Developing Smarter Cities

In 1910, only a few decades after the onset of the industrial revolution in America, roughly 30% of America's labor force was employed as farmers or agricultural workers. With rapid industrialization throughout the 20th century, more and more of those workers began moving to cities to take on new jobs in factories and shops. Throughout the 20th century, two world wars, globalization and technological revolution further shaped employment trends and the cities we live in. These trends shaped- and continue to shape- our employment, our lifestyles, our land use and our travel choices.

As long as technology and employment trends have been reshaping cities, urban planners have been trying to design cities that are smarter and more sustainable, from Ebenezer Howard's Garden City, to Daniel Burnham City Beautiful, to today's push for Complete Streets. These planners, like today's residential and commercial developers, recognized that cities are powered by their residents, but they also must support the lifestyles and health of their residents.

Today, 80% of carbon emissions come from cities. The US and the rest of the world are rapidly urbanizing. The number of people living in cities is only expected to grow in coming years. With distracted driving and pedestrian fatalities on the rise in since 2013, cities and engineers recognize that smart, safe, healthy cities are as important as ever. In addition to the employment and land use trends that have long been recognized, the US is also seeing an entire demographic cohort, "Millenials", tending to prefer car-free urban living at an unprecedented rate. In post-war suburbs across the US, baby boomers are aging in place and experiencing daunting mobility challenges.

Residential and retail developers know these trends well; they follow them closely as the market shifts, and they seek to respond to these needs. As transportation experts, we also follow these trends, and we recognize the impact that developers exert over these markets. There is a cycle the both drives and is driven by development, and breaking that cycle is critical to achieving the smart, healthy, lively cities that planners have been seeking for decades.

Developers are both responding to and driving demand. As Figure 1 shows, demand is both an outcome of the decisions of investors and developers, and over the longer term, those market forces (as

manifested by decisions of customers) reshapes other demands that developers and investors respond to. These cycles can be vicious or virtuous: when everyone makes smart, healthy, sustainable choices – we have efficient retail, commercial and residential energy consumption. When sub-optimal choices are made – whether by decision-makers, developers or residents – regional land use and civil infrastructure bear the weight. Even more, residents in the region bear the costs in the form of lengthy travel times, inefficient public service delivery, and deteriorating quality of life.

At DemandTrans, we understand the challenges and opportunities at each and every step of this cycle. Decision-makers, developers, residents and customers all have different needs they are trying to fulfill. The competing trade-offs and distribution of control creates seemingly insurmountable
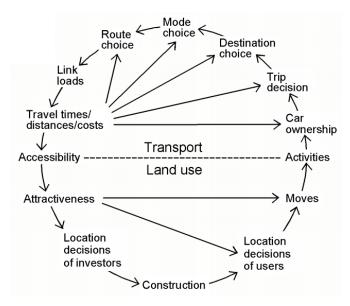

Figure 1: Land Use Transportation Fedback Cycle (from Wegener, 2004)

choices; the promise of smart cities is to gather information to drive more intelligent decision making and design. Smarter, data-driven mobility is one solution to breaking this cycle. Our suite of products, including MobilityDR, offers a way for small- and medium-sized communities to find the right-size product and service, matching the needs of users and operators. Whether the need is commercial or residential, flexible mobility can set any size city on a path to smarter, safer, greener, cleaner, and healthier mobility.

As America continues to urbanize, and new trends – like ridesourcing, online shopping, and virtual participation- continue to increase, we are shaping the next generation of modeling tools and methodologies to respond to these changes.

Image source: Wegener, M. (2005) Overview of Land Use Transport Models, in D. Hensher, K. Button, K. Haynes and P. Stopher (ed) *Handbook of Transport Geography and Spatial Systems (Handbooks in Transportt, Volume 5)* pp. 127-146.)