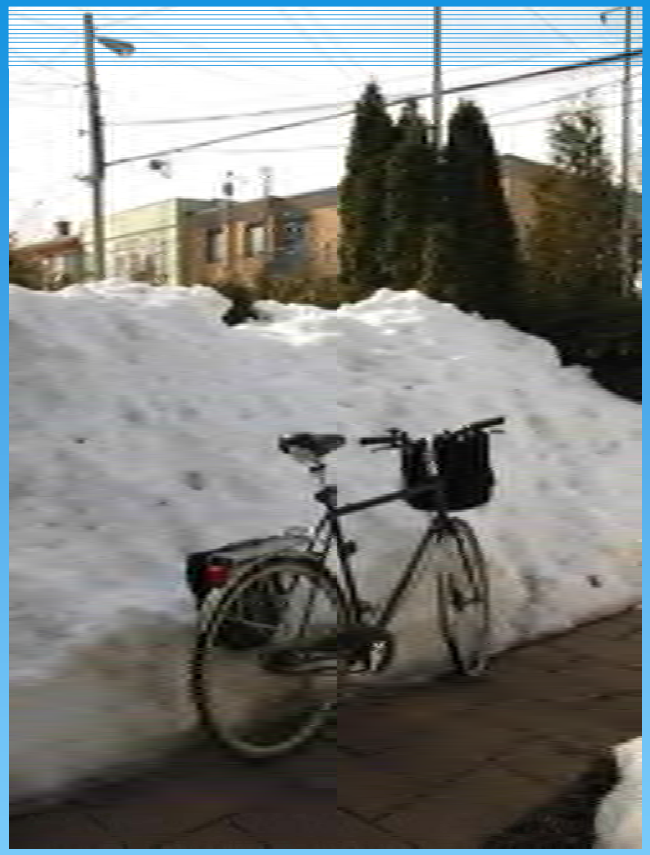
Winter Cycling Basics for Transportation Managers



Marc Jolicoeur

Research Director

Strategies to Enable Winter Cycling and Walking
APBP Webinar, January 15, 2014

Key ideas

* 4 seasons cycling is possible everywhere
* Winters are not equal/climate is changing
* Facilities and maintenance should be adapted to local climate /climate changes
* Prioritization and predictability are key to higher levels of winter cycling

4 seasons cycling is possible

Oulu, Finland

* Latitude 65°N (same as Fairbanks, Alaska)
* Average annual snowfall 430 cm (14 feet)
* Shortest day: 3h36 of sunshine (10:17 AM – 1:51 PM)

4 seasons cycling is possible

Oulu, Finland

* 200 000 inhabitants
* Cycling mode share
  * 21 % in summer
  * 7 % in winter


PENTIK


Liveklubi
Kahvila & Baari
Nuclear nightclub


Betalkorts-
förmån. Direkt.
Stockmann
MasterCard.
STOCKMANN
ONE WAY

While in Helsinki…


Bike path

Climate

Climate

* Winters and winter perception differs: my winter is worst than yours!
  * Snowfall
  * Temperature
  * Daylight

Climate

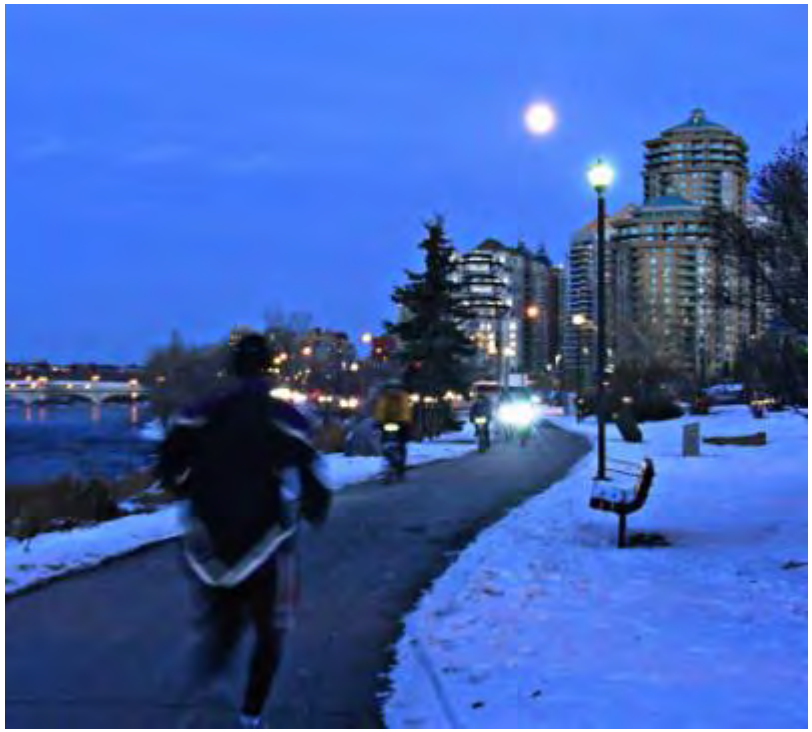
	Average Annual Snowfall (cm-inches)	Average January Temperature	Shortest Day
Copenhagen	50 cm – 20″	0°C / 32°F	7h00
Vienna	70 cm – 28″	0°C / 32°F	8h20
Calgary	130 cm – 4’3″	-9°C / 16°F	8h00
Minneapolis	140 cm – 4’7″	-9°C / 16°F	8h50
Montreal	230 cm – 7’6″	-10°C / 14°F	8h40
Oulu	430 cm – 14’	-10°C / 14°F	3h30

Climate

* Vienna, Copenhagen
  * Mild winters (0°C / 32°F)
  * Low annual snowfall (50-70 cm / 20-30'')
  * Types of **SNOWFALLS**
    * wet snow
    * small amounts

Climate

* Calgary, Minneapolis
  * Cold winters (-9°C / 16°F)
  * Medium annual snowfall (130-140 cm / 4’3”-4’6”)
  * Types of snowfall
    * wet or dry snow
    * small to large amounts



Climate

* Montréal
  * Cold winters (-10°C / 14°F)
  * High annual snowfall (230 cm / 7'6")
  * Types of snowfall
    * wet or dry snow
    * small to large amounts

Climate

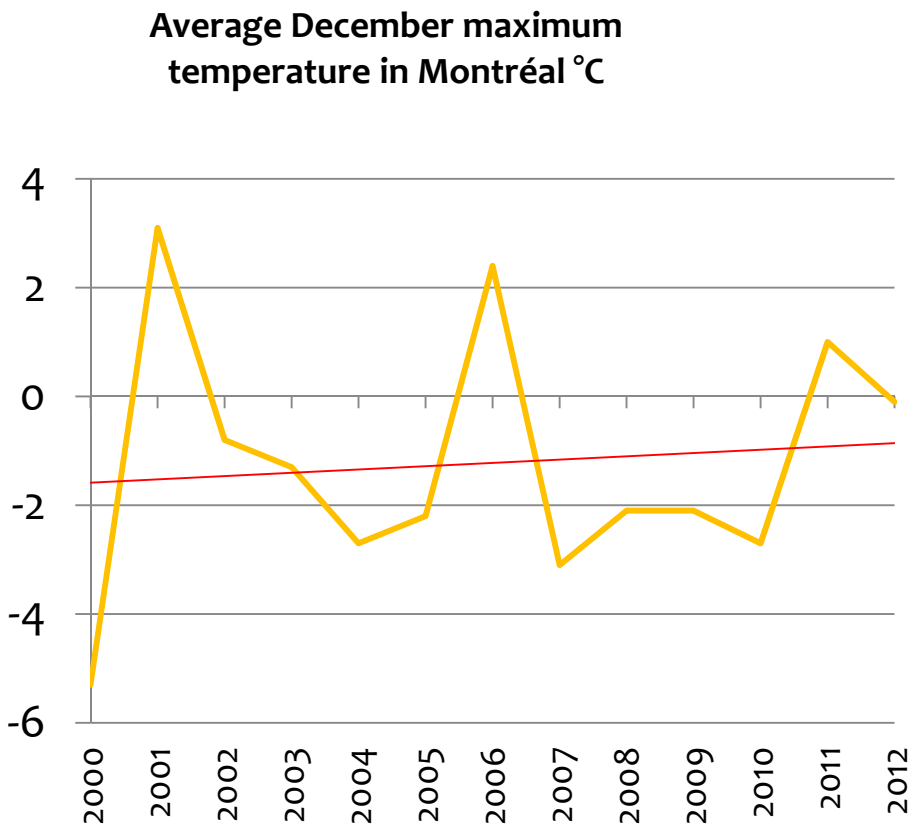
* Oulu
  * Cold winters (-10°C / 14°F)
  * Extreme annual snowfall (430 cm – 14’)
  * Types of snowfall
    * dry snow
    * regular small amounts + occasionnal large amounts

Climate

* Climate change
  * Uneven
  * Getting warmer
    * Global : 0,74 °C / 1.33°F
    * Canada : 0,9 °C / 1.6°F
    * Montréal : 1,1 °C / 2.0°F

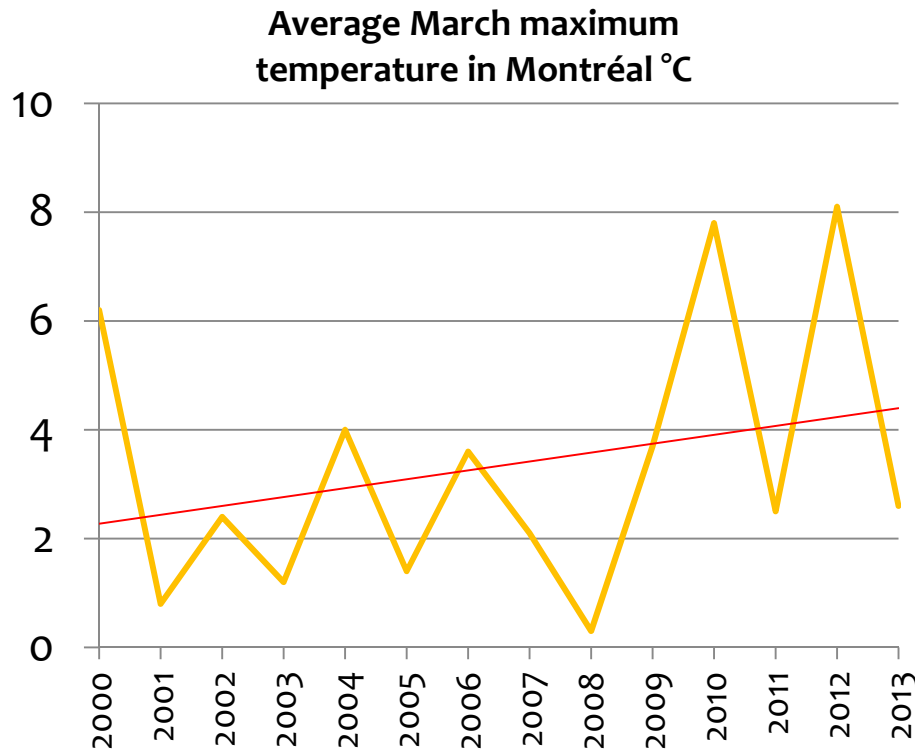
Climate

* Climate change
  * Uneven
  * Getting warmer
    * Monthly Variations



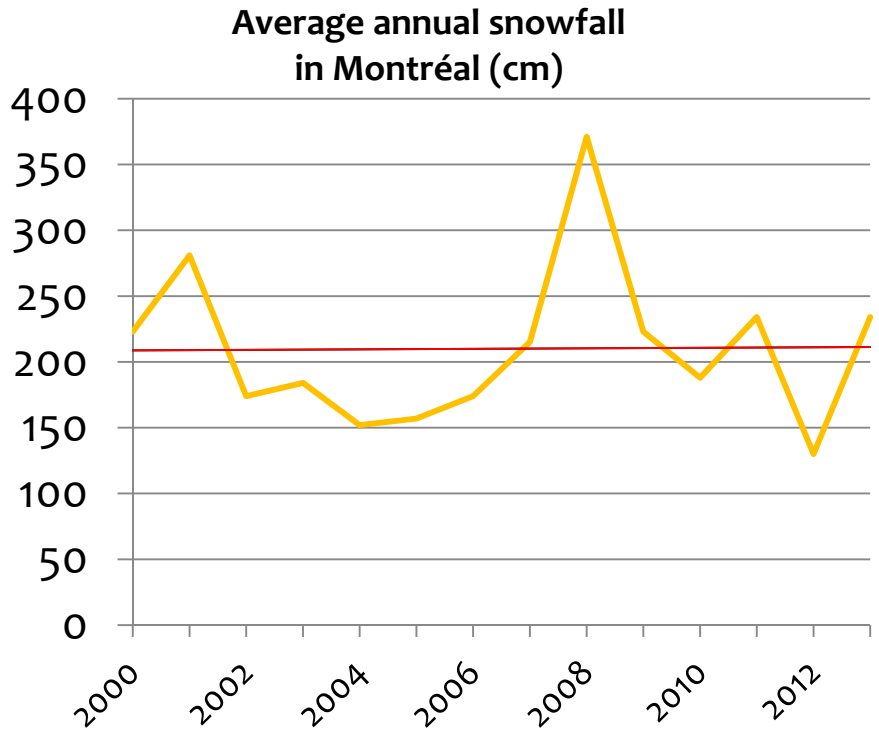
Climate

* Climate change
  * Uneven
  * Getting warmer
    * Monthly Variations



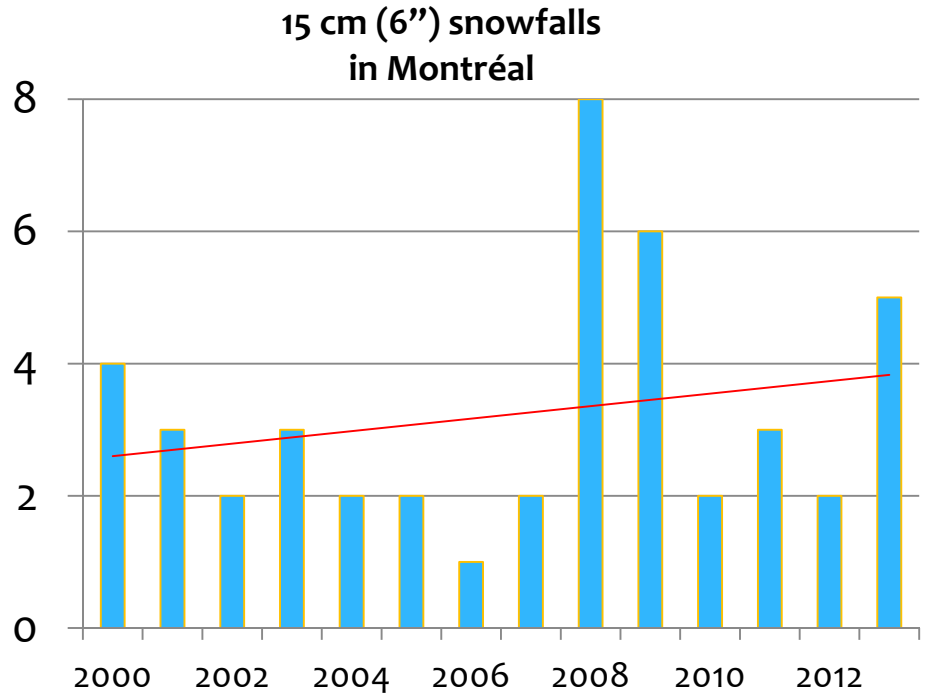
Climate

* Climate change
  * Uneven
  * Snowfall
    * Can increase or decrease locally
    * Year to year variations



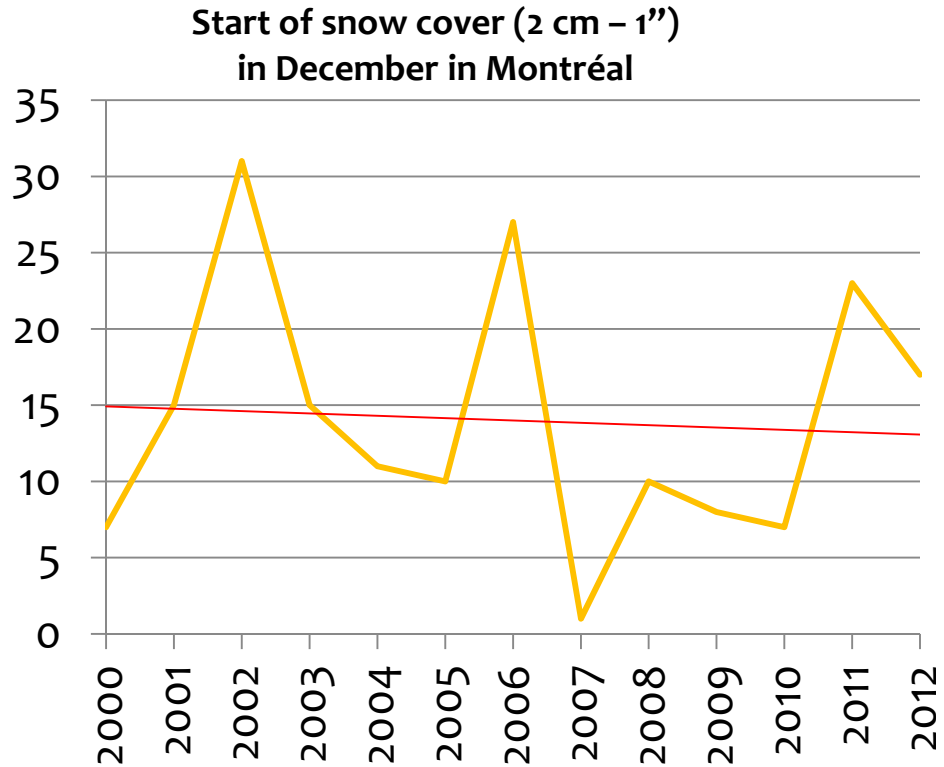
Climate

* Climate change
  * Uneven
  * Snowfall
    * Number of major snowfalls also varies



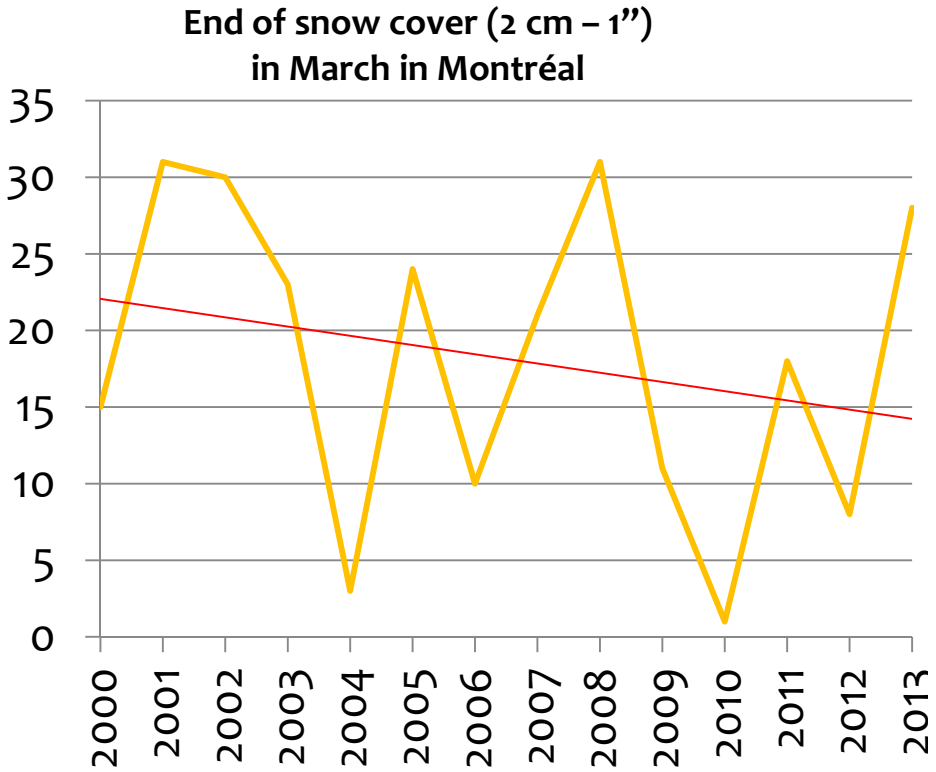
Climate

* Climate change
  * Uneven
  * Winter Duration in Montréal
    * Starts earlier
    * Average: December 13
    * As soon as December 1st
    * As late as December 31st



Climate

* Climate change
  * Uneven
  * Winter Duration in Montréal
    * Ends earlier
    * Average: March 14
    * As soon as March 1st
    * As late as April 1st



Adaptation to Climate

Adaptation to Climate

* Design
  * Bike lanes
    * Plowed with the street

Adaptation to Climate

* Design
  * Bike lanes
    * Plowed with the street
    * Snow loading simple

Adaptation to Climate

* Design
  * Raised bike lanes
    * Same equipment as street
    * Might need 2nd snowplow pass
    * Snow loading simple

Adaptation to Climate

* Design
  * Separated on-street lanes
    * Small equipment

Adaptation to Climate

* Design
  * Separated on-street lanes
    * Small equipment
    * Snow loading difficult if trees/furniture in median

Adaptation to Climate

* Design
  * Bike paths
    * Small equipment
    * In cold climates: possible to groom snow

Adaptation to Climate

* Design
  * Bike paths
    * Small equipment
    * In cold climates: possible to groom snow

Adaptation to Climate

* Design
  * Durable markings
    * For periods without snow in winter

Adaptation to Climate

* Design
  * Durable markings
    * For periods without snow in winter
    * For early spring

Adaptation to Climate

* Equipment
  * Snowplows
    * Effective for large amounts of snow

Adaptation to Climate

* Equipment
  * Snowplows
    * Effective for large amounts of snow
    * Leaves snow
    * Less effective for thin snow

Adaptation to Climate

* Equipment
  * Snowplows
    * Effective for large amounts of snow
    * Leaves snow
    * Less effective for thin snow

Adaptation to Climate

* Equipment
  * Snowplows
    * Toothed blades: procure rough non-slippery surface

Adaptation to Climate

* Equipment
  * Snowplows
    * Toothed blades: procure rough non-slippery surface

Adaptation to Climate

* Equipment
  * Snowplows
  * Brooms
    * Ineffective for large amounts of snow
    * Very effective for thin snow

Adaptation to Climate

* Equipment
  * Snowplows
  * Brooms
    * Ineffective for large amounts of snow
    * Very effective for thin snow

Adaptation to Climate

* Equipment
  * Snowplows
  * Brooms
  * Groomers
    * For paths only
    * Where mid-winter thaws are rare

Adaptation to Climate

* Traction control
  * Public VS individual responsibility
  * An icy surface is slippery !
  * Bicycles have only 2 wheels !

Adaptation to Climate

* Traction control
  * Public VS individual responsibility
  * An icy surface is slippery !
  * Bicycles have only 2 wheels !

Adaptation to Climate

* Traction control
  * To salt or not to salt…
    * VS efficiency
      * In Montréal :
        when < 1 inch of snow

Adaptation to Climate

* Traction control
  * To salt or not to salt…
    * VS efficiency
    * VS environment

Adaptation to Climate

* Traction control
  * To salt or not to salt…
    * VS efficiency
    * VS environment
    * VS damage to bicycles, clothing, concrete…

Adaptation to Climate

* Traction control
  * To salt or not to salt…
    * Solid salt

Adaptation to Climate

* Traction control
  * To salt or not to salt…
    * Solid salt VS
      * Brine
      * Pre-wetted salt
      * Hot sand + salt

Adaptation to Climate

* Traction control
  * To salt or not to salt…
  * Abrasives
    * Crushed stone / sand

Adaptation to Climate

* Traction control
  * To salt or not to salt…
  * Abrasives
    * Crushed stone / sand
      * Slippery when dry

Adaptation to Climate

* Traction control
  * To salt or not to salt…
  * Abrasives
  * Surface heating
    * Effective
    * Expensive
    * Site specific solution

Adaptation to Climate

* Traction control
  * To salt or not to salt…
  * Abrasives
  * Surface heating
    * Effective
    * Expensive
    * Site specific solution

Adaptation to Climate

* Proactivity
  * Sweep streets in winter?
    * Summer sweepers too fragile

Adaptation to Climate

* Proactivity
  * Sweep streets in winter?
    * Summer sweepers too fragile
    * But winter sweepers can do it!

Adaptation to Climate

* Proactivity
  * Remove snow before the end of winter

Prioritization and Reliability

Prioritization and Reliability

* To choose cycling you need to know if the path is clear

Prioritization and Reliability

* Municipalities have limited budgets
* Lack of priority =
  * Unreliable for cyclists
  * Even if all the cycling network is #1 priority
* Priorities
  * Based on budgets

Prioritization and Reliability

* Good systems have 3 priority levels
  * Main routes (± 20 %)
    * Before or at the same time as arterials
    * Before AM peak
  * Secondary routes (± 60 %)
    * After main routes
  * Other routes (local or recreation) (± 20 %)
    * When possible or not at all

Prioritization and Reliability

* **Umeå**
* Sweden
* 80 000 h.

Prioritization and Reliability

* **Järvenpää**
* Finland
* 40 000 h.

valpastin

The prioritising

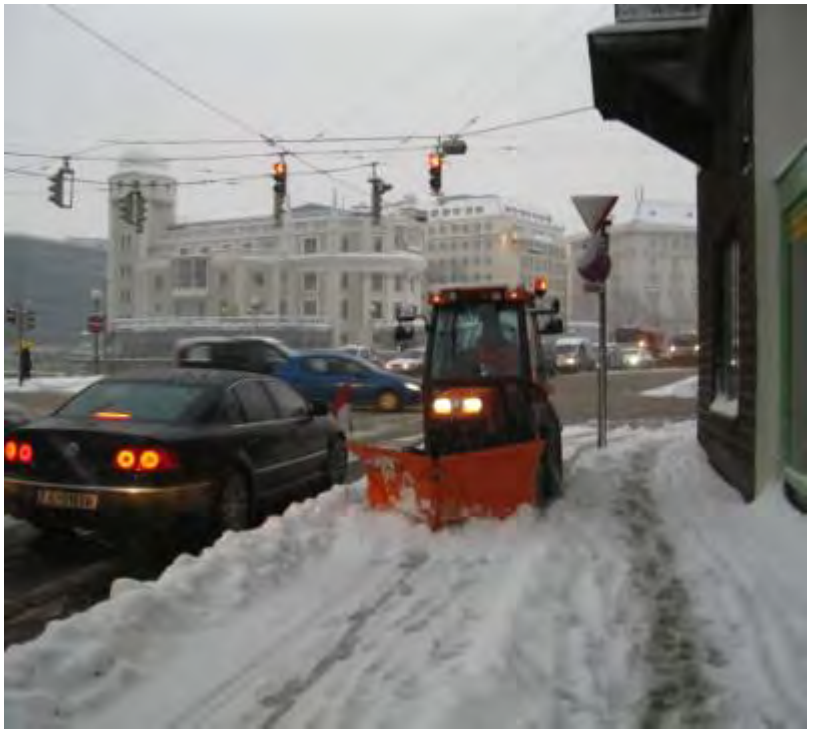
- CLASS A (28 km) main routes
  - The main routes from residential areas to centre. The main routes through the city centre. Important places.
- CLASS B (86 km)
  - The bike and pedestrian paths next to the raods and side walks
- CLASS C (20 km)
  - minor routes inside residential areas through parks etc.

Prioritization and Reliability

* **Vienna**
* Austria
* 1.7 M h.

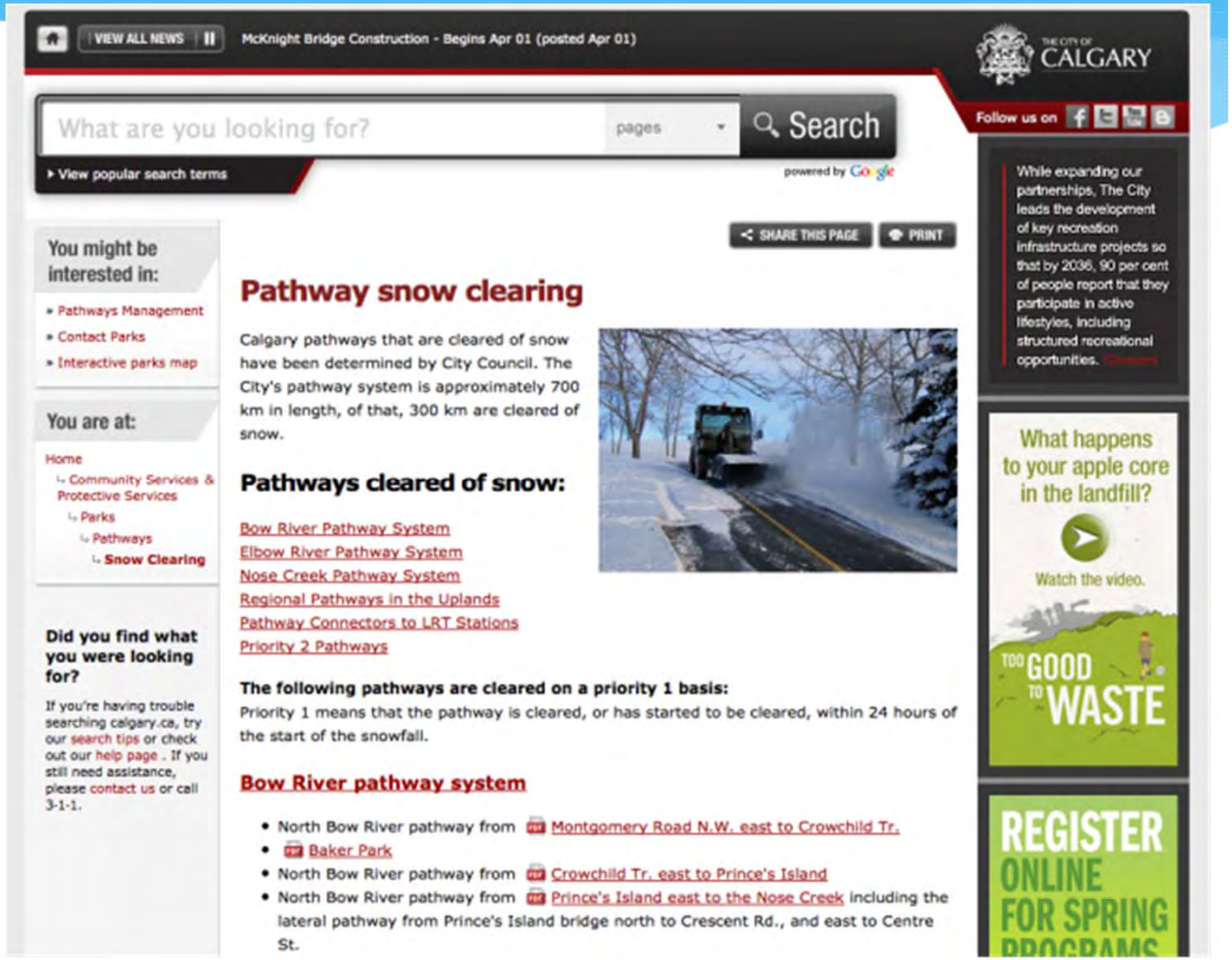
Prioritization and Reliability

* **Vienna**
* Austria
* 1.7 M h.



Prioritization and Reliability

* **Calgary**
* Canada
* 1.0 M h.
* 300/700 km maintened



Prioritization and Reliability

* **Calgary**
* Canada
* 1.0 M h.
* 300/700 km
  maintened
* … and it started like this !

Prioritization and Reliability

* **So there is hope everywhere !**

Prioritization and Reliability

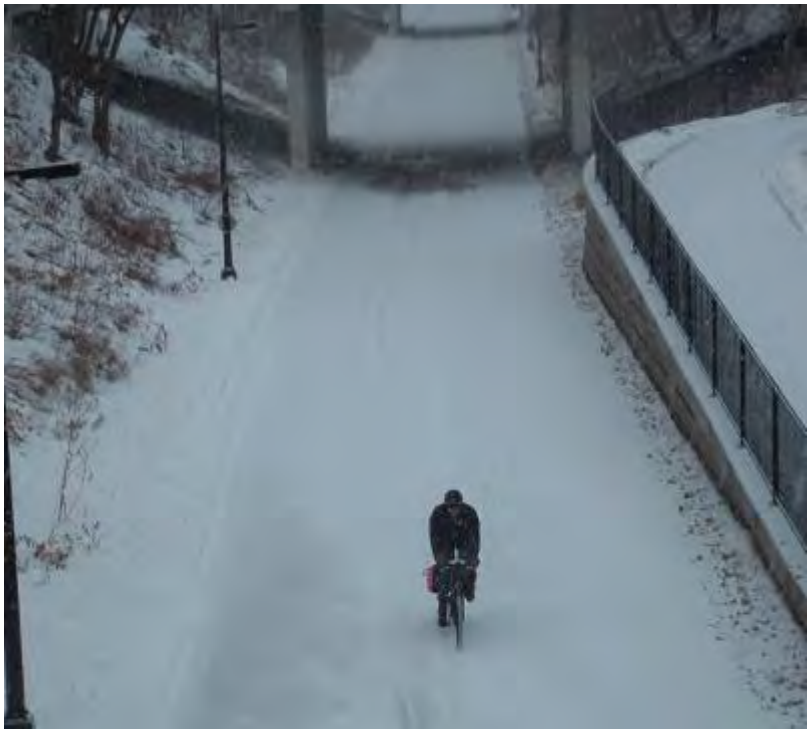
Laurier Avenue, Ottawa

Prioritization and Reliability

Sherbourne Street, Toronto

Prioritization and Reliability

Minneapolis



Thanks !

THE WAY WE MOVE

From Policy to Implementation: On-street Bike Facility Winter Maintenance Pilot Project

TRANSFORMING | EDMONTON

BRINGING OUR CITY VISION TO LIFE

January 15, 2014

Tyler Golly, General Supervisor - Sustainable Transportation


Edmonton
Vancouver
Seattle
Minneapolis
Toronto
Chicago
New York
Los Angeles
ROCKY MOUNTAINS
Edmonton
JASPER
BANFF

Edmonton in Winter

- Avg January Temp: -10 °C
- Avg Snowfall: 125 cm
- Shortest Day: 7.5 hours
- Types of Snow: primarily dry but some wet
- First snowfall typically late Oct or early Nov
- Snow pack remains all winter although melting does occur
- Winters are typically sunny

Edmonton's Embrace of Winter

Goals for Winter Transportation

1. Provide safe travel options in all 4 seasons (Combination of goals from Transportation Master Plan)
2. Design our community for winter safety and comfort (WinterCity Strategy)
3. Improve winter transportation for pedestrians, cyclists and public transit users (WinterCity Strategy)

Snow & Ice Control Policy Update

- Approved by City Council in 2011
- Included service standards for active transportation
- Sidewalks cleared by residents within 48 hrs
- Shared-use paths cleared by the City within 48 hrs
- On-street bike lanes cleared to same service standard as the roadway it is on (within 48 hrs for collector streets)
- Streets cleared to bare pavement (except local streets)
- Snow removed from arterials, collectors & bus routes when the driving width or parking area restricts *safe vehicular movement*

The Bad & The Good






Edmonton

Policy to Action: Goals of the Pilot

- Determine what it takes to keep on-street routes bikeable throughout the winter & spring.
- Extend the lessons learned to the whole system or the Priority Network as a 1st stage.

On-street Bike Facility Winter/Spring Maintenance Pilot

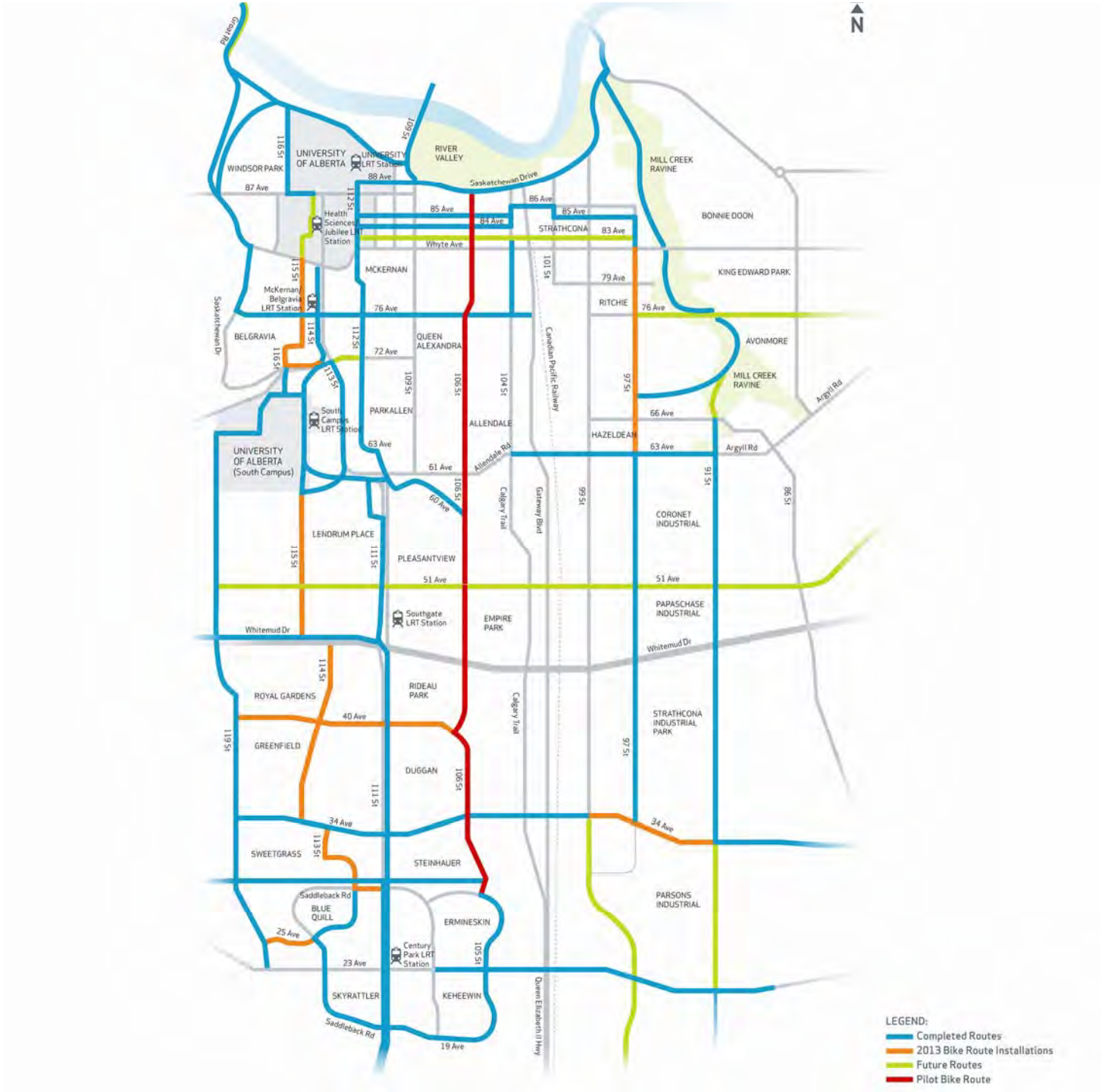
- Snow cleared within 48 hrs to bare pavement
- Windrows removed or shifted when bike lanes reduced to less than 1m (3 feet)
- Sanding/salt as required to address ice
- Spring street sweeping plan TBD in March

Windrow is a snow pile along the side of a street!

How did we select the pilot route?

Wanted to test various scenarios to determine the requirements for each (operations & cost)

- Mix of Facility Types
- Mix of Parking Configurations
- Different Location of Sidewalks
- Varying Contexts


N
UNIVERSITY OF ALBERTA
UNIVERSITY LRT Station
RIVER VALLEY
WINDSOR PARK
87 Ave
88 Ave
Saskatchewan Drive
MILL CREEK RAVINE
BONNIE DOON
85 Ave
86 Ave
84 Ave
STRATHCONA
83 Ave
Health Sciences/ Jubilee LRT Station
Whyte Ave
MCKERNAN
79 Ave
KING EDWARD PARK
McKernan/ Belgravia LRT Station
RITCHIE
76 Ave
BELGRAVIA
QUEEN ALEXANDRA
AVONMORE
72 Ave
MILL CREEK RAVINE
Argyll Rd
South Campus LRT Station
PARKALLEN
ALLENDALE
66 Ave
HAZELDEAN
63 Ave
UNIVERSITY OF ALBERTA (South Campus)
61 Ave
Allendale Rd
60 Ave
CORONET INDUSTRIAL
LENDRUM PLACE
PLEASANTVIEW
51 Ave
PAPASCHASE INDUSTRIAL
Southgate LRT Station
EMPIRE PARK
Whitemud Dr
ROYAL GARDENS
RIDEAU PARK
40 Ave
STRATHCONA INDUSTRIAL PARK
GREENFIELD
DUGGAN
34 Ave
SWEETGRASS
STEINHAUER
Saddleback Rd
PARSONS INDUSTRIAL
BLUE QUILL
ERMINESKIN
25 Ave
23 Ave
Century Park LRT Station
SKYRATTLER
KEHEEWIN
19 Ave
Calgary Trail
Gateway Blvd
Canadian Pacific Railway
Queen Elizabeth II Hwy
LEGEND:
Completed Routes
2013 Bike Route Installations
Future Routes
Pilot Bike Route

How did we select the pilot route?






How are we monitoring the pilot?

Crucial to answer the question of whether improved clearing will increase winter biking.

Actions to increase awareness:

- News release to publicize pilot project
- Created Winter Cycling webpage
- Engaged stakeholders (advocacy groups and bike shops)

How are we monitoring the pilot?

Monitoring Activities

- Cyclist counts
- Weekly monitoring of bike lane width & conditions
- Bicycle User survey that ride the route each month to track quality of the service, assess conditions, & monitor use
- Resident (and parents of local school children) survey that live in the area to assess success and impacts of the pilot
- Citizen emails, calls, and tweets reporting conditions and identifying problem areas
- Weather data (snow events & total snowfall)
- Snow clearing/removal & street sweeping activity log and cost

Results

COMING SOON to a computer near you!

- Lots of snow so far in 2013/2014…more than average and the number of snow events has been very frequent
- First user survey just closed and will help to identify issues that can be addressed to improve the pilot
- Results will be reported to public & Council

Links to Resources

www.edmonton.ca/wintercitystrategy

www.edmonton.ca/thewaywemove

www.edmonton.ca/citizendashboard

www.edmonton.ca/wintercycling

www.edmonton.ca/cycling

wintercyclingcongresswinnipeg.org/

Tyler Golly
General Supervisor, Sustainable Transportation
tyler.golly@edmonton.ca

Strategies to Enable Winter Cycling and Walking

Association of Pedestrian & Bicycle Professionals

January 15, 2014 Webinar

Arthur Ross, Pedestrian-Bicycle Coordinator

City of Madison, Wisconsin

Traffic Engineering Division


For Sale By
Owner
FSBOMadison.com
294-5599

America's 20 Coldest Major Cities

By Jon Erdman Published: Jan 9, 2014, 3:06 PM EST

http://www.weather.com/news/weather-winter/20-coldest-large-cities-america-20140107

#3: Madison, Wisc. (Avg. Dec-Feb Temp: 21.6 degrees)

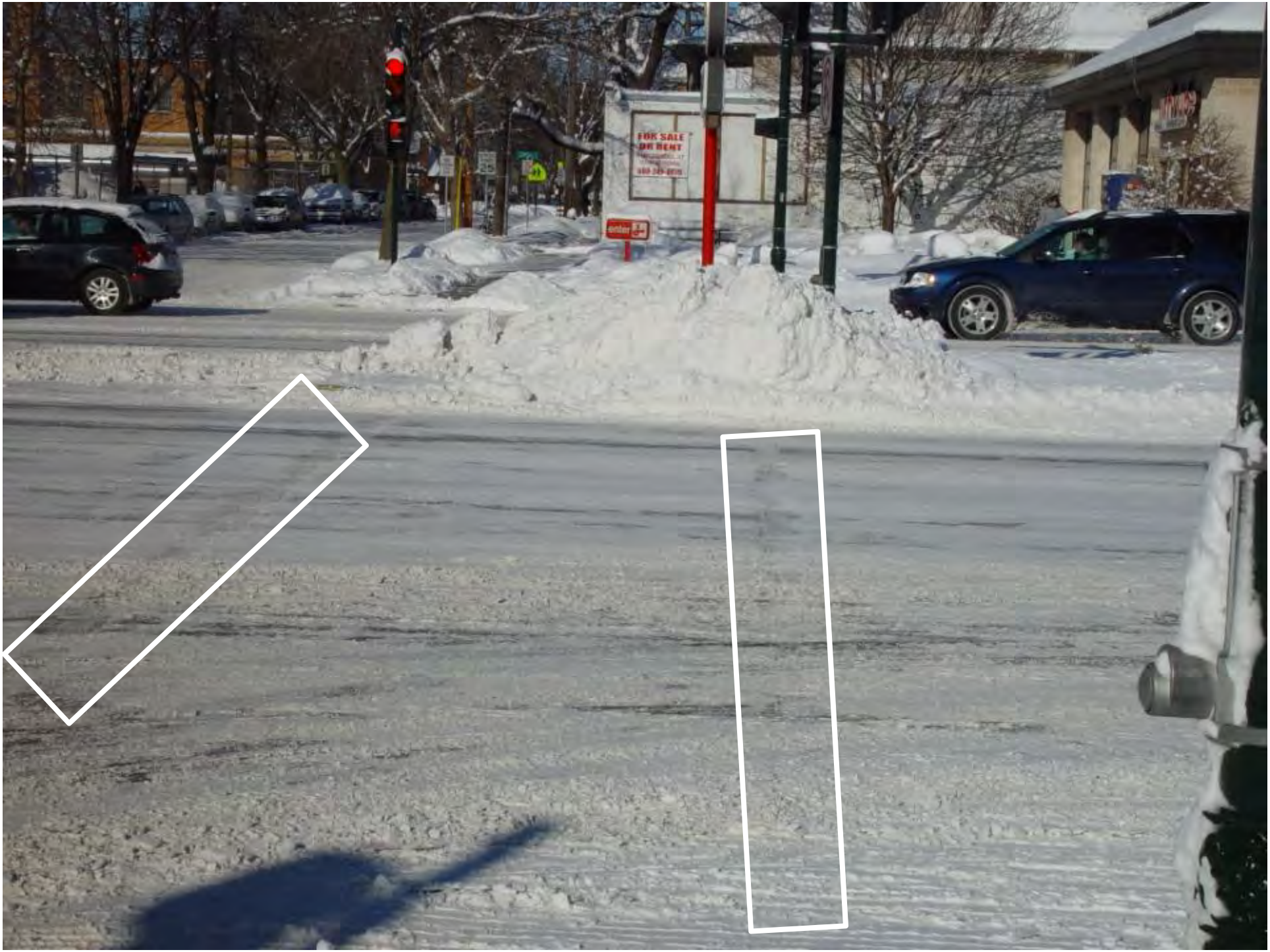
Madison's all-time record low was -37 degrees set on Jan. 30, 1951. On average, subzero cold occurs 17 days each year, while subfreezing temperatures occur 152 days a year, there. (Andy Manis/Getty Images)

Madison, Wisconsin
Actual and Historic Average
High and Low Temperatures (°F)
December 22, 2013 – January 11, 2014

Date	Actual High	Actual Low	Average Historic High	Average Historic Low
Dec 22 , 2013			28°	14°
23			28°	14°
24			28°	13°
25			28°	13°
26			27°	13°
27			27°	13°
28			27°	13°
29			27°	12°
30			27°	12°
31			27°	12°
Jan 1, 2014			27°	12°
2			27°	12°
3			26°	12°
4			26°	12°
5			26°	12°
6			26°	11°
7			26°	11°
8			26°	11°
9			26°	11°
10			26°	11°
11			26°	11°

Madison, Wisconsin
Actual and Historic Average
High and Low Temperatures (°F)
December 22, 2013 – January 11, 2014

Date	Actual High	Actual Low	Average Historic High	Average Historic Low
Dec 22 , 2013	27°	14°	28°	14°
23	21°	-2°	28°	14°
24	12°	-12°	28°	13°
25	23°	11°	28°	13°
26	26°	12°	27°	13°
27	37°	9°	27°	13°
28	42°	20°	27°	13°
29	39°	-4°	27°	12°
30	3°	-14°	27°	12°
31	7°	-5°	27°	12°
Jan 1, 2014	8°	0°	27°	12°
2	11°	-10°	27°	12°
3	20°	-14°	26°	12°
4	33°	15°	26°	12°
5	15°	-9°	26°	12°
6	-9°	-18°	26°	11°
7	2°	-15°	26°	11°
8	10°	-12°	26°	11°
9	23°	-16°	26°	11°
10	36°	22°	26°	11°
11	36°	28°	26°	11°


FOR SALE
OR RENT

JUST ASK US | Local people, places and events

Got a question? We'll find the answer. Send them all to justaskus@madison.com or Just Ask Us, PO Box 8058, Madison, WI, 53708.

Q Does the city actively police sidewalks that aren't cleared of snow, or does it issue citations on a complaint basis?

A The city's snow removal ordinance requires that residents clear snow from their sidewalk by noon of the day after snowfall has stopped.

Enforcement of the ordinance is mostly complaint driven; however, there are a few areas designated as priority pedestrian corridors, where the city actively checks sidewalks after measurable snowfalls, said George Hank, director of the city's Building Inspection Division.

Priority pedestrian corridors are areas with high foot traffic or high concentrations of elderly people and people with mobility issues, Hank said.

So far this winter, the Building Inspection Division has received about 470 complaints. Of the properties that have been inspected, 209 citations were issued and about 200 were found not to be in violation of the ordinance, he said.

The fine for failure to remove snow and ice from sidewalks is $124 for the first violation. It increases to $187 for subsequent violations during the same snow season.

The Capital Times archives

Miguel Villalpando, of Madison, clears the snow from a sidewalk last month on Homer Court in Madison.

But the fees don't stop there. Among the violators, 201 addresses were referred to the city's snow removal contractor, which had to clear snow at 31 of them. The average removal cost, which is passed on to the property owner, is around $100, Hank said.

Send questions to: justaskus@madison.com; Just Ask Us, P.O. Box 8058, Madison, WI 53708.

City officials unveil new winter sidewalk safety PSA after seeing high number of citations

Posted: Jan 09, 2014 10:01 PM CST

MADISON, WI WKOW.COM

http://www.wkow.com/story/24412590/2014/01/09/city-officials-unveil-new-winter-sidewalk-safety-psa


Kyle Bunnow
City Property Maintenance Supervisor

http://media.cityofmadison.com/Mediasite/Play/7fb5a3f9f17b4c9c952c76b76e20cd351d

Madison

ADDRESS_____ **DATE**_____

The owner of this property has been fined for failure to remove snow / ice from the public sidewalk. The sidewalk is in violation of Section 10.28(1), Madison general Ordinances, which regulates snow and ice removal form sidewalks.

If the sidewalk is not cleared by tomorrow morning the City will shovel the sidewalk as provided in Section 10.28(2). In addition to the forfeiture on this citation, the owner will be billed for the time spent, plus an administrative fee if the City must remove the hazard on the sidewalk.

If you are not responsible for sidewalk maintenance at this address, please notify the appropriate person. The text of Section 10.28(1) and (2) Madison General Ordinances, is printed on the back of this card. For more information you may call the Building Inspection Division at 266-4551.

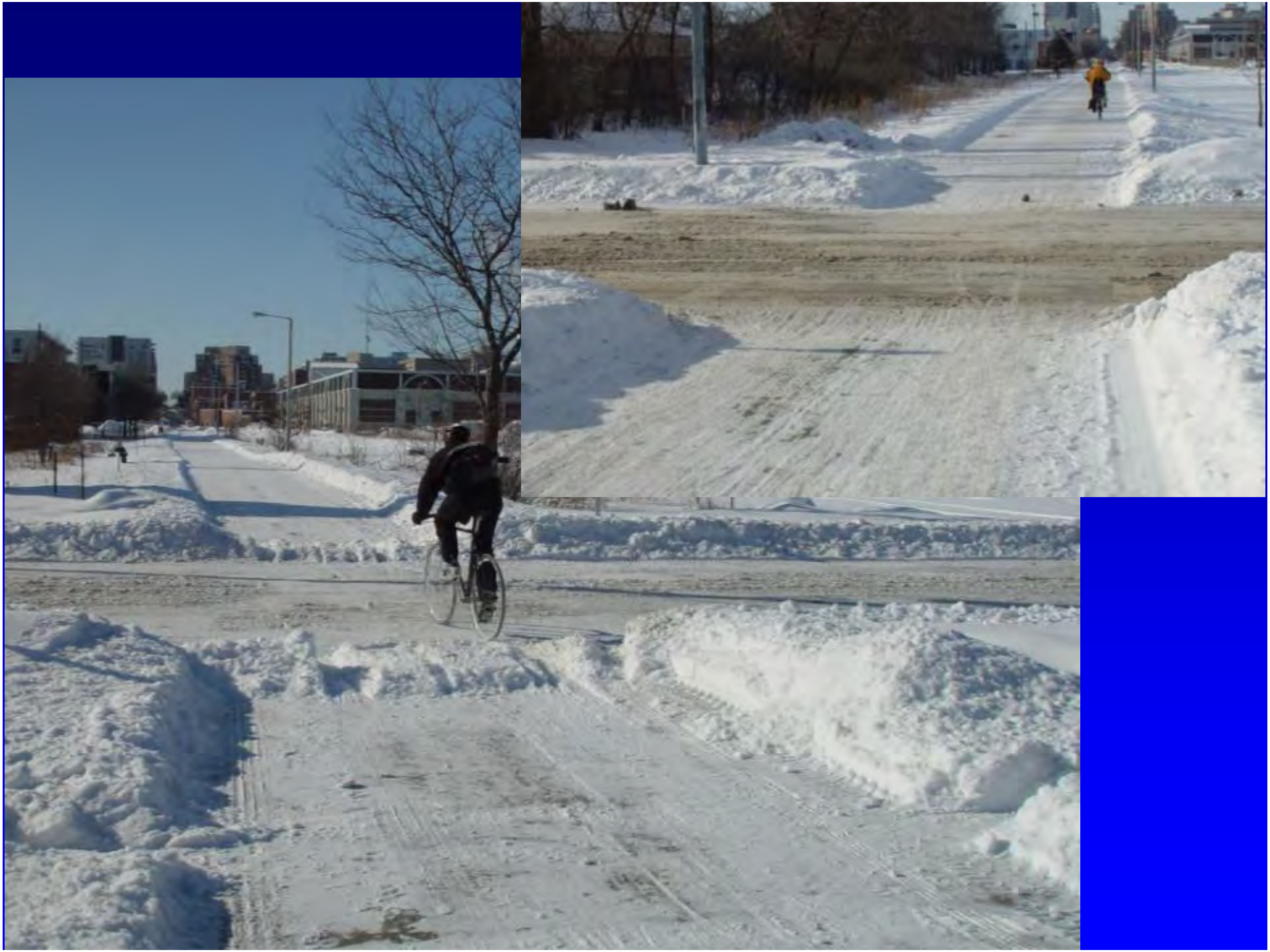
(over)

10.28 SNOW AND ICE TO BE REMOVED FROM SIDEWALKS.

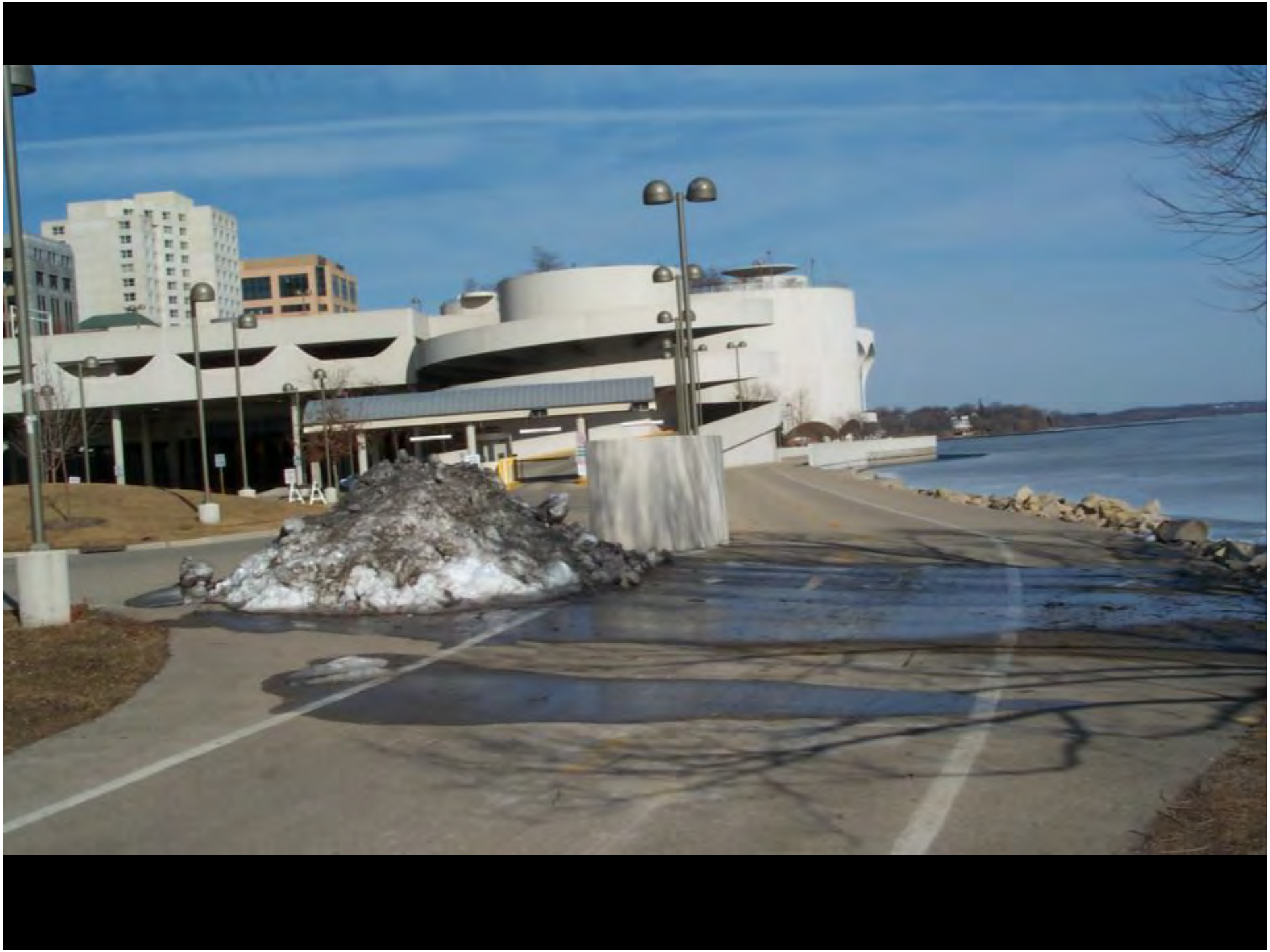
(1) The owner of each lot or part of lot shall remove all snow and ice upon the sidewalk abutting the premises which he or she owns not later than 12:00 noon of the day after the snow or ice has accumulated on the sidewalk, regardless of the source of accumulation. The owner of property abutting sidewalks on two intersecting streets shall remove all snow and ice from the sidewalks of both streets, including that portion of the sidewalks bordering the crosswalk, including the curb ramp, if any, regardless of the source of the snow accumulation.

Provided that when ice has so formed upon any sidewalk that it cannot be removed, then the owner shall keep the same effectively sprinkled with sand, salt or other suitable substance in such manner as to prevent the ice from being dangerous, until such time as it can be removed, and then it shall be promptly removed. Any person violating any of the provisions of this section shall be subject to a forfeiture of not less than twenty dollars ($20) nor more than fifty dollars ($50) for a first offense and not less than thirty dollars ($30) nor more than one hundred dollars ($100) for any subsequent offense. Each day any violation of this ordinance continues shall constitute a separate offense.

(2) The Department of Planning and Community and Economic Development shall cause all sidewalks which shall not have been cleared of snow and ice as above described, to be cleared upon default of the person whose duty it shall be to clear the same. An accurate account of the expenses incurred shall be kept and reported to the Finance Director, who shall annually prepare a statement of the expense so incurred in front of each lot or parcel of land and report the same to the City Clerk, and the amount therein charged to each lot or parcel of land shall be by said Clerk entered in the tax roll as a special tax against said lot or parcel of land, and the same shall be collected in all respects like other taxes upon real estate. Prosecution under Subsection (1) of this ordinance shall not bar the City from proceeding under Subsection (2) of this ordinance, nor shall proceeding under Subsection (2) bar prosecution under Subsection (1).




MOTOR DRIVEN
VEHICLES
PROHIBITED



References

City of Madison Web Pages

Snow and Ice Control Procedures
http://www.cityofmadison.com/residents/winter/documents/SnowIceProcedures.pdf

Snow Removal FAQs
http://www.cityofmadison.com/residents/winter/SnowIce/snowRulesFAQs.cfm

Snow Removal Regulations
http://www.cityofmadison.com/residents/winter/snowIce/snowrules.cfm

Accessibility in Winter
http://www.cityofmadison.com/residents/winter/residents/accessibility.cfm

Winter Transportation and Snow and Ice Removal
http://www.cityofmadison.com/residents/winter/snowice/

References

City of Madison Web Pages (cont'd)

Be a Good Winter Neighbor
http://www.cityofmadison.com/residents/winter/residents/goodNeighbor.cfm

Snow and Ice Removal Report-A-Problem
https://www.cityofmadison.com/reportaproblem/snowremoval.cfm

Contact Information

Arthur Ross, Pedestrian and Bicycle Coordinator
City of Madison, Traffic Engineering Division
215 Martin Luther King, Jr. Blvd., Suite 100
PO Box 2986
Madison, WI 53701-2986

608-266-6225
aross@cityofmadison.com

Winter Sidewalk Maintenance Burlington, VT

January 15, 2015

APBP webinar

Overview

* Policies & Regulations
* Program Planning & Development
* Annual preparation for winter maintenance
* Resources for implementation
* Operations
* Challenges

Policy & Regulations

* City Ordinance: awning/shade snow removal required
* DPW: snow removal on accepted streets & sidewalks
  * Shared use paths = Parks Dept., no winter clearing
  * Fleet of sidewalk plows/blowers
* Sidewalk repair program
  * Prioritizes worst deficiencies e.g. vertical displacement
  * New sidewalks to have greenbelt for snow storage

"Old Mike": horse-drawn oscillating wooden "V" plow, one driver, and handbrake

- Began in 1930's (we think)
- Phased out in 1940's

Mechanical Plows

- Supplemented "Old Mike" for heavy, wet snow
- Eventually became the standard

Modern Equipment

- Expanded mechanical fleet in 2003
- Accommodates blower, v-blade, or straight-blade with salter
- Heated cabs
- $125,000+ to purchase
- Fan club

Planning & Development

* 4 guiding principles:
  * Thorough and thoughtful planning
  * Flexibility
  * Consistent, high level of service
  * Urban environment is an inherent challenge
* Annual evaluation and goal-setting:
  * E.g. Reduce accidents / property damage, replace "treated" salt, acquire spare equipment, seasonal help, pre-salting

Annual Preparation

Summer:

- Fleet purchasing

Fall:

- Fleet maintenance
- Seasonal hires

Summer / Fall:

- Street/ sidewalk maintenance
- Parking ban light system

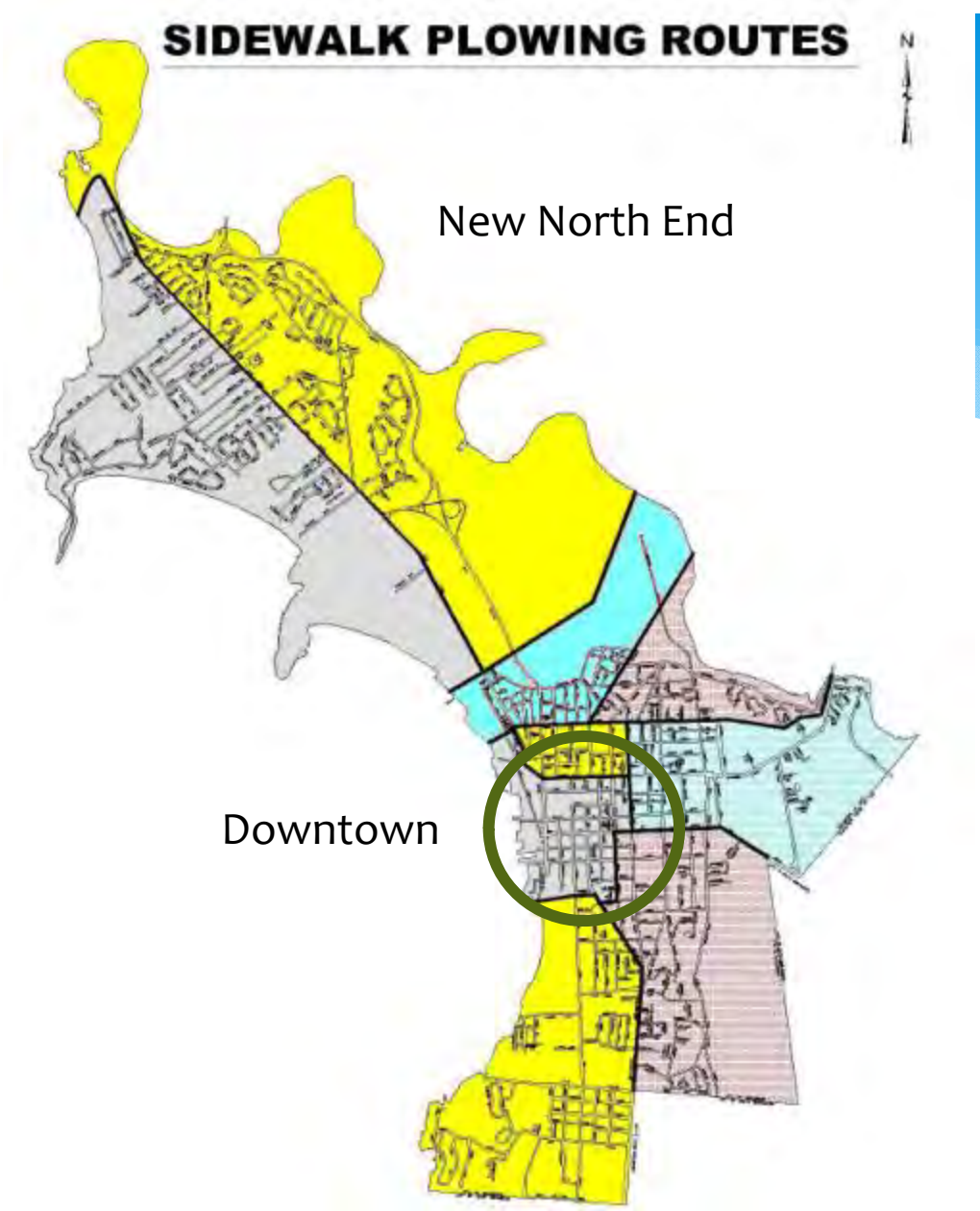
November:

- Driver route training
- Route improvements (“Do Not Plow” signs, trees / shrubs)

Resources

* 150 miles of sidewalk
  * 988 curb ramps
* 80” snow average annually
  * length of storm just as important
* 12 sidewalk plows
* 14 – 50 employees per storm (entire plow operation)

* Annual budget:
  * $366,000 - $500,000
    * Includes labor, overtime, fuel, salt, etc.
  * New vs. used equipment
    * $15,000 to prep used plow
    * $125,000 off the shelf



Operations

* 9 sidewalk plow routes
  * 7 – 8 hours to plow all sidewalks once
    * All sidewalks plowed twice per storm
  * 24 hours to snow-blow all sidewalks
  * 8-12 hours to salt all sidewalks
* Sidewalk plowing concurrent with street plowing
  * Extra attention to downtown, school zones, and crossing guard locations

Strategy

* First priority: clear a path
* Next steps:
  * as accessible as we can make each sidewalk
  * Clear path from on-street handicap parking spaces

Storm-Specific Operations

* Long storms = blowers, no salt until sidewalks are clear
* Short, cold storms = plow w/ salt
* Ice storms = salt, some plows
* After large accumulation, backhoe w/ dump trucks removal at curb ramps, parking meters, downtown

Indirect Operations

* Parking bans during heavy storms (no seasonal ban)
  * 3 pm deadline for 10pm – 7 am parking ban
  * By zone or citywide
    * Street lights & email list serve
  * Police Dept: parking enforcement & towing
    * Free parking available in city garages during bans
  * Vehicles cannot protrude into sidewalks
* Transit stops maintained by transit authority
  * Frequent communication

Some drawbacks…

* Liability?
  * Property damage claims are common
    * ROW clarity is important
  * Personal damage claims are not as common
* It isn't always an easy task!

Contact Info

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Streets Division Assistant Director
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802-865-7200

Our fleet's fan club:
Twitter @BTVSnowDragon