ITEM 8
March 1, 2018
PRTC Regular Meeting

PRTC Executive Director's Time

A. INFO Follow-up from Prior Meetings

B. INFO Executive Director's Report

- Article – "What's Up With That: Building Bigger Roads Actually Makes Traffic Worse"

Summary: "Building Bigger Roads Actually Makes Traffic Worse"

Original Article by Adam Mann in Wired. Appeared June 2014.

Northern Virginia is no stranger to large road projects. At any given time there are at least a dozen ventures intended to "ease congestion" or "fix" a snarled route. However, time and time again, the same roads need to be expanded. Is this cycle of widening caused by simple population growth and the success of our economy, or is there something else at work?

Adam Mann's June 2014 article in Wired argues that widening roads don't solve congestion, they simply expand the number of people caught in it, courtesy of a phenomenon called induced demand. Induced demand is a concept from econ 101: the more of a good or service that is provided, the cheaper it is and the more people will consume it. When applied to driving, construction of new roads (or new lanes on an existing road) encourages people to drive more, filling up the new capacity until the road is congested again.

Mann cites a 2009 study by economists Gilles Duranton of the University of Pennsylvania and Matthew Turner of the University of Toronto that found a one-to-one correlation between road expansion and miles driven between 1980 and 2000. He also points to examples of cities removing major roads, including San Francisco, Paris, and Seoul. In every case, traffic in the cities didn't come to complete gridlock—it stayed the same or even improved because people adjusted to the new, smaller road network and used it more strategically.

Now, correlation doesn't always mean causation, but the authors of the study (and Mann) hypothesize that the expanded roadways do increase driving for the following reasons:

- Expanded roadways initially reduce travel time from far-out suburbs or rural areas, inspiring more development and therefore causing more traffic from new residents.
- By initially reducing travel times, people have a disincentive to reduce trips, so instead of getting the groceries on the commute home, people may go home and then go back out to run errands, leading to more time on the road.
- The initial reduction in travel times disincentives people from riding transit, causing some to switch from transit to driving, adding traffic onto the road.
- Business that withheld expanding will now do so (a positive!), but in the process will bring more traffic from employee commutes and freight shipments.

As Mann puts it, "as long as driving on the roads remains easy and cheap, people have almost an unlimited desire to use them". Roads, like any other market, have an equilibrium. But since there is no cost to drive on roads besides car maintenance and gas, the only cost people take into account when choosing whether to drive or take transit is congestion. If that congestion is reduced by a widening project, more people will use the road until the congestion hits the same level or higher (since the widened road opened up land for development) than before. The road may move *more* people now, but it is just as slow and painful as before.

So what? Does transit do anything to reduce congestion from induced demand?

In his June 2014 article, Adam Mann explores induced demand, the idea that widening roads spurs more people to drive more often because it increases the supply of roadway. The economics of induced demand is pretty simple: expanding a road initially reduces the travel time (the cost), luring people to drive instead of take transit, travel off-peak, or trip-chain. It also encourages new development, bringing new residents who weren't driving before. With the new road space enticing so many new trips, congestion quickly reaches or even surpasses its former levels.

Since simply widening roads doesn't always lead to permanent reductions in congestions, can transit? In both Prince William County and the greater Washington area, PRTC's services are a viable and efficient alternative to expensive, slow road projects.

1. **Allow for increased capacity**
   Mann argues that transit itself won't solve congestion, since every car removed from the road allows someone else to drive instead. In this way, transit increases the *total capacity*, or *throughput*, but not necessarily the travel times for drivers. However, that increased capacity allows constrained corridors like I-66 and Route 1 to move more people. In fact, the expansion of PRTC's services in the Transform 66 plan is based on the idea of throughput.

2. **Providing an alternative to driving**
   Transit does give most people an option to skip congestion, however. Having alternatives is most necessary on toll roads like I-66 inside the beltway. The "congestion pricing" tolls on I-66 are based on the idea that if you toll roadways at peak hours, some people will choose not to drive, resulting in free-flowing traffic. Congestion pricing works great to stop gridlock, but it does price out some who need to travel. A reliable and affordable transit system allows congestion pricing to work more equitably by providing an alternative to driving.

3. **Moving more people on less land**
   Roads take up a lot of land. With the average lane of a highway between 11-12 feet, a 6 lane road can stretch nearly 100 feet with shoulders and medians. Since transit (both bus and rail) carry more people in less physical space (for example, 57 people on a PRTC commuter bus), transit systems allow more land to be used for business, housing, or green space. So for each PRTC bus—local and commuter—a bit of land is saved for the use, enjoyment, or homes of residents.

4. **Cost of transit vs. widening**
   In some cases, transit may actually be cheaper in the long run than auto-based systems. While individual transit projects are expensive, they scale better, meaning a well-designed bus or rail system can carry increasing numbers of people with more ease than a road network, which will need repeated and costly widening. In Prince William, PRTC's local service could help delay the need for more costly widening to roads.