Court Street Group Research LLC

The Logical Evolutionary Consequence of Autonomous Vehicles: E-AVs & Transportation as a Service will have massive, disruptive implications for state & local governments

Neighborly

George Friedlander, Managing Partner at Court Street Group, Contributor to Neighborly Insights.

Presented at California Society of Municipal Analysts

November 2, 2017

Automation is coming, and coming fast

- Ultimately, all electrified.

What Happens Next?

- **Transportation as a Service? We think so.**
- Definition: Transportation-as-a-Service (TaaS), also known as Mobility-as-a-Service (MaaS), shift away from personally owned modes of transportation and toward mobility solutions that are consumed as a service. Combines transportation services from public and private transportation providers through a unified gateway that creates and manages the trip. Offers solutions based on the travel needs. Not limited to individual mobility; can be applied to movement of goods, as well – particularly in urban areas.

TaaS, Cont.

- However, the centerpiece of TaaS, as we define it, is automated, electrified cars/trucks that are fleet-owned, rather than individually owned. RethinkX research and policy work on TaaS:
- RethinkX pieces on TaaS
- RethinkX piece #2

General implication: Disruptive Change

- Huge savings on transportation costs, generating a permanent boost in disposable income—the authors estimate that per-household cost of automotive transportation will decline by $5,600 by 2030;
- Productivity gains from reclaimed hours;
- More than an 80% drop in cars on the road;
- Plummeting demand for new cars, with 70% fewer passenger cars sold each year;
- A sharp drop in demand for and the price of oil, with many current sources of oil ultimately abandoned; and,
- Important environmental and geopolitical and consequences which are beyond the scope of this discussion but are clearly worth noting.

Demographic Implications

- Dramatic changes in where people live.
- Cities will remain popular, growing denser as space now devoted to cars will be reclaimed by people.
- Automation will drive a “renaissance” of many suburbs because “a lot of people, all other things equal, would rather not live on top of their neighbor.”
- Driverless cars should strengthen quality suburbs—those that offer high-quality housing, outdoor space, and recreational and cultural amenities.
- Americans will look beyond existing suburbs as technology makes travel faster and easier. People of means have always flocked as far away from urban centers and jobs as existing technology allows.

Urban Planning Implications

- **Redesign of urban spaces**. As RethinkX notes, “TaaS vehicles will be in operation far more than existing cars (which are currently stored 95% of the time) meaning a vast reduction in parking requirements and a ‘land bonanza’ for cities as parking and some roadways become available for bike lanes and enhanced green or public space, affordable housing or other uses. For example, Los Angeles has 200 square miles of parking space, much of which can be repurposed (20-30% land area is common for cities).”

- **Integration of TaaS with Mass Transit**. TaaS will cost less than riding commuter buses and trains, and will offer direct, point-to-point service without transfers. Early coordination and planning can ensure that TaaS supports a backbone of public investment that has already occurred in fixed guideway transit. Still, future investments by transit agencies and cities should be made consciously and carefully to avoid over-investing where assets could be stranded.

Urban Planning Implications

- **Urban development**. Until now, development and redevelopment have usually been planned with an eye toward making sure that such projects were contiguous with mass transit hubs. Under the TaaS framework, we expect that such location targeting would become dramatically less important, as TaaS solutions provide access to transportation even where mass transit is unavailable.

- **Role of government:** Assuring access vs. managing assets. As RethinkX notes, TaaS will dramatically change the role of public transportation authorities from one of managing assets (buses, trains, parking garages) to one of managing TaaS providers to ensure universal access. “Policymakers should encourage transportation services to be integrated and coordinated across vehicles, modes, operators and geographies.”

- **Infrastructure planning.** A TaaS vehicle fleet has different infrastructure requirements than the existing fleet – and planning to meet these needs without over-investing in the parts of the system that become redundant is a key challenge. Critically, TaaS fleets will need less urban parking infrastructure, but will require the ability to drop passengers off without causing congestion. Centralized charging stations with adequate capacity in numbers of superchargers and electricity capacity will be required.

Economic/Labor Implications

- **Job access will change in all sorts of ways.** At a macro level, implications of TaaS for jobs will be vast—a topic well beyond the scope of this article. Just to list some of the most obvious changes, there will be massive declines in jobs in at least the following sectors:

- Automotive construction;
- Driving sectors, including cabs/ridesharing and trucking;
- The oil extraction and gasoline sectors;
- The casualty insurance sector, as the number of cars in service declines sharply and safety levels per automotive mile spike; and,
- Car dealerships.

Credit Implications

- Credit implications of TaaS—specific types of credits

- In our view, the credit implications of TaaS/E-AVs fall into two categories. The first consists of specific existing types of bonds whose revenue underpinnings would be changed or damaged by TaaS. These include:

- **Parking revenue bonds.** As TaaS takes hold, the need for space at centralized parking facilities will drop sharply. This will, of course, affect the revenue underpinnings of debt supported by parking revenues.

- **Airport revenue bonds.** We are already hearing of revenue pressures at airports that historically depended in part on parking fees from car owners who leave their cars at an airport while traveling by plane, as ride-hailing services such as Uber and Lyft take on a portion of the market. Clearly, a transition to TaaS would increase the pressure on parking revenues at airports by an order of magnitude. Airports will be under pressure to find substitute revenue sources, such as by increasing access fees to E-AVs entering their facility.

Credit Implications, Cont.

- **Gasoline tax revenue bonds.** As noted, the transition to E-AVs will create a very sharp decline in gasoline use. As a consequence, the revenue underpinning of gasoline tax revenue bonds will come under severe pressure. It will be up to state and local governments to replace these revenues with mileage taxes, as Joseph Krist has discussed in a couple of prior analyses. It is important to note, however, that there is no legal obligation for state and local governments to make these mileage taxes available to owners of gas tax revenue bonds. Nevertheless, we would expect that most—but perhaps not all—issues of gas tax bonds to do so. The transition could be challenging and complex in some jurisdictions.

- **Mass transit revenue bonds**. The integration of TaaS with mass transit will, we suspect, leave some mass transit bond issues in the lurch, as TaaS substitutes for mass transit in many facilities. A recent article from FutureStructure notes that such pressures appear to have already started even with ride-sharing in its infancy relative to the TaaS model. The article is entitled "Ride Sharing Decreases Public Transit Use."

Macro Changes in Economic Strength

- The second type of credit that will be affected by the transition to TaaS will be that of GOs and other related credits in geographic sectors where TaaS causes employment to come under pressure, as in the sectors listed above.

- On the other hand, the authors at RethinkX note a list of economic benefits for state and local governments that they expect to occur as a result of the transition to TaaS. These include:

- Productivity gains from time freed up, leading to an increase in GDP of $500 billion to $2.5 trillion by their estimate;

- Consumer income gains of $5,600 per household, or roughly $1 trillion per year, as costs of automotive transportation drop sharply;

Macro Changes in Economic Strength, Cont.

- Public sector budget gains, from lower highway infrastructure costs and a “land bonanza” as publicly owned land is freed up; and,
- Quality of life gains that also affect economic well-being, such as improved mobility for those who do not drive, cleaner air, fewer road fatalities, and ease in meeting climate change targets (an issue we expect to re-emerge fairly quickly).

Conclusions

- The implications for the U.S. economy and for specific credits are likely to be vast, and the need for state and local governments to respond to find replacement revenues as certain types of revenues fall away will also be vast.
- In our view, if TaaS plays out as the people at RethinkX anticipate—even with timing uncertainties—there may be no other single phenomenon that will have a greater impact on state and local credits over the period from now to 2030—only 13 years hence.

Contact Information:

George Friedlander, Managing Partner, Court Street Group Research

Contributor to Neighborly Insights

gfriedlander@courtstreetgroup.com

646.596.2017

Courtstreetgroup.com