Roads of Blight: Solutions to the Automobile Burden

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by Michael MacKenzie
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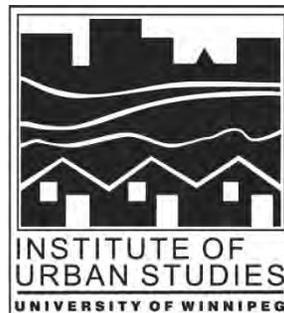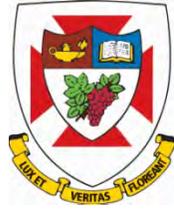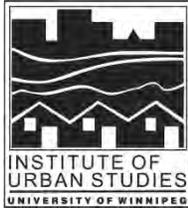
ROADS OF BLIGHT: SOLUTIONS TO THE AUTOMOBILE BURDEN
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Michael MacKenzie[1]

Recently, Toronto area artist John Dickson produced a small model of a very large expressway. The piece, entitled *Traffic*, attempts to amplify the inherent absurdity of the private automobile. Dickson's model is about waist high, six metres long, and consists of a complicated series of clover leaves, figure-eights and unforeseen corners. At first glance, the model cars on the roadway appear to be racing along in a terrible rush to get back to where they started. However, in reality, they are backed up, bumper to bumper and not moving at all.

North America drives approximately 11,528 million kilometres everyday. That is equivalent to a trip to the planet Pluto and back (Safdie 1998, p. 129). Not surprisingly, this extreme over-reliance on the private automobile is increasingly a factor affecting the quality of life in most North American cities. First, automobiles create an environment that is hostile, unsafe and distinctly anti-human. An alarming number of people are injured or killed by automobiles every year. Second, the infrastructure that mass car use demands is built on a scale that does not make people feel comfortable. Third, the automobile has become a necessity in our modern sprawling cities, yet it is not available to everyone.

In addition to these social problems, automobile dominance is highly unsustainable. How long will the environment be able to endure the automobile? How long will the resources needed to sustain the automobile be available? Clean air and fossil fuels are non-renewable resources and eventually the world's supply will be exhausted. Furthermore, cars both promote and create unsustainable, low-density city development which results in a host of problems including high property taxes, inner-city decay, constant traffic congestion and an ever increasing reliance on the automobile itself. Consequently, governments that truly wish to create sustainable cities must address and reconcile these problems.

The first section of this paper briefly explores the social and structural problems that the automobile has created within the common North American city. The second section provides a host of solutions to these problems, including pricing incentives to discourage driving, traffic calming measures, renewed land-use concepts, and an exploration of viable alternative transportation methods such as walking, cycling and reformed public transportation. If North American cities are going to remain, or in some cases become again, desirable, livable and attractive, the dominant reign of the automobile must come to an end.

THE AUTOMOBILE AS A SOCIAL BURDEN

The hostility and the anti-human sentiment that is created by the automobile is a major part of every city dweller's life. Studies have shown that traffic jams provoke negative moods, aggressive driving and even

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[1]Michael MacKenzie is the winner of the Institute of Urban Studies Student Paper Award, 2000.

high blood pressure (Lowe 1990, p. 11). To put this in perspective, 90% of employed Canadians commute to work spending, on average, 48 minutes in traffic each day (National Round Table on the Environment and the Economy 1997, pp. 19-20). To make matters worse, the city of the automobile aggressively promotes an environment that deters natural human contact.

Thirty years ago, author Donald Appleyard conducted a study that explored the effects of the automobile on the sociability of cities. In the study, Appleyard interviewed residents of three different streets: the first was classified as a street that carried light traffic; the second carried medium traffic; and the third carried heavy traffic. The purpose of Appleyard's study was to catalogue how many friends or acquaintances each resident had living on their particular street. His findings showed that those who lived on the light traffic street had three times more friends and twice as many acquaintances on their street than those who lived on the heavy traffic street (Engwicht 1993, p. 49). On the light traffic street, "the front steps were used for sitting and chatting, sidewalks for children playing and for adults to stand and pass the time of day...." In contrast, the heavy traffic street "had little or no sidewalk activity," and thus, "was used solely as a corridor between the sanctuary of individual homes and the outside world" (Appleyard in Engwicht 1993, p. 50).

Automobiles also create an anti-human sentiment in the infrastructure that they demand. The huge expressways, wide bridges, immense, barren parking lots and exposed sidewalks of most North American cities constantly belittle those people who are not driving. In order for a city to be comfortable, it must be built on a human scale. Very few homes are built with ten metre high concrete walls that tower over those who live inside. A home built to this scale would be discomforting, harsh and intimidating. In fact, for this reason, a home built to this scale would have trouble becoming a home. Even those who can afford to, rarely build houses to this scale. No one feels comfortable belittled by their surroundings. Yet, much of the North American city belittles its citizens. Look at the sidewalks. Where they still exist, very few people walk on sidewalks that lie between a major roadway and a shopping centre parking lot. These sidewalks are not used because they are exposed and are not comfortable places to be. Thus, by creating an aggressive and distinctly anti-human environment, the automobile has effectively destroyed what has historically attracted people to cities. The city, in many ways, is no longer a social, interactive place; the city is no longer a human place; and the city is no longer welcoming. Consequently, with significant help from the automobile, the city is slowly being abandoned. The automobile has made it possible to work within the city and, at the same time, live on the edge of the metropolitan area, making it possible for people to escape much of the noise and discomfort of the auto-orientated city. Thus, in nearly all North American cities, suburban and exurban development is flourishing while inner-city development is stagnating or diminishing.

Ironically, the auto-induced sprawl that is working to ruin the cities of North America has also made the automobile a necessity. As more space is taken up by parking lots, as more vehicles are introduced and as more roads are built, the distance between services becomes greater. Thus, increasingly, people must

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travel further and further in order to perform common daily tasks. This, of course, undermines much of the original allure of cars. Today, cars are not the agents of freedom, independence and convenience that they once were. In fact, studies have shown that a person with access to a vehicle today has about the same level of access to goods and services as the poorest city dweller did 150 years ago (Engwicht 1993, p. 87). Unfortunately, today, the poorest city dwellers usually do not own a vehicle and thus, are much worse off in terms of access than those of 150 years ago. Likewise, the young, the very elderly, many disabled people and those who do not wish to drive also lack reasonable access to everyday needs such as food stores, laundromats or even hospitals. In short, the city of the automobile is both socially intimidating and socially unjust.

THE AUTOMOBILE AS AN UNMANAGEABLE BURDEN

To further complicate the matter, the automobile is environmentally and structurally unsustainable. It is no secret that the environment is threatened by the dominant reign of the automobile. If left alone, negative automobile-induced environmental trends are projected to propagate well into the future. Canada expects a 40% increase in fossil fuel consumption over the next 25 years. This contrasts rather badly to the 50% decrease in greenhouse gas emissions needed to maintain atmospheric conditions at an already destructive 1990 level (National Round Table on the Environment and the Economy 1997, p. 4). Consequently, it cannot be denied that automobiles are environmentally unsustainable. However, it is a mistake to suggest that cleaner, more accessible fuels can sustain the continued dominance of the automobile. Cleaner fuels will not help; the land-use patterns that the automobile promotes are as unsustainable as the fuel that it presently uses.

As stated before, the auto-orientated city is both encouraged and obligated to spread out in all directions that are geographically compliant. Cities are constantly expanding because the automobile makes it possible to travel further between destinations. However, the automobile also occupies a great deal of space within the city. When the width of roads, rights-of-way, parking lots and driveways are all taken into account, one automobile devours three times more city land than the average single-family home (Engwicht 1993, p. 45). To add to this, the total number of road vehicles increases every year. In 1990, there were 15.3 million registered vehicles in Canada. This year, that number is projected to reach 16.3 million (National Round Table on the Environment and the Economy 1997, p. 13). Thus, it is clear automobiles create a city that must continually expand. The implication of this is that cities have become increasingly more difficult to maintain. A sprawling city is a persistent burden on taxpayers. It continuously requires more kilometres of roads, sewers, water works and transit lines; it creates a need for larger, more expensive bridges; and eventually demands costly expressways. Furthermore, as suburban areas demand more and more

infrastructure, there is less and less money to maintain already existing infrastructure. Consequently, North American cities have begun to decay from the inside out. In fact, inner-city decay has become such a problem that the term "inner-city" itself has developed a widespread negative connotation. Thus, neither the automobile or the sprawling cities that it has created can be sustained for very much longer.

In summary, it appears as if North America has greatly over-estimated the benefits of the private automobile. In fact, the benefits that the automobile once offered have now almost entirely been out-weighed by the problems it has created. In the noisy, polluted, structurally-intimidating city, the automobile no longer impresses people; it oppresses them. In the car-crowded city, the auto is no longer an agent of freedom; it is a burden. In the sprawling city, the auto is no longer a convenience; it is a necessity. And, in the spreading city, the automobile is not longer an asset; it is a liability. The automobile and the city are not compatible and thus, those governments that are truly interested in maintaining sustainable cities, must begin to seriously consider reasonable and viable solutions to the problems that the automobile has created.

POLICIES TO HELP REDUCE THE BURDEN

Strangely, despite the fact that the problems created by the automobile far out-weigh its potential benefits, it is commonly thought that these problems must be tolerated rather than resolved. Even those who recognise the destructive nature of the automobile and advocate alternatives often believe that the automobile must continue to be tolerated. For example, David Engwicht, author of *Reclaiming Our Cities and Towns*, explicitly states that he is not "anti-car *per se*" directly after providing a series of arguments that shows the automobile as unfriendly, unjust and unsustainable (Engwicht 1993, p. 96). Unfortunately, this widespread inconsistency of thought must come to an end before real alternatives to the automobile will be accepted.

On the other hand, there is reassuring evidence to suggest that automobiles may easily be abandoned. According to Marcia D. Lowe, author of *Alternatives to the Automobile: Transportation for Liveable Cities* (Worldwatch Paper 98), drivers in the United States "choose to drive not out of a blind love of cars but rather from consideration of the time and money required for a trip" (Lowe 1990, p. 36). Therefore, the first step toward ending the era of the automobile is to make the automobile more costly and less convenient than other forms of transportation. In order to achieve this objective, some cities make drivers buy a special licence if they wish to enter the city centre during the morning rush hour. This licence typically mirrors the cost of parking downtown for the day and thus effectively doubles the cost of driving to work (Floyd 1998, p. 14).

Another way to encourage people to abandon their cars is to place the full cost of driving only on those who own and drive vehicles. In Canada, fuel subsidies and the use of general tax revenues to build

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and maintain auto-orientated infrastructure make driving cheaper than it otherwise would be (National Round Table on the Environment and the Economy 1997, p. 16). Conversely, many countries in Europe place a tax on gasoline that is between 25 and 50 cents per litre. Thus, in Europe, many people choose not to drive where reasonable public transportation is available (Lowe 1990, p. 35).

Also, if annual registration fees were increased, and larger taxes were placed on newly-purchased cars, many people may be persuaded to actively seek out alternative modes of transportation (ibid., p. 35). Such financial penalties might even work to discourage people from buying a vehicle in the first place.

People may also abandon their vehicles more readily if structural measures were taken to make automobiles less convenient—especially in densely populated areas. In Germany, *Verkehrsberuhigung* or "traffic calming" schemes have greatly helped reduce traffic flow in major urban centres (ibid., p. 23). Traffic calming is a process that changes the shape and layout of the city street. In areas where this has been done, cars are forced to drive slowly through narrow streets, over bumps, around tight corners and through a series of carefully placed obstacles (ibid., p. 22). Since much of the street is freed from the noise, danger and aggression that fills wider, more drivable streets, walking and bicycling have become more attractive and more widely used in areas that have adopted traffic calming measures. Such driving restraints have become so popular in Germany that many other countries are adopting them. In fact, in Denmark, traffic calming has been so successful that, according to Marcia D. Lowe, many "local residents themselves are often willing to pay for the measures" (ibid., p. 22).

However, even if these measures help reduce the allure of the automobile, they can not completely cure the many problems related to automobile dominance. Despite high taxes and traffic calming measures, European countries still rely heavily on auto-orientated transportation. Furthermore, increasing the cost of driving can sometimes have unexpected negative effects. For example, some studies have shown that in countries where taxes on new vehicles have been introduced, older vehicles are kept longer and thus, "the country's car fleet becomes less safe and less clean" than it otherwise would have been (Floyd 1998, p. 15). So, despite the benefits of financially and structurally discouraging car use, it is obvious that much more ambitious steps need to be taken if the reign of the automobile is going to come to an end.

HIGHER DENSITIES HELP TO FURTHER REDUCE THE BURDEN

Research done around the world has revealed that cities with low densities have a greater number of automobiles than those cities with higher densities. In Houston, Texas, where urban density is less than 10 persons per hectare, annual gasoline consumption is more than double that of Toronto where the density is approximately 42 persons per hectare (National Round Table on the Environment and the Economy 1998, p. 15). This trend is present for many reasons. First, as stated before, automobiles occupy a great deal of

space. Second, a sprawling city makes walking and cycling impractical due to the average distance between destinations. Third, in low density cities public transportation is less viable. Low density means low usage, which means more infrequent service, which in turn results in less usage. This cycle is difficult to break without changing area densities. Land-use policies and transportation needs are intrinsically attached; if one is changed, the other will change with it. Therefore, one of the most important, yet radical, steps toward sustainable urban transportation is increased urban densities.

Unfortunately, the spreading of the city is a powerful force and it will not easily be stopped. However, there are methods that can be used to help increase urban densities. One important method involves over-hauling existing single-use zoning policies. If zoning policies recognised the need for mixed-use areas, urban densities would automatically increase. For instance, many apartments would be built over shops in popular shopping districts; many houses would be turned into office spaces or stores; and many other businesses would fill existing open city space and unused lots in all urban areas. Another method used to increase urban densities involves imposing fees on land developers who wish to develop low-density, auto-oriented areas. After these fees are collected, the revenues can be passed on to developers who encourage higher density development (Lowe 1990, p. 30).

If higher density development were achieved, and distances between destinations were decreased, automobiles could realistically be abandoned. Cycling and walking would become more practical, and public transportation would become more viable. However, automobiles will not be abandoned if the alternatives are less attractive than the automobile itself. Walking and cycling demand a certain amount of physical strength and are best only in relatively good weather. Likewise, among other problems, public transportation demands that everyone function on a similar time schedule. Thus, realistically, automobiles are not going to disappear before new and ambitious alternative transportation methods are integrated into newly-densified cities.

ALTERNATIVE PUBLIC TRANSPORTATION

Over the last 40 years, many inventive members of the concerned public have been working to redesign public transportation so that it may functionally replace the private automobile. To date, the best example of a redesigned public transportation system is a "Personal Rapid Transit" system or PRT. Basically, PRT systems are publicly-owned light rail networks that run small cars in place of large public trains. The essential features of a PRT system include: automatically driven vehicles available to an individual or a group of individuals traveling together by choice; small guide rails located above ground, near ground or below ground level; and 24-hour, on request, non-stop service from one destination to the next

(Floyd 1990, p. 30). The benefit of a working PRT system is that it possesses many of the attractive features of the automobile but few of the unattractive features.

First, the small PRT cars allow for an atmosphere that is as comfortable as the atmosphere in a private automobile. Second, since PRT vehicles are automatically driven, evenly spaced and use exclusively reserved guideways, they are at once much safer, faster and more efficient than the automobile. Third, PRT guideways are small and quiet compared to expressways or arterial roads, and thus do not belittle or intimidate people. Fourth, a working PRT system would provide a new level of access to those who presently do not drive. With a PRT system, all people would have reasonable access to transportation regardless of physical ability, age or income. Estimates suggest that one ride on a well-used PRT system could cost as little as one dollar (Findeiss 2000). Fifth, a PRT system runs on electricity and is largely environmentally sustainable. Finally, PRT systems use only a small portion of the land used by automobiles. A PRT system uses land only for stations and guideways and, on average, uses only 2% of the land in any given urban area. By comparison, automobile road systems typically use anywhere from 30 to 50% of the land in urban areas (Anderson 2000). Also, a functional guideway system would only need to be three feet wide; this is thinner than the PRT car itself (Floyd 1990, p. 34). Thus, a PRT system would work well, integrated into newly densified cities.

PRT designs have taken a long time to evolve. Early concepts from the 1970s had structural flaws that attracted a significant amount of criticism. For example, early PRT systems would not have been able to process thousands of requests for vehicles during rush hour periods. However, in recent years, computer technology has allowed engineers to work out most of the structural flaws of the PRT design and today, PRTs are ready to be tested as a real alternative to the private automobile (Floyd 1990, p. 32).

The technology and the methods needed to end the dominant reign of the automobile are available to any government that recognises the need to create more habitable and sustainable cities. Most of the governments in Western Europe are in the initial stage of this process and there is no reason why North America cannot follow suit.

CONCLUSION

In conclusion, the automobile is responsible for creating a city that has become increasingly less liveable, less desirable, less human and less sustainable. The negative effects of auto-induced urban sprawl have been so detrimental that the average North American city is literally deteriorating from the inside out. Allowing the automobile to remain dominant is nothing short of absurd, the absurdity of which is represented in every aspect of every city dweller's life. It is presented to us each time we are forced to run across the street, each time an oppressive expressway is built with public money and each time we are forced to drive

across town to do our grocery shopping. The absurdity of the automobile is represented in the thick air we breathe and in the social isolation that surrounds us. The absurdity of the automobile is even represented in the artwork than we produce. But, this absurdity can still be undone and the problems that the automobile has created can be remedied. In which case, the political task primarily involves combining mixed-use, higher density development patterns with real strategies that deter automobile use and encourage walking, cycling and reformed public transportation. In order for North American cities to flourish and at the same time remain sustainable, these measures must be taken seriously and must not be ignored. If these solutions are ignored, and the automobile is allowed to continue to drive the roads of blight that it has created, present-day North America will surely look absurd in the eyes of future generations.

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