

Greater Philadelphia **FUTURE FORCES**

Our Town 2016: The Future of Transportation
November 2, 2016



Delaware Valley Regional Planning Commission



“The only relevant discussions about the future are those where we succeed in shifting the question from whether something will happen to what would we do if it happened”

- Arie de Geus
Shell International Petroleum Company

The Coronation of a Pope...

Benedict



Francis





**"It's tough to make predictions,
especially about the future."**

- Yogi Berra

**"The key to making a good forecast is to not
limit yourself to quantitative information."**

- Nate Silver

A large conference room with several people seated at tables, engaged in discussion. A large screen on the right displays a presentation slide titled "Strategic Initiatives". The room is well-lit with overhead lights. People are seated at long tables, some facing the screen and others facing each other. The screen shows a list of initiatives with checkboxes and progress bars. The room has a modern, professional feel with large windows in the background.

Impact-Likelihood Voting Results



Future Forces



Background Forces

- ☐ Connected Vehicles
- ☐ Intelligent Infrastructure (the Internet of Things)
- ☐ Panama Canal Widening
- ☐ Demand for Same-Day Delivery
- ☐ Improving Freight Logistics
- ☐ Partisan Paralysis
- ☐ Flat/Declining Transportation Funding
- ☐ Worsening Infrastructure Conditions
- ☐ Some Degree of Climate Change
- ☐ Increasing Chronic Health Conditions
- ☐ Aging Population
- ☐ School Quality Driving Family Location
- ☐ Declining Water Quality

Universal Actions

- ☐ Modern, Multimodal Transportation System
- ☐ Megaregional Collaboration and Cooperation
- ☐ Increase Regional Transportation Funding
- ☐ Enhance Freight and Goods Movement
- ☐ Vision Zero
- ☐ Infrastructure Resiliency
- ☐ Data-Driven Governance
- ☐ Mixed-Use Infill Development
- ☐ Build Lifelong Communities
- ☐ Green Infrastructure and Stream Buffer Ordinances
- ☐ Universal Pre-Kindergarten and Other K-12 Programs
- ☐ Expand Broadband Infrastructure

Enduring Urbanism



Moving Back to Walkable Centers is the Start of a Long-Term Trend



Contingent Actions



- ☐ Complete Streets / Protected Bike Lanes / Pedestrian Plazas
- ☐ Increase Transit Service
- ☐ Protect Industrial Zones
- ☐ (Re)Develop without Displacement
- ☐ Redevelop Suburban Office Parks as Mixed-Use Centers



The Free Agent Economy



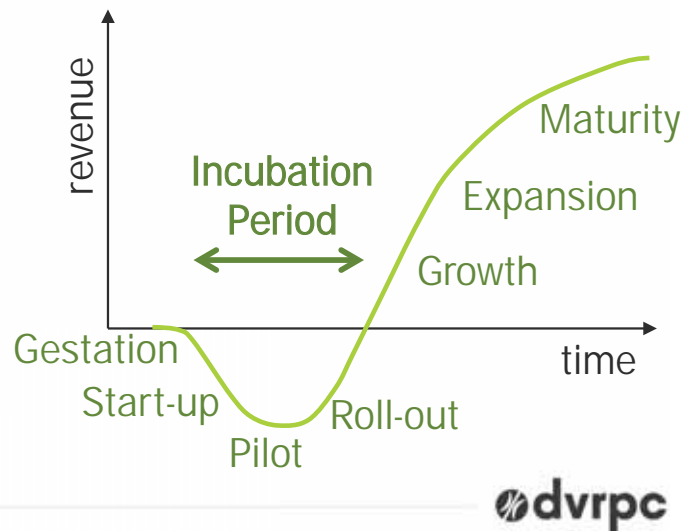
Individuals Must Create Their Own Economic Opportunities



Contingent Actions



- ❑ Expand Business Incubators / Accelerators
- ❑ Simplify Business Tax Collection, Licensing, and Permitting
- ❑ Zoning for Shared / Co-Working Office Space
- ❑ More Off-Peak and Intra-Suburban Transit Service
- ❑ Regional Cooperation for Reducing Poverty and Homelessness (Build More Middle-Class Housing)



Severe Climate



Increasing Atmospheric Carbon Levels Lead to the Worst-Case Outcomes of Climate Change



Contingent Actions



- ☐ More Funding for Infrastructure Resiliency Projects
- ☐ Improve Emergency Preparedness
- ☐ Increase Intergovernmental Coordination
- ☐ Preserve Ag Lands and Promote Regional Food Production
- ☐ Invest in Alternative Energy & Accelerate Phase-Out of Coal and Petro Power Plants



Source: SEPTA

The U.S. Energy Boom

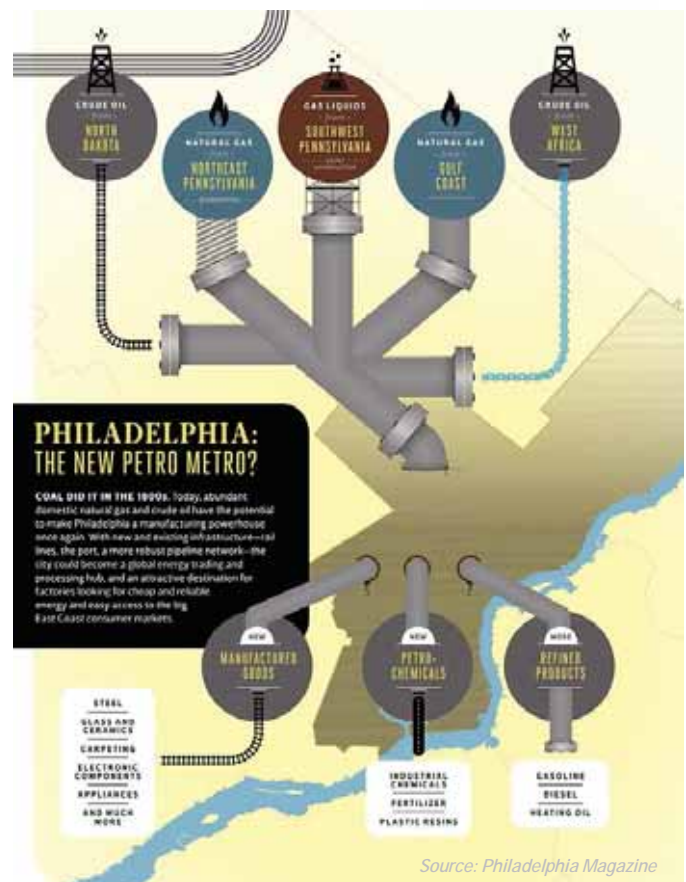


An Abundance of Domestically Produced Energy Keeps the Cost of Energy Low

Contingent Actions



- ☐ Market the Region as an Energy Hub
- ☐ Invest in Pipelines and Related Infrastructure
- ☐ Continue to Invest in Alternative Energy
- ☐ Convert Municipal and Goods Movement Vehicles to Run on Natural Gas
- ☐ Add Capacity to Airport Rail Line



Transportation on Demand



Smartphones, Apps, and Real-Time Information Help People Get Around



Contingent Actions



- ☐ Invest in New Multimodal Hubs, Real-Time Information, and Universal Payment Cards
- ☐ Reevaluate Need for Parking and Convert to Pick-Up /Drop-Off Zones
- ☐ Promote Coordination between Public and Private Transportation Service Providers
- ☐ Incentivize P3s to Speed Up Project Delivery and Incorporate Latest Technology
- ☐ Evacuation Plans for Carless Households

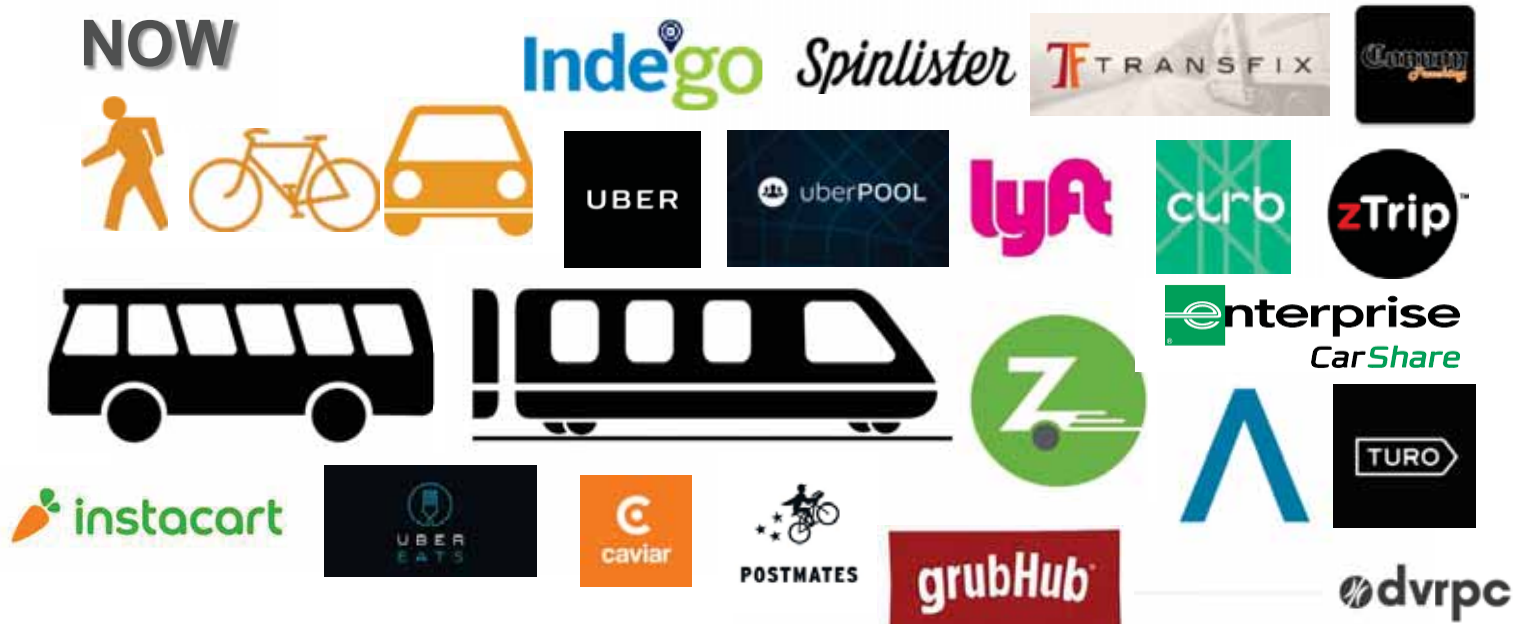


Transportation Options

THEN

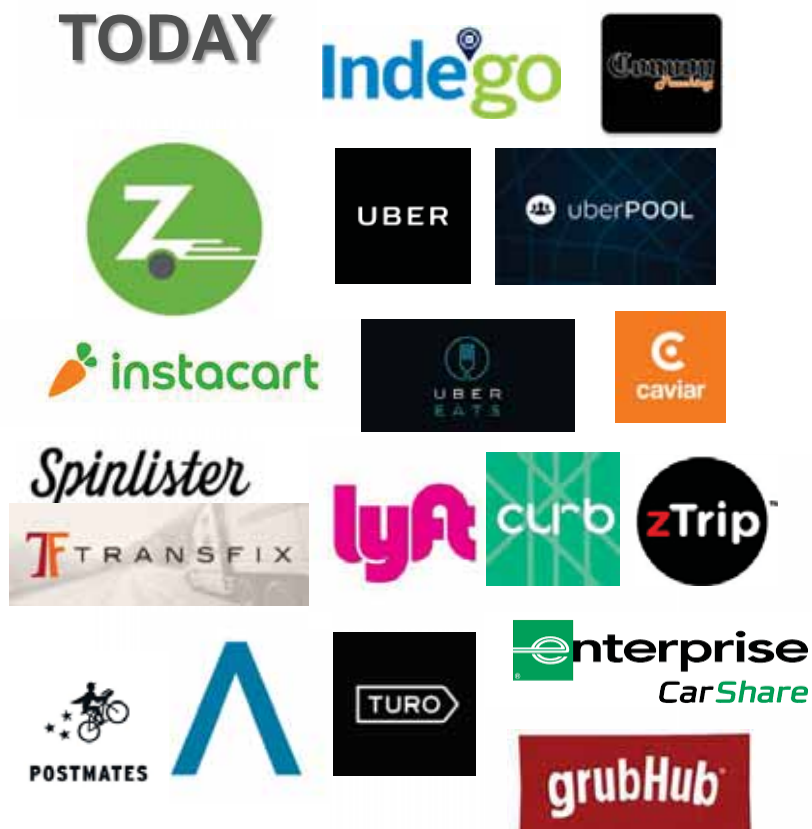


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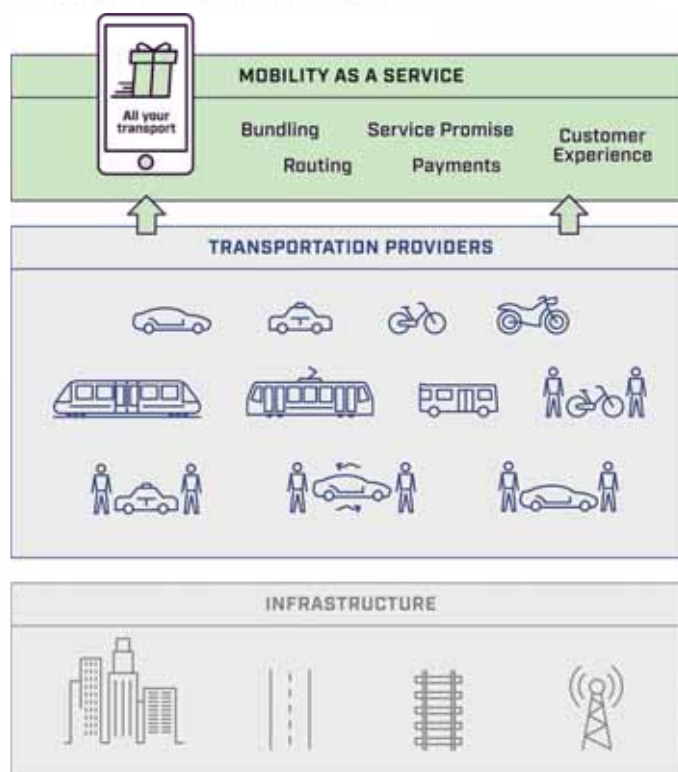


Transportation Networking Companies

TODAY



TOMORROW



Source: <http://maas.global/maas-as-a-concept/>

'Digitization' of Transportation



Competing Transportation Theories

	Auto-Oriented
Overall Goal	Increase Mobility
Land Use	Separation of Uses
Trip priorities	High Speed
Safety	Safe Mobility
Key Metrics	Level-of-Service; Vehicle Hours of Delay; Travel Time Index/Savings
Investment Priorities	New and Wider Roads
Rationale for Investment	Fight Congestion; Reduce Delay

Source: DVRPC 2016, adapted from Lockwood, Ian. "Livable Traffic Engineering." CNU Orlando. Video published November 17, 2012. <https://www.youtube.com/watch?v=o7IXblXNOPk>

Competing Transportation Theories

	Auto-Oriented	Active Transportation
Overall Goal	Increase Mobility	Increase Accessibility
Land Use	Separation of Uses	Mixed Use; High Density
Trip priorities	High Speed	Shorten Trips; Get Exercise
Safety	Safe Mobility	Vision Zero
Key Metrics	Level-of-Service; Vehicle Hours of Delay; Travel Time Index/Savings	Bike/Ped Level-of-Service; Trip Length; Total Travel Time; Vehicle Miles Traveled; Greenhouse Gas Emissions; Transit Trips
Investment Priorities	New and Wider Roads	Connections Between Modes; Walking, Biking, and Transit Facilities
Rationale for Investment	Fight Congestion; Reduce Delay	Build Livable Communities; Sustainability; Improve Health

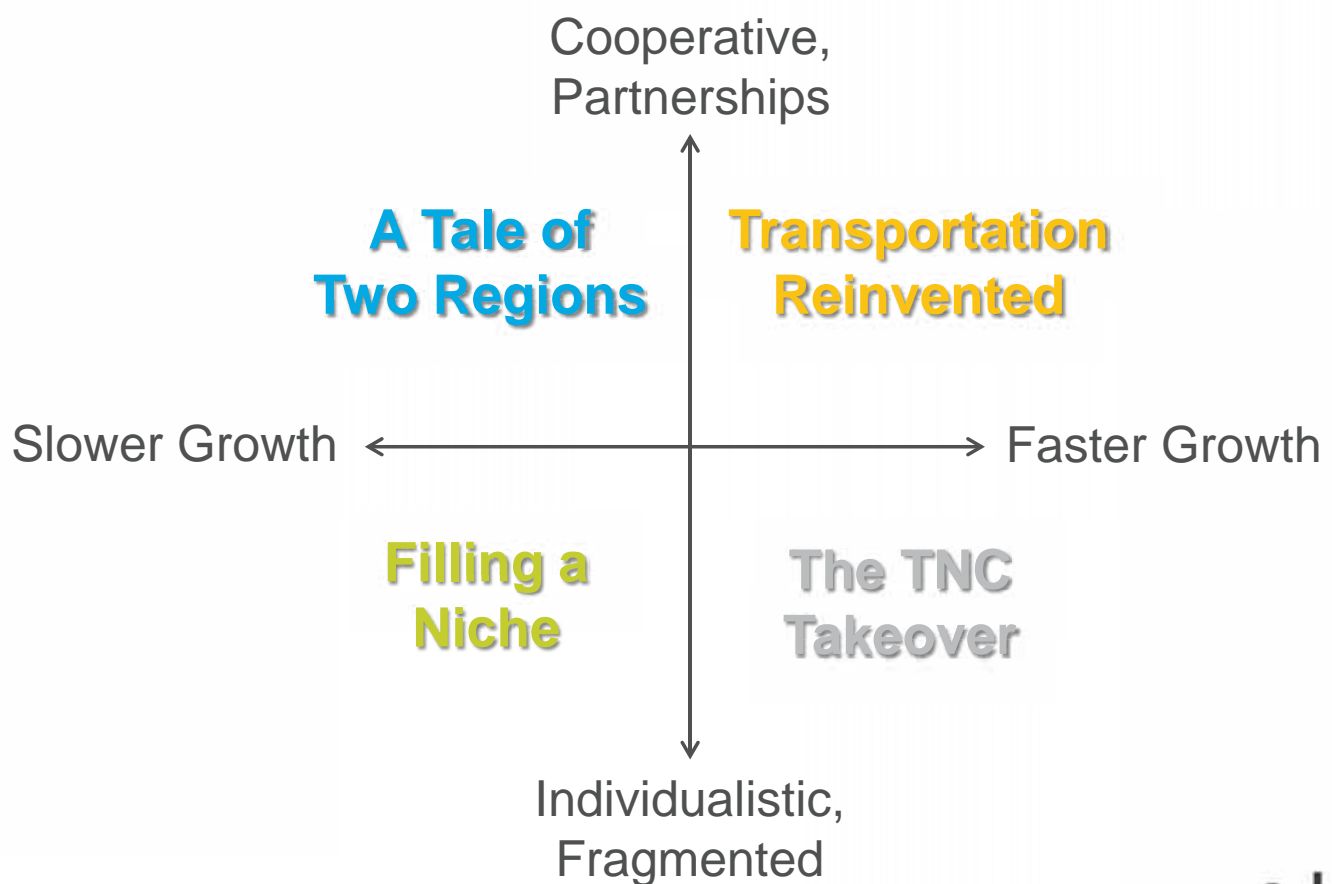
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Competing Transportation Theories

	Auto-Oriented	Active Transportation	Digital Transportation
Overall Goal	Increase Mobility	Increase Accessibility	Increase Information
Land Use	Separation of Uses	Mixed Use; High Density	Live/Work Where You Want; Recognition That Density Provides Network Effects
Trip priorities	High Speed	Shorten Trips; Get Exercise	Customization; Cost, Reliability; Use Time Other Than For Driving
Safety	Safe Mobility	Vision Zero	Connected Technologies, Warning Systems, Feedback Loops, and Data Enhance Safety
Key Metrics	Level-of-Service; Vehicle Hours of Delay; Travel Time Index/Savings	Bike/Ped Level-of-Service; Trip Length; Total Travel Time; Vehicle Miles Traveled; Greenhouse Gas Emissions; Transit Trips	Real-Time Data; Person Throughput; Wait Time; Personal Ratings; Big Data and Analytics
Investment Priorities	New and Wider Roads	Connections Between Modes; Walking, Biking, and Transit Facilities	Multimodal Smart Roads That Increase Safety and Efficiency
Rationale for Investment	Fight Congestion; Reduce Delay	Build Livable Communities; Sustainability; Improve Health	Create an Integrated, Multimodal Network; Profit (Private Market)

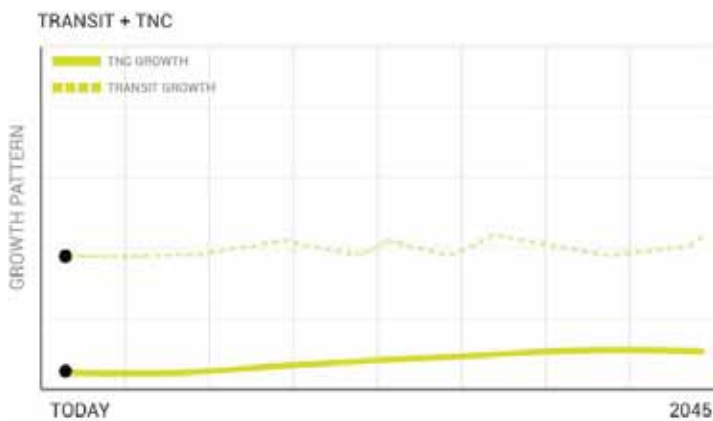
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TNC Future Scenarios



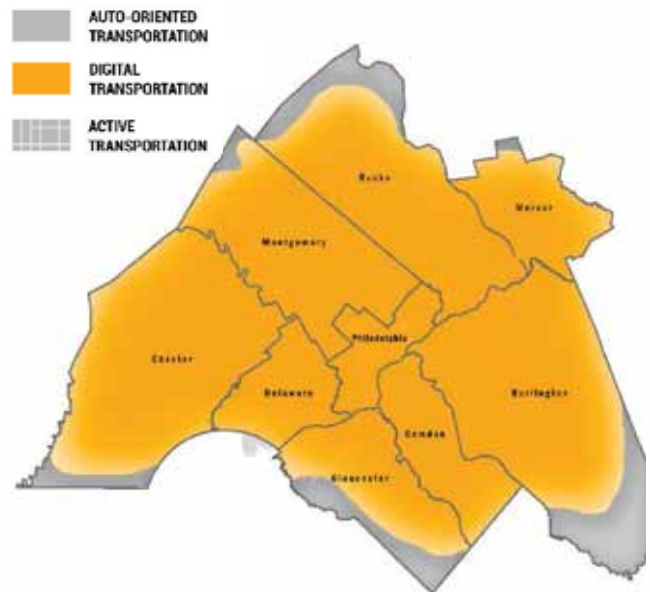
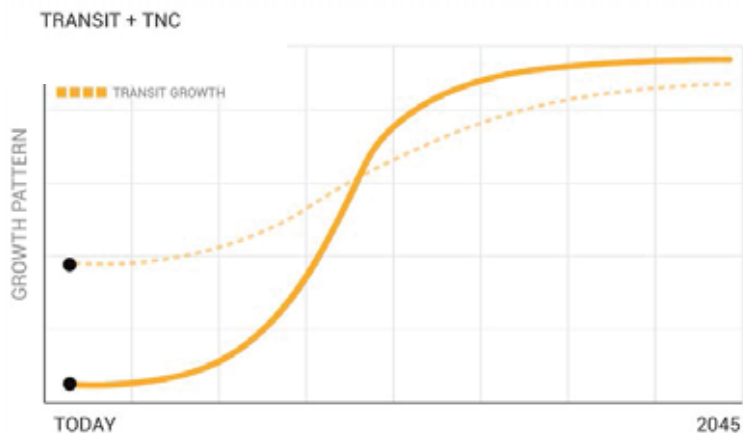
Filling a Niche

Despite bursting onto the scene, TNC operators never manage to grow beyond specialized trips. Transit service is little affected by TNCs, with no substantial change in ridership.



Transportation Reinvented

Transit redefines its operations, creates cooperative partnerships with new private market TNC services, and becomes the backbone of an integrated transportation network. Aggressive service expansion and big venture capital investments fuel long-term, rapid TNC growth



The Scenario We Aren't Getting Into...Yet



Source: Google

Preliminary Thoughts on AVs

- ❑ Will Operate in Existing Infrastructure
 - Will Be Safer with Better Lane Markings & Signs
 - Unlikely to See Significant Benefits in Shared Facilities
- ❑ No Guarantee They Will Be 'Shared'
 - Major Changes to TNC Business Models
- ❑ Unknown Land-Use Implications
- ❑ Full AV Fleet May Double Regional VMT
(Models Showing 12% to 68% Increase)
- ❑ Will They Be Connected?

“We are called to be architects of the future, not its victims.”

- Buckminster Fuller

Questions? or Comments!

For more information, visit:

www.dvrpc.org/Connections2045