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PRACTICE REVIEW

Blending Individual Tenacity with Government's Responsibility in the Implementation of US Non-motorized Transportation Planning (NMT)

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ABSTRACT

Human powered traveling is filled with risks. It takes individual tenacity to walk and bicycle in many US city streets. The danger of being injured or fatally killed requires responsible government action and a new repoliticization of the transportation priorities. This paper examines the risks involved in exercising the right to walk and bicycle and the authority's responsibility to account for the health, safety and well-being of all individuals. I argue that the implementation of broadly agreed upon non-motorized transportation planning is critical to the success of public policies. The paper reviews concepts, prior policies and trends, remaining dilemmas and planning implications of US non-motorized transportation planning.

KEYWORDS

Non-motorization; sustainable transportation; planning; environment; risk; tenacity

Introduction

Images of walking individuals, and especially of bicycles as symbols of quality of life, abound in both general interest and specialized knowledge magazines and websites. This seems to create a 'feel good' sensation. However, the reality of those who cannot afford to own and or operate an automobile and have to rely on their own means of locomotion and on mass transit is very different (Manaugh *et al.*, 2015). Riding with traffic because of the inexistence of designated lanes is putting oneself in harm's way. Table 1 compares the average weights of various street users and their lane width basic requirements. It also serves to illustrate the proportional burden on the environment in terms of greenhouse gas (GHG) emissions, while demonstrating the disproportional risks faced by the most unprotected street users. Furthermore and despite the use of smart materials, the average weight of automobiles has increased over time, offsetting gains in fuel efficiency.

Especially in cities, riding a bicycle or walking are the quickest ways to get around for short distances and strong commitments to the environment (Hass-Klau, 2015). However, agglomeration patters, topographic, weather and street conditions preclude a higher level of non-motorized transportation (NMT). Although many of these characteristics are beyond the realm of public policy, the amelioration of their extensiveness is believed to be within our collective capabilities. The creation of safe conditions for walkers and bicyclists is one

Table 1. Comparison of average weight and minimum lane width.

	Person	Bicycle	Car	Van	Light truck	Heavy truck
Average weight (kg)	81	10	1496	3719	5896	12,927
Lane width (m ²)	1	1.5	2.7	2.7	2.7	2.7

Sources: Author's computation and/or adaptation from FHWA, AASHTO, CDC and MUTCD.

such public policy that can also make an important difference to the quality of one's own transportation (Speck, 2012).

When a driver gets in a car the probability of arriving at the destination safely is relatively high. The same is not true for pedestrians and bicyclists. Both are at much greater risk of being injured or fatally killed than drivers, despite how we measure risk of injury (e.g. risk per unit of exposure or a rate such as kilometer traveled); and at some point, all of us are pedestrians subjected to motorization violence (see Dannenberg & Fowler, 1998; Mohan *et al.*, 2006). Naumann *et al.*, (2010) quoted by Pharr *et al.*, (2013, p. 32) has argued that,

the United States has fallen behind similar developed nations in reducing the number of pedestrian fatalities—since the early 1980s, the US has seen a 35% reduction in pedestrian fatalities while similar European countries have experienced reductions of over 60%.

Tables 2 shows that despite an increase in the number of vehicles, the number of fatalities has decreased consistently in the last two decades, though. However, more than 4500 pedestrians are still being killed by motor vehicles every year—'a national tragedy surpassing the worst natural and man-made disaster of the last 100 years' (Walljasper, 2015, p. 16). In addition, 68,000 walkers on average are injured, and although fewer bicyclists die of traffic crashes than pedestrians, more than 700 bicycle fatalities and 45,000 injuries show the severity of the current situation. This evidence is important because many cities, especially newer ones, have been designed to accommodate and enable motorized travel at the expense of all other modes (Newman & Kenworthy, 2015). The 2000s brought attention to the needs of bicyclists and walkers, however the effectiveness of prior programs seems to have lost its momentum.

At an individual level, either because one has no choices or carries a personal and ethical professional responsibility gained through cultural upbringing or education, one might feel tempted to save the world by being pro-environment, losing her or himself in the attempt. Swyngedouw (2014, p. 28) demystifies this assertion by arguing that 'there is no singular, let alone inherently benign, Nature out there that needs or requires salvation in the name of either Nature itself or generic humanity'.

Based on Mavrinas (2006), p. 518) and her theory of protecting self, I equate tenacity with the propensity of holding together and preserving 'our inner essence, (...) our aspirations, anxieties, beliefs, fears, wants, needs, values, and motivations.' Tenacity variously stated involves perseverance, resilience and the capacity to adequately address individual and collective needs, while staying true to one's core values and beliefs (Balsas, 2016).

More than 30 years ago, Klosterman (1985), p. 5) identified four essential functions of planning as being: (a) to promote the collective interests of the community, (b) the consideration of external effects of individual and group actions, (c) to improve the information base for public and private decision-making, and finally, (d) to protect the interests of society's most needy members. From an academic perspective, the amount of NMT research worldwide has increased greatly in recent years (Cubukcu, 2013; ECMT, 2006). However,

Table 2. US Road fatalities by user group.

	2012% change from									
	1990	2000	2010	2012	2010	2012	2010	2012	2010	1990
Bicyclists	859	693	623	726	623	726	623	726	623	15.50%
Motorized two-wheelers	3244	2897	4518	4917	4518	4917	4518	4917	4518	51.60%
Passenger car occupant	24,092	20,699	12,491	12,271	12,491	12,271	12,491	12,271	12,491	-49.10%
Pedestrians	6482	4763	4302	4743	4302	4743	4302	4743	4302	-26.80%
Others incl. unknown	9922	12,893	11,055	10,901	11,055	10,901	11,055	10,901	11,055	9.90%
Total	44,599	41,945	32,999	33,561	32,999	33,561	32,999	33,561	32,999	-24.70%

Source: International Traffic Safety Data and Analysis Group (2014) and author's own calculation.

NMT's implementation is incomplete and in need of adequate and mutually re-enforceable sustained individual tenacity and governmental leadership.

Conceptualization

Risk, resilience, public policy and repoliticization are important terms to understand the rational put forward in this paper. Risk is a likely outcome of some action occurring if nothing else is done to prevent it and or to reduce its extensiveness. Risk is usually contextualized in terms of degree or severity of an action (Beck, 1992). In this context, it also relates to unintended consequences, which are highly probable and beyond one's control. Jacobsen *et al.*, (2009, p. 369) examined the impact of traffic on levels of walking and bicycling and identified 'an inverse correlation between volumes and speeds of traffic and levels of walking and cycling'. Road safety requires adequate speed control through traffic calming, restrain, speed limits and enforcement to reduce both injuries to active travel mode users and equally the fear of injury, which suppresses use (ECMT, 2006).

Resilience has grown in interest as a social science conceptualization utilized to analyze responses to catastrophes and crises. Initially, it was utilized mostly to measure responses to natural phenomena in the ecological and environmental realms. More recently, it was appropriated by social scientists to help interpret and explain endemic stores of skills and capabilities, which allow individuals and groups to withstand and revive from mostly non-structural incidents. Resilience can be created by enhancing preparedness and it does not necessarily need to include redundancy in the system (Davoudi, 2012). Specifically, Aldred (2013, p. 252) has shown that 'transport modes can produce disadvantaged and stigmatised social identities'. Even though these forms of stigma can be mediated both by social environments and by other social identities, one needs a keen tenacity and a strong sense of purpose in order to live a fulfilling car-free life.

Public policy is usually proposed by interest groups and embraced by political parties, which often also constitute the main interest groups. Then it is approved by elected officials, perfected according to technical, economic and political feasibility criteria, implemented by staff, and enforced by law authority and watchdog groups. In democratic systems, this cycle of making, proposing, enacting, refining, implementing and evaluating policy is repeated years later according to the same or slightly recomposed socio-economic interests, in an altered context of situational forces and trends. The government's systemic nature works relatively well when elected officials guarantee what the majority of individuals want. However, what a majority wants in one community might not be what society needs at another jurisdictional level (Scarce, 2015).

In this context, Scott (1998, pp. 4, 5) has argued that 'well intended schemes to improve human condition have gone so tragically awry', especially due to four interlacing elements: '(a) the administrative ordering of nature and society, (b) a high modernism ideology, (c) an authoritarian state, and (d) a prostrate civil society that lacks the capacity to resist plans'. Also governments tend to respond to what organized groups lobby for or stress in their organizational visions, goals and political agendas. In countries with low welfare systems, disenfranchised individuals and groups are at the mercy of elected officials, who try to appease their constituents (Wells & Beynon, 2011).

Sassen (2014) has argued that socioeconomic and environmental alterations need to be interpreted as expulsions from professional, living and biosphere realities. Since the

environment does not speak for itself and only minorities seem to be interested in preserving the integrity and value of the natural world for present and future generations, there is need to repoliticize conflicts over conservation and preservation of natural resources and its excessive, and, in many cases, abusive utilization by powerful societal groups. In this context, repoliticization of the environment is a deliberate engagement with policy-making and implementation, and an attempt at ameliorating the ‘violence of the sustainable city’ (Swyngedouw, 2014).

A redefinition and repoliticization of NMT or human powered travel modes is needed in order to account for the full extent of damages and potentialities. NMT’s two main groups, pedestrians and bicyclists, have been characterized as having different design characteristics. Mobility impaired individuals in wheelchairs are constant reminders of the need for universal design strategies. All disadvantaged street users are exposed to higher safety risks and suffer disproportionately from the dangers associated with automobility. The only way to reduce, let alone eliminate, risks is to create safe, accessible, convenient, comfortable and attractive streets for all (Prytherch, 2012).

Literature on Non-motorist Safety

Non-motorist crashes are usually classified based on their severity as fatal, severe, injury, possible, and none. They are sometimes also classified just into three categories: i.e. fatal, possible and no-injury. Lee and Abdel-Aty (2005) analyzed pedestrian crashes at intersections in Orlando, Florida and found that the frequency and injury severity of pedestrian crashes was closely related to pedestrian and driver demographic factors, road geometry, traffic and environmental conditions. This study identified that the injury severity of pedestrians is likely to be higher when (a) pedestrians involved in crashes are old or intoxicated, (b) vehicles collide with pedestrians at high speed, (c) drivers and pedestrians have reduced vision due to adverse weather and dark lighting, and (d) vehicles (trucks, buses, emergency vehicles) involved in crashes are larger in size than passenger cars.

A similar study was conducted by Kim *et al.*, (2007) to analyze bicycle crashes for the state of North Carolina. The results showed that the probability of a fatal injury for bicyclists increased significantly with (a) greater vehicle speeds prior to impact, (b) truck involved accidents, (c) speeding-involved accidents, (d) intoxicated drivers or bicyclists, bicyclists aged 55 and over, (e) inclement weather, (f) darkness without streetlights, and (f) head-on collisions. These two studies identified the same factors that affect the severity of injury for both pedestrians and bicyclists.

Personal factors lead to the occurrence of most crashes. There can be physical, behavioral and socio-economic factors. There are very few studies that focused primarily on the socio-economics of persons at fault in non-motorist crashes (Campos-Outcalt *et al.*, 2002). Most studies identified more involvement of minority populations such as Hispanic and American Indian in crashes. Personal factors such as age and gender are often found to have some association with the occurrence of crashes (Eluru *et al.*, 2008). Non-motorists in the age group ‘55 and above’ were involved in more crashes; drivers’ age and gender, and non-motorists age correlated with the frequency of crashes in school-age children crashes (Lee & Abdel-Aty, 2005). Behavioral factors mostly include violation of traffic laws such as driving while intoxicated, disregarded traffic signs and signals, driving too fast, inattention, etc.

Typical locational factors include intersection geometry and its attributes (e.g. marked and unmarked crosswalks, signs, signals, traffic lights and crosswalk widths), land use, and other roadway variables and features (e.g. number of lanes, type of road, sidewalk, bikeway, road lights, entry, exit, stop signs, speed limit, etc.). Gårder (2004) analyzed pedestrian crashes with an emphasis on how characteristics of the locations influence crash numbers in the state of Maine. Some of the findings from this study are that (a) low-speed locations have lower than predicted risks, and median and high speed locations present higher risks than predicted, (b) two-lane streets were somewhat safer than expected and the wider streets were significantly less safer than predicted, (c) unmarked crosswalks were less safer than expected and marked crosswalks seemed to be almost 50 percent safer than unmarked ones, (d) marked crosswalks were somewhat less safe when signalized than when uncontrolled, and signalized locations were more dangerous than unsignalized ones.

Winters *et al.*, (2012, p. S42) found that choices and decisions to cycle are affected by perceptions of safety. In the Bicyclists' Injuries and the Cycling Environment study, authors quantified the injury risk associated with 14 route types, from off-road paths to major streets and concluded that perceptions usually corresponded with observed safety, meaning that 'most route types that were perceived as higher risk were found to be so (...); and similarly, most route types perceived as safer were also found to be'. As it will be shown below, urban sprawl is another risk factor considered to be among the major causes of non-motorist crashes (Wedagama *et al.*, 2006).

Environmental factors include weather, time of day, and day of the week, among others. However, there are few studies on environmental factors associated with non-motorist crashes and on countermeasures for preventing crashes during low visibility time such as the role of ambient light level in fatal pedestrian crashes and in determining the potential pedestrian safety benefit of improved lighting.

Sunbelt's Challenges

In the decade from 2003 through 2012, more than 47,000 people died while walking on the streets. This is 16 times the number of people who died in natural disasters in the same ten years, but without the corresponding level of urgency. In 2012, nationwide pedestrians accounted for nearly 15 percent of all traffic deaths, up 6 percent from 2011 and representing a five-year high (National Complete Streets Coalition, 2014, p. 1).

It has been long known that sunbelt states design and built with the automobile in mind have a disproportionately higher rate of non-motorist accidents than the rustbelt region of the United States (Loukaitou-Sideris *et al.*, 2007). Paulozzi (2006) analyzed state-specific mortality information from the National Center for Health Statistics for 1999–2002 and the National Highway Traffic Safety Administration for 2003 and concluded that the highest rates for the US population and for the non-Hispanic white population were in the southern rim states—these were the states that experienced rapid population growth in the past 50 years. The author also hypothesized that such pattern may have resulted from at least three features (a) a high percentage of urban vehicle miles traveled, (b) urban sprawl and (c) a high prevalence of alcohol use (Paulozzi, 2006, p. 453).

According to Ernst (2004) in the Mean Streets report, Phoenix was one of the country's most dangerous metropolitan areas in terms of pedestrian fatalities. Joshua (2005) demonstrated that Maricopa County had very dark non-motorist safety statistics: (a) one person

died in a road crash every 19 h, (b) one person was injured in a road crash every 11 min, (c) one pedestrian died every 5 days, (d) one pedestrian was injured every 8 h, (e) one bicyclist was injured every 7 h, (f) one bicyclist died every 3 weeks. Cerreño & Nguyen-Novotny (2006) (i) identified that 'promoting walking and bicycling while ensuring safety and mobility continues to present a challenge, especially for large central cities'. With that in mind, I supervised a study of pedestrian and bicycle crashes in the Phoenix inner city area between 7th Street and 7th Avenue and from Camelback Road to Lincoln Street, from 2001 to 2005 aimed at suggesting relevant countermeasures (Singhal, 2008). Wilcoxon (2012) has recognized that pedestrians are the largest at-risk population on the Phoenix streets and yet, they are the most poorly represented population in street design. This is compounded by the fact that pedestrian actions are less easily predicted or controlled.

More recently, Godwin and Price (2016) recognized that although the Southeast USA region of the United States has warm weather and relatively flat terrain, bicycling and walking for transportation are less prevalent in the region than in the rest of the country. Furthermore, these modes have higher rates of traffic crashes and fatalities in the Southeast than elsewhere. The authors concluded that although some emerging trends are promising (e.g. adoption of Complete Streets Policies), the region faces unique challenges innate to its type of urban development and transportation planning practices (Godwin and Price, 2016, p. 26).

Prior Policies and Trends

NMT policies in the United States were devised by the US Department of Transportation in the context of the ISTEA legislation during the early 1990s. The ambitious National Walking and Bicycling Study envisioned the doubling of walking and bicycling levels and a ten percent reduction in the number of accidents. The strategy contemplated the coordination of policies at multiple scales and across departments and organizations in public, private and non-profit sectors. Central to it, was the creation of bicycle and pedestrian city and state coordinators and their mission of streamlining bicycling and walking policies and improvements in new and retrofitted development projects (Balsas, 2002); Olson, 2012). Table 3 synthesizes multi-scalar NMT strategies according to a consensual five E's analytical framework. Personal and international levels were only indirectly present in the aegis of the National Study. In addition, Chi *et al.*, (2013, p. 1) have demonstrated that 'gasoline prices act as one type of capability constraint of the space-time path' leading to a reduced number of crashes.

The most recent National Study update released in 2010 demonstrates that walking and bicycling have increased but not to the levels envisioned in 1994. Currently, only 1.0% of all trips taken in the US are by bicycle, and 10.4% are on foot. Of commuters nationwide, 2.8% get to work by walking and 0.6% get to work by bicycle. It is known that these percentages are higher in large cities that have invested in a myriad of bicycle facilities, walking improvements, safety and promotional campaigns (Cerreño & Nguyen-Novotny, 2006). Three national programs are worth reviewing due to their wide application throughout the country. The first is the strengthening of active living through deliberate transportation options (Davis & Parkin, 2015). Public health campaigns and collaborations between health and transportation professionals has resulted not only in a safer built environment,

Table 3. NMT strategies according to a five E's framework.

	Engineering	Encouragement	Education	Enforcement	Evaluation
Individual	Personal space and vehicular integrity	Tenacity and self-perseverance	Road skills	Self-respect for thyself and others	Self-awareness
Neighborhood	Bicycle and walking facilities; Traffic calming	Family, social and professional relations	Individual and group thinking in place-time nexus	Familiarity with place level characteristics	Audit instruments; block watch programs
City	Networks, facilities and programs	Local and regional mass media	Non-profit and advocacy organizations	City and community	Responsibilization of democratically elected bodies
Region	Design guidelines	Collaboration for scale and visibility	Continuing education opportunities	Sharing of best practices	Coordination of assessment mechanisms
State	State wide policies and procedures	Ambitious goals and objectives going beyond federal goals	Champion tailor made bio-climatic and socio-economic solutions	Coordinated practices and program accountability	Public scrutiny of state level policies
Country	Public policy and enactment of physical standards	Pilot and demonstration projects	Training of professionals	Benchmark actions and national coordination	Short and medium term monitoring
International	Learning and sharing knowledge	Stimulation of a sense of fraternity, order and mutual accountability	Inalienable public policy visions and integral scholarly products	Coordination of enforcement strategies and sharing of best practices	Consensual evidence of accomplishing results

but above all in more cognizant, fit and motivated individuals, whom now have healthier lifestyles and make wiser travel choices (World Health Organization, 2002).

Secondly, the safe routes to school program have led to the improvement of many streets in the vicinity of schools throughout the US. This was a direct response to sharp decreases in walking and bicycle ridership by school age children in the last thirty years. The physical, promotional, educational and enforcement measures deployed in conjunction with this program have had some merit. In fact, Safe Routes to School legislation appears to have been important in the US as a policy level response with California having been the first state in the nation to legislate a Safe Routes to School program with the enactment of legislation as early as 1999. However, one wonders why the emphasis has not been more generalized leading to transportation improvements for all societal groups, also in non-residential areas of cities, equally in need of enhanced accessibility and mobility conditions.

Thirdly, the complete streets program has led to improvements in countless roadways. The focus has been on identifying faulty design, improving streets and in carrying out construction programs aimed at connecting and improving urban areas through new and upgraded sidewalks, crossings, traffic calming and bicycle facilities. This program has also led to coordinated sustainable mobility programs with mass transit agencies and many other non-profit organizations.

In addition, it is important to mention the recently launched city level road safety program called Vision Zero in New York City, a program inspired by a safe systems approach philosophy started in Nordic countries, especially in Sweden as early as 1997 (Johansson, 2009). Vision Zero programs use error-tolerance, new street design principles and configurations, and expanded enforcement against dangerous violations (e.g. speeding and failing to yield to pedestrians), broad public outreach and communications, and a legislative agenda to increase penalties for dangerous driving (NYC, 2016).

Remaining Dilemmas

A cursory review of comprehensive plans shows the consensus on improving walking and bicycling across the United States (Mapes, 2009; Stangl, 2011). However, many streets and roadways remain dangerous to most street users (Dumbaugh & Rae, 2009). The reasons are multiple and vary from design flaws, inappropriate road maintenance, low political priorities, non-existent or minimal lobby by users, the family and friends of injured and fatally killed individuals, and lack of funding and technical expertise to improve safety black spots.

A major dilemma with current policy formulation is the attempt to increase NMT without strengthening alternative campaigns and questioning the effectiveness of programs aimed at increasing substitution effects. Given household's lifestyles, habitation arrangements, and different bio-climatic and agglomeration patterns is it feasible to expect that people will replace their automobiles trips with walking and bicycling? Such policy in the absence of reliably safe, accessible, convenient and comfortable mass transit is a delusion (i.e. an irresponsible fantasy), which has contributed to the current safety catastrophe. The NMT strategies identified in Table 3 ought to be customized to local conditions and embraced by multiple stakeholders in order to accomplish various degrees of execution and efficacy. Only joint strategies are likely to produce the policy outcomes sought by policymakers, elected officials, environmentalists, and above all pedestrians and bicyclists ourselves.

Last decade's growth in advocacy efforts has helped to create political backing for federal funding appropriations and the implementation of pilot projects in selected communities. However, despite NMT's practically non-existent impact on the environment, low cost of improvements and high creative potential of built and unbuilt solutions to eradicate accidents through Vision Zero programs, major shortcomings have precluded further progress on the ground. Douglas *et al.*, (2011, p. 160) have even argued that 'the health impacts of private car use, the activities of the 'car lobby' and factors underpinning car dependence' can in fact be compared to tobacco extreme dependence and habituation in the sense that indiscriminate private car use:

causes health harm, the car lobby resists measures that would restrict car use, using tactics similar to the tobacco industry (...), decisions about location and design of neighborhoods have created environments that reinforce and reflect car dependence, and car ownership and use has greatly increased in recent decades and there is little public support for measures that would reduce this.

Examples of public health advocacy programs from Australia identified by Gomm *et al.*, (2006, p. 284) demonstrate the need to clearly define:

the public health problem, the solution and the target for action; and the implementation of a comprehensive range of strategies including a media advocacy strategy to attract public attention, to reframe media messages, and to provide a policy alternative to government and industry.

Even though research confirms the advantages of interconnected bicycle and walking networks, in engineering terms some design professionals and business interests have remained opposed to sharing public right-of-ways and to installing and constructing protected bicycle facilities (Reynolds *et al.*, 2009). The inexistence of safer facilities has influenced the growth of recreational cycling on separate trails and the discouragement of daily and year-round cycling as part of an active living lifestyle (Burbidge & Goulias, 2009). In terms of education,

emphasis on riding skills tends to obfuscate the need to correct design flaws still existent in the roadway system, while putting individuals at the mercy of drivers (McClintock, 2010).

On the other hand, enforcement officers tend to penalize pedestrians and bicyclists, while remaining accountable almost exclusively to a motorized constituency (Millard, 2014). This noisy and consumptive horde is quite complicit in its disrespect for unprotected street users and even for generalized infringements to the American with Disabilities Act (ADA) standards, often non-scrutinized outside of public buildings and central locations. Finally, the accountability paradox is readily observable when programs are assessed and policy-makers cannot be held accountable for the actions of the destructive and insidious automobile lobby.

Planning Implications

Swyngedouw (2014, p. 28) reminds us that ‘the ultimate aim of politics—and thus of design, planning, and architecture—is intervention, to change the given socio-environmental ordering in a certain manner’. Systemic responses to complex policy issues have been formulated by a variety of scholars, policy makers and policy evaluators. Loo *et al.*, (2005) created a comparative framework for assessing road safety strategies. However, I argue that to promote walking and bicycling and to improve safety rates we need to look beyond strict road safety frameworks. In this context, two responses seem particularly relevant at the present moment. Christensen (1999) and Meadows (2008) have put forward conceptualizations capable of aiding public policy formulation and implementation in contexts of uncertainty and systemic change, respectively.

Table 4 shows my attempt at mapping bicycle and pedestrian strategies according to low and high utilization of resources (means) and desired public policy results (ends). Central to it, is the recognition that ‘one cannot have simultaneously a truly carbon-neutral city and permit unlimited car-based mobility’ (Swyngedouw, 2014, p. 29). These planning suggestions are offered to illustrate a panoply of NMT possibilities instead of foolproof strategies, even though many have been extensively designed, pilot tested, implemented,

Table 4. Mapping of NMT tools and strategies.

		Public policy results (ends)	
		Lowest	Highest
Utilization of resources (means) Lowest Highest	Highest	<ul style="list-style-type: none"> • Master plans; • Climate action plans; • Studies and publications; • Exclusive 100% federally funded programs; • Safe routes to school programs; • Shared bicycle schemes; Benchmarking reports 	<ul style="list-style-type: none"> • Implementation of plans, programs and regulations at multiple levels; • ‘Safe routes home, to work, to leisure’; • Cost-share funding schemes; • Vision zero safety strategies; • Bicycle and pedestrian friendly roadway Design standards; • Road diet; • Inter-modality; • Mass-transit complementarity
	Lowest	<ul style="list-style-type: none"> • Imposition of stringent standards without the creation of associated funding mechanisms; • Unsupported facilities at the local level; • Adopted programs from elsewhere without the respective tailoring to local and regional conditions 	<ul style="list-style-type: none"> • Volunteering; • Do It Yourself (DIY) and tactical urbanism projects (partial and full road closures, parklets, pedestrian plazas, pocket parks); • Complete streets

monitored and refined in the US and abroad (Cubukcu, 2013; Sadik-Khan & Solomonow, 2016; Schwartz & Rosen, 2015).

Such attempts ought to minimize risk and to protect self, while creating safe, accessible, convenient, comfortable, and attractive walking and bicycle facilities for everyone. This apparently innocuous goal has remained unimplemented in the shelved plans of many administrations due to lack of funding and insufficient political clout.

The commodification of the ingenious bicycle vehicle has been a palliative lip service to its true meaning and function and an unscrupulous tendency to basically profit from sustainability efforts (Ferrel, 2001; Isenhour *et al.*, 2015). On the other hand, the *yuppification* of the bicycle and of its systemic elements for the sole purpose of corporate profit, city marketing and neo-liberal political agendas has been accomplished at the expense of lost human lives (Ricci, 2015).

Furthermore, what are the political economy implications of a mostly neoliberal sustainability model? What will it take to improve the current transportation options for those who have few or none? What is the long term viability of a shared-bike scheme? The myth of sustainability and environmental justice ideals based almost exclusively on a neoliberal political economic model needs to be deconstructed and challenged. Certainly, the new street code based on desired lines and human-friendly streets is a step in the right direction (Sadik-Khan & Solomonow, 2016). However, copy-paste bike-share schemes sold by transportation consultants based on 'turnkey contracts' do very little for real and continued commitments to road safety (Graves *et al.*, 2014), and above all to car-free living and genuine sustainable behaviors higher than one's own (Castillo-Manzano *et al.*, 2016).

Ogilvie *et al.* (2004, p. 763) have demonstrated that 'the best available evidence of effectiveness in promoting a modal shift is for targeted behavior change programs'. Hence, public policy-making has to change from devising safety programs for others to making safety programs for us. The former is quite visible in the safe routes to school program for children and teenagers, instead of a safe routes program to school, work and entertainment for everyone. In fact, the 'we versus them' approach has led to an ideological attitude of 'we make policy for them' instead of a 'we make and execute policy for ourselves' practical and philosophical position.

The real knowledge that emerges from daily walking and bicycling activity and advocacy is needed to close existing discrepancies in tacit and equivocal political worlds (Barber, 2013). The latter made up of lofty goals and politically correct ambitious to perpetuate power relations among an elected elite and their techno-managerial staff vs. the masses of ordinary individuals being injured and fatally killed on the streets.

Conclusion

The exponential growth of public policy-making and subsequent research on non-motorized transport planning in the western world just prior to the 2008 global financial crisis and immediately afterwards was unprecedented. Last decade's inversion of US vehicle miles traveled (VMT) reflected a complex set of interrelated phenomena. The strong, albeit temporary, implementation of advocacy practices and their scalability throughout the western world resulted in a new specialization and in a robust scholarly field of inquire within transport planning (Balsas, 2015). The recent rise of accidents, fatalities and injuries is a startling reminder that we as planners, politicians, community advocates and scholars

are not doing our jobs effectively, leading the World Bank to consider it as one of its most urgent agenda items (World Bank, 2014).

Flyvbjerg *et al.*, (2012) remind us to look for tension points and to devise effective phronetic social science strategies capable of altering unjust developmental practices, societal behaviors and governmental public policy routines. The active engagement in repoliticizing walking and bicycle priorities will hopefully reduce the carnage in the streets, strengthen individual tenacity and societal resilience, and enable governmental legitimization. The status quo scenario is leading to planetary urbanization, unsurmountable consumption of finite natural resources, the collapse of the commons and climate mayhem (Rauland & Newman, 2015). ‘Champions working for environmental sustainability as well as for the promotion of health and well-being need to come together to lead the way’ (Rao & Ramachandra, 2011, p. 174). Carfree living entails a very tall order of commitment to city building, community planning and protecting self, while protecting the planet.

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