## Winter Cycling is Not an Extreme Sport

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Even on the most pristine and sunny summer day, American cities are by no means known as cycling-friendly. This is largely due to inadequate cycling infrastructure in American cities. This inadequacy is a detraction in summer months and completely debilitating in winter months. In order to understand the shortcomings of cycling infrastructure, it is helpful to understand the phenomenon of winter cycling. When I was in high school in suburban Western Massachusetts, my bike would routinely be amongst maybe a dozen others, at a school of 1000 students, in a town only 4 miles across. When the temperature dropped in late fall, so did the number of bikes on the rack. By the time the first snow of the winter fell, my bike was the only one left.

It's easy to assume that the reason for this dropoff is the cold temperatures. However, researchers in Scandinavia have found that in cities with cold winters, temperature has a near-negligible effect on whether folks choose to cycle. Additionally, as much as New Englanders love to bemoan their cold winters, it really doesn't get all that cold here. In fact, New Englanders frequently don a variety of warm layers and venture into the outdoors to ski or partake in other winter activities. With a simple choice of a few different weight jackets to layer, and a good hat and gloves, cycling in winter is downright comfortable. By the time I got to school, I was usually sweating, stripping off my outer layers as I walked across the school parking lot. Especially if you already enjoy other winter activities, I highly recommend trying winter cycling; I find it to be both a rejuvenating and very practical endeavor.

So if the reason was not the temperature, why were so few of my peers riding their bikes to school? To understand this, it's important to zoom out to the fact that only around 1% of the students bike to school even on warm days. As with many American suburbs, the town of Longmeadow, Massachusetts is designed for personal automobiles above all else. The main roads in town regularly have speed limits of 40 miles per hour and only a few streets have a painted bicycle gutter. If you are not familiar with the term "painted bicycle gutter", it generally refers to a breakdown lane or road shoulder that has bike lane icons painted on the road, but offers no further protection or separation for cyclists. Even on the most pleasant of days, it is downright dangerous for cyclists to exist in these lanes, as they often give drivers a false sense of separation from cyclists, and cyclists a false sense of safety. In addition, vehicles tend to take liberty parking in the bike lane as if it was a normal shoulder, forcing cyclists to go around. The gutters are also frequently littered with potholes, sand, broken glass, and sunken drain grates. In the winter, these problems are amplified, as plow trucks push snow into towering snow banks... situated squarely in the bike lanes. These snow banks persist even as most of the other snow melts, continuing to obstruct the bike lane.

So if the bike lane is too dangerous and blocked with snow, the other options for cyclists are the sidewalk and the vehicle lanes. There are a few problems with riding on sidewalks. First and foremost, having cyclists sharing that real estate with pedestrians is dangerous for all involved. Pedestrian encounters aside, suburban sidewalks are generally the responsibility of the homeowner to clear of snow, breeding a patchwork of cleared and uncleared sections that can be exceedingly difficult to navigate. If the snow is even somewhat deep, this can even become impassable. In addition, when riding on the sidewalk, I have frequently arrived at a cross-street only to realize that the road plows have created a snowbank on the corner of the intersection that reaches taller than me. Climbing over these snowbanks, with a bike aloft, is just another reason for winter cyclists to avoid suburban sidewalks.

If not the sidewalk nor the road shoulder, cyclists are forced to ride in the vehicle lanes. This is a very dangerous endeavor, not least because when cars drive over snow, they pack it down into ruts, which then freeze. These wheel marks then become icy and function as slippery speed bumps to bicycles. On top of these winter-specific dangers, riding amongst motor vehicles is inherently dangerous, given the significant speed disparities and the need to merge and cross lanes of fast-moving traffic.

When looking at them individually, it's easy to feel as if these problems with winter cycling doom it to forever be a daring and dangerous pursuit, not for the faint of heart. To allow for safe cycling in the winter, cyclists need options for safe passage that can also be properly cleared of snow. Dedicated cycling infrastructure comes in many forms, including protected or grade-separated bike lanes, standalone cycle routes, and traffic-calmed roads designed for automobiles to move slowly and co-exist with cyclists. The city of Oulu, Finland provides extremely well for winter cycling, as 20+% of all trips in the city are taken by bike, on average over the entire year. For their winter cycling to be as good as it is, they maintain a network of dedicated cycling routes with over 4 meters of bicycle path per resident, and in the winter keep their routes in optimal condition for cycling. With a network like Oulu's, cycling is a safe and convenient way for residents to get where they need to go, and often the cycle routes act as shortcuts relative to the roads.

Of course not every city and suburb can become Oulu, as existing infrastructure makes it difficult to build the kind of shortcuts, dedicated routes, and underpasses that make Oulu's system so outstanding. However, we can still learn from them and other cities that have found cycling success, winter or otherwise. By adding parked cars, jersey barriers, grade-separation, or other protection between vehicle lanes and bike lanes, replacing a vehicle lane with a two-way cycle track, and seeking opportunities to construct cycle routes detached from automobile infrastructure, we can build a strong backbone of safe cycling. By learning from Oulu's commitment to keeping its bike routes clear and in rideable condition, we can keep our own cycle routes clear in the winter, making winter cycling a safe option for everyone.

I imagine a future in which New England cities like mine have school bike racks that look like Oulu's, where 52% of trips to school and university are made by bike, even throughout the winter. To attain this future, I believe it important to understand winter cycling as a microcosm of the local cycling climate: if people feel unsafe cycling in the winter, our cycling infrastructure is unsafe year-round.