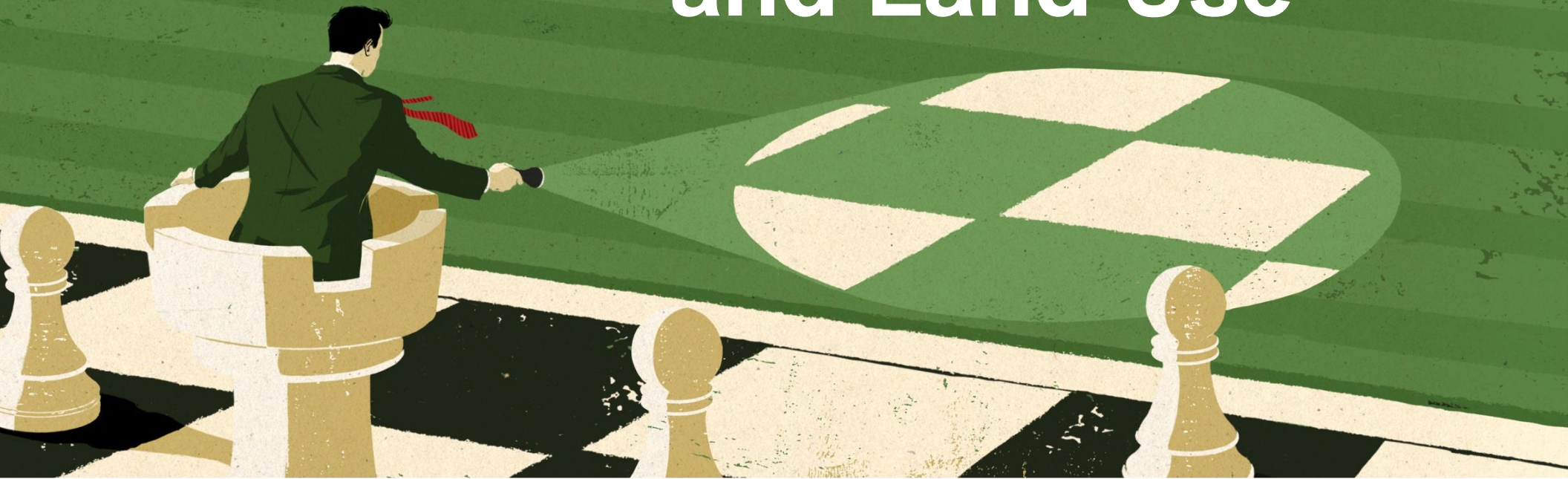


Autonomous Vehicles and Land Use

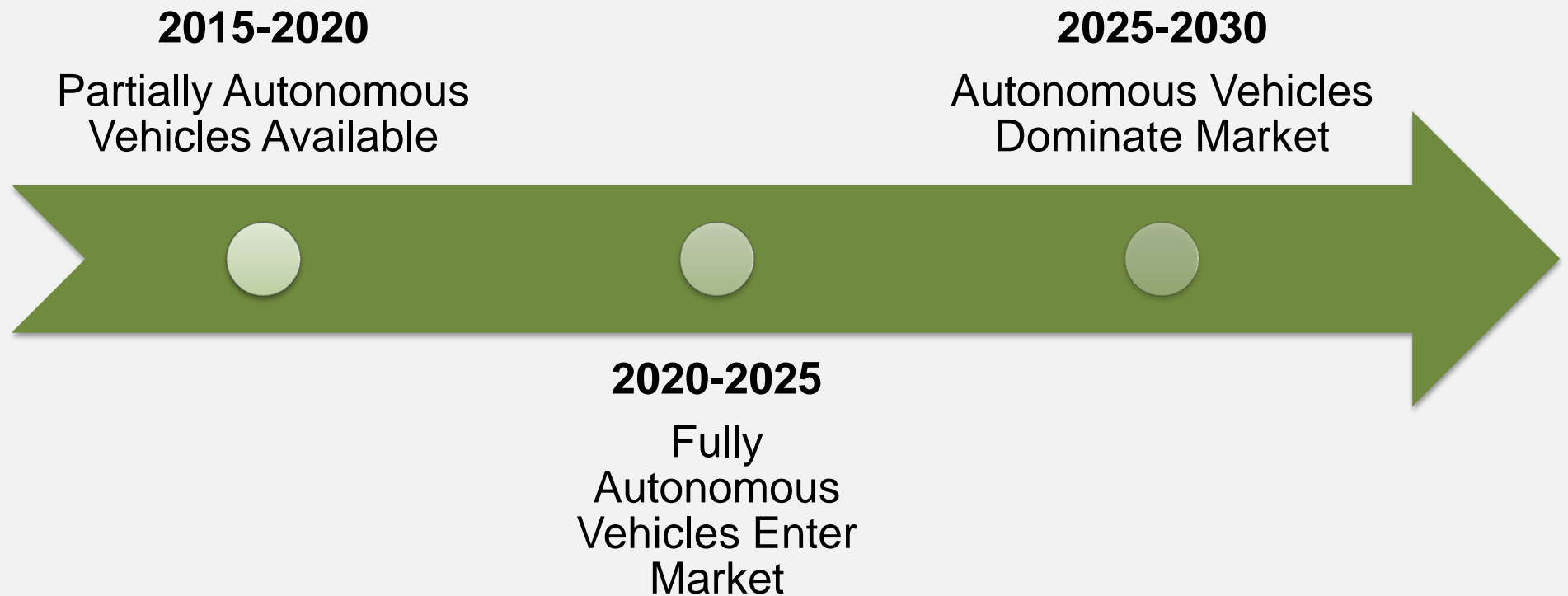


Makeover Montgomery 3: Balancing Change in America's Suburbs

May 6, 2016

AUTONOMOUS VEHICLES ARE COMING

Multiple sources say they will be commonplace by 2040.



SOURCE: Jim Charlier, 2015. Community Builders webinar.

THEY ARE ALREADY OUT THERE



WE AREN'T PLANNING ENOUGH FOR THEM

Federal law requires MPOs to prepare regional transportation plan updates every 5 years. These plans have at least a 20-year outlook.

But in 2013, only 1 of the 25 largest MPOs in the U.S. mentioned driverless cars in its long-term regional plan.

SOURCE: Guerra, 2015. Planning for Cars that Drive Themselves: Metropolitan Planning Organizations, Regional Transportation Plans, and Autonomous Vehicles. *Journal of Planning Education and Research*.

WHAT WILL THE IMPLICATIONS BE?



The fundamental concept of getting around will change, starting with a **new ownership model**:

Today:

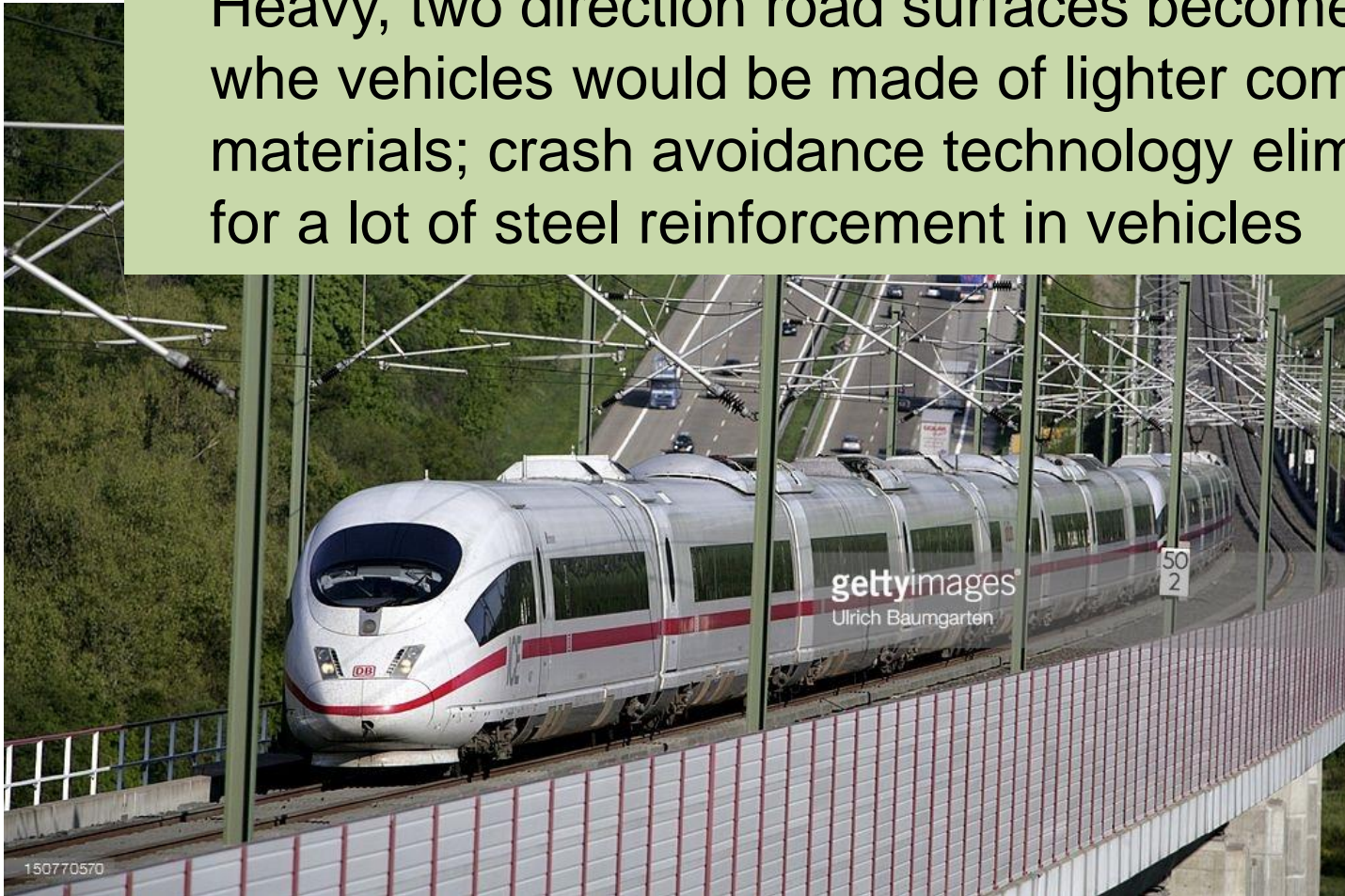
- Private ownership
- 256M cars for 242M adults
- Cars parked 96% of the time
- High fixed costs
- Cars = goods

The Future:

- Carsharing model
- 1 car for every 12 adults
- Cars on the move
- Pay per use
- Cars = service providers

DRIVERLESS CAR BRINGS THE OPPORTUNITY TO REBALANCE INFRASTRUCTURE SPENDING

Heavy, two direction road surfaces become unnecessary whe vehicles would be made of lighter composite materials; crash avoidance technology eliminate the need for a lot of steel reinforcement in vehicles



GREATER SAFETY, MOBILITY. . . BETTER DRIVERS MAKE STREETS MORE WALKABLE



ONE VISION OF THE FUTURE

The Future Family Routine

Work Day:

- 7am - Car leaves and takes Parent to Work
- 8am – Car Arrives Home and Picks up Children and Parent to School and 2nd Workplace
- 10am – Car Takes Itself to Repair Shop
- 3pm – Car Picks up Children Drops one at Soccer Practice and One at Piano Lesson
- 5pm – Car Picks up Everyone on Way Home for Dinner Together

Weekend:

- 6pm Friday – Picks up Parents and then Children in NYC
- 9am Saturday – Family Arrives Rested in Chicago
- Saturday and Sunday – Family Spends at Grandparents in Chicago
- 4pm Sunday – Family Leaves Chicago
- 7am – Family Arrives Home Ready to get Ready for Work and School



RIDESHARING OVERTAKES PRIVATE VEHICLE OWNERSHIP (AND SHORT TRIP PUBLIC TRANSIT)

While the cost of private vehicle ownership will temporarily go up; the cost of car sharing will continue to plummet, replacing METRO and bus for local trips



What does the future look like from a land use perspective?

REDEVELOP PARKING INTO HIGHER USES, LOWERS THE COST OF URBAN HOUSING:

These used to be parking. . .
It turned out to be quite
expensive



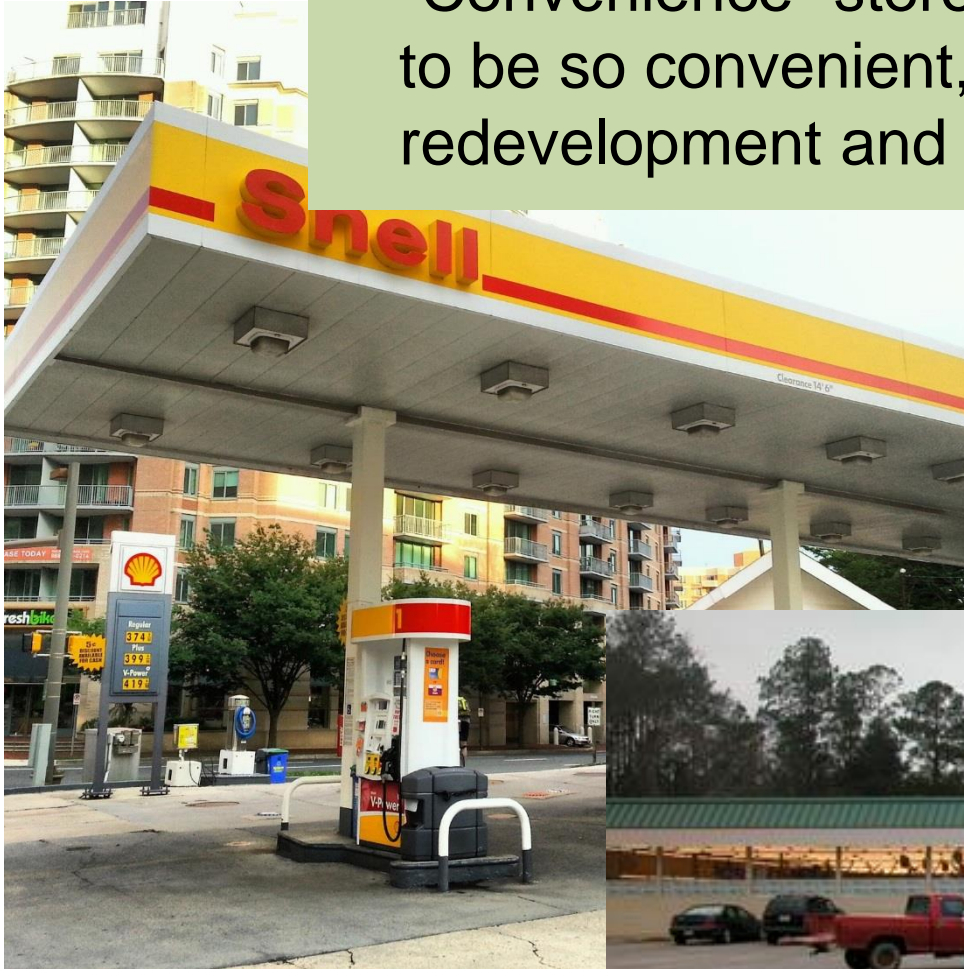
Seattle, Northgate Mall



Parklet in London

AND RELOCATE THESE, TOO:

“Convenience” stores, including grocery, no longer need to be so convenient, freeing up these parcels for redevelopment and densification; eCommerce booms



EXISTING ACTIVITY CENTERS WILL DENSIFY:

With the hassle of parking the car “automated,” people will now fully engage in walkable, vibrant places.



Pike & Rose

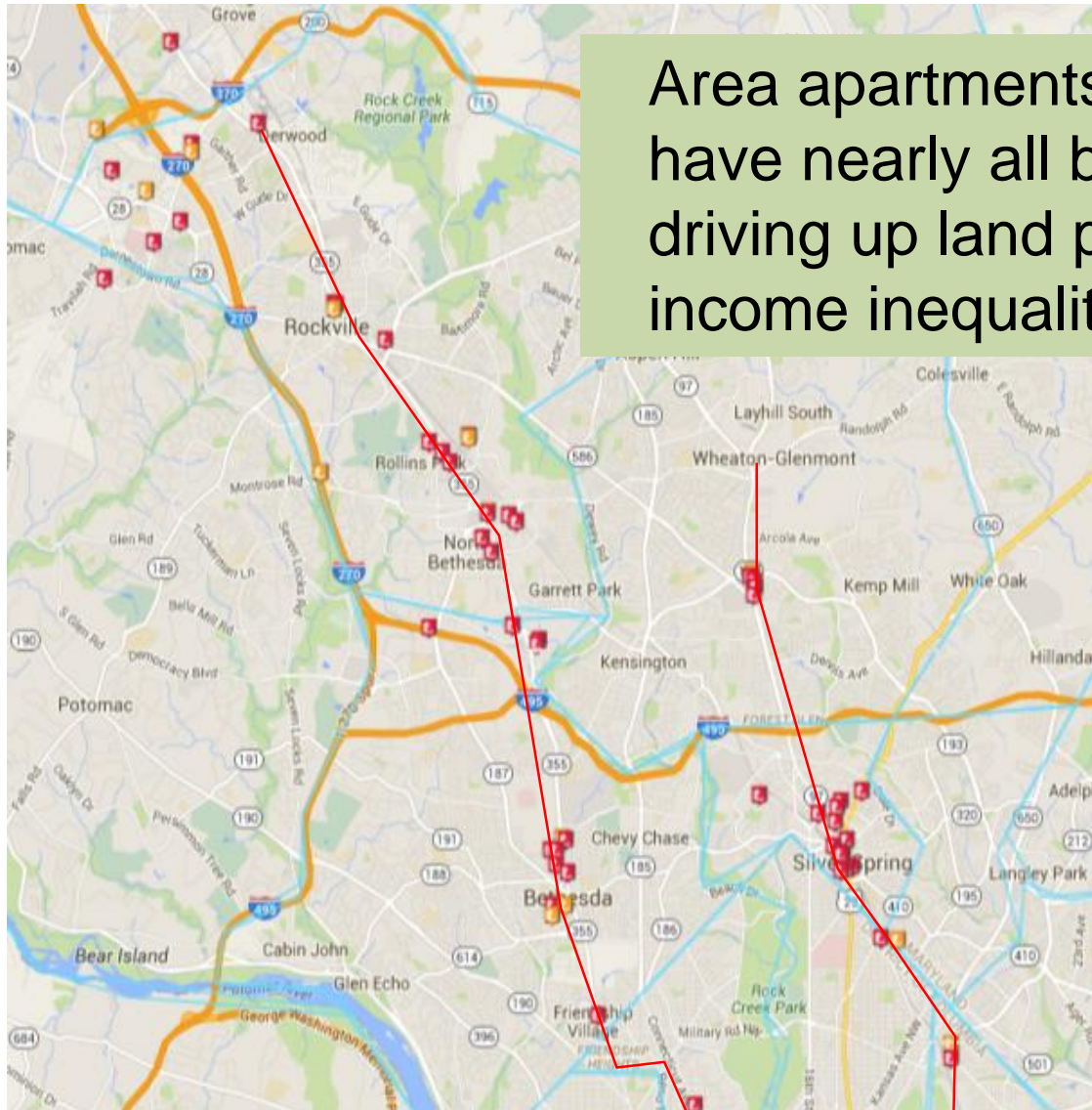
WE WILL UNLOCK THE POWER OF THE BUS:

Automated, fixed-loop shuttles would be cost-effective and reliable. They could increase demand to live in medium density, in-between places.



SOURCE: Wepods, a new driverless bus system in the Netherlands. Each pod holds six.

THE TRANSIT RICH RING AROUND METRO WILL GROW FROM ¼ MILE TO SEVERAL MILES

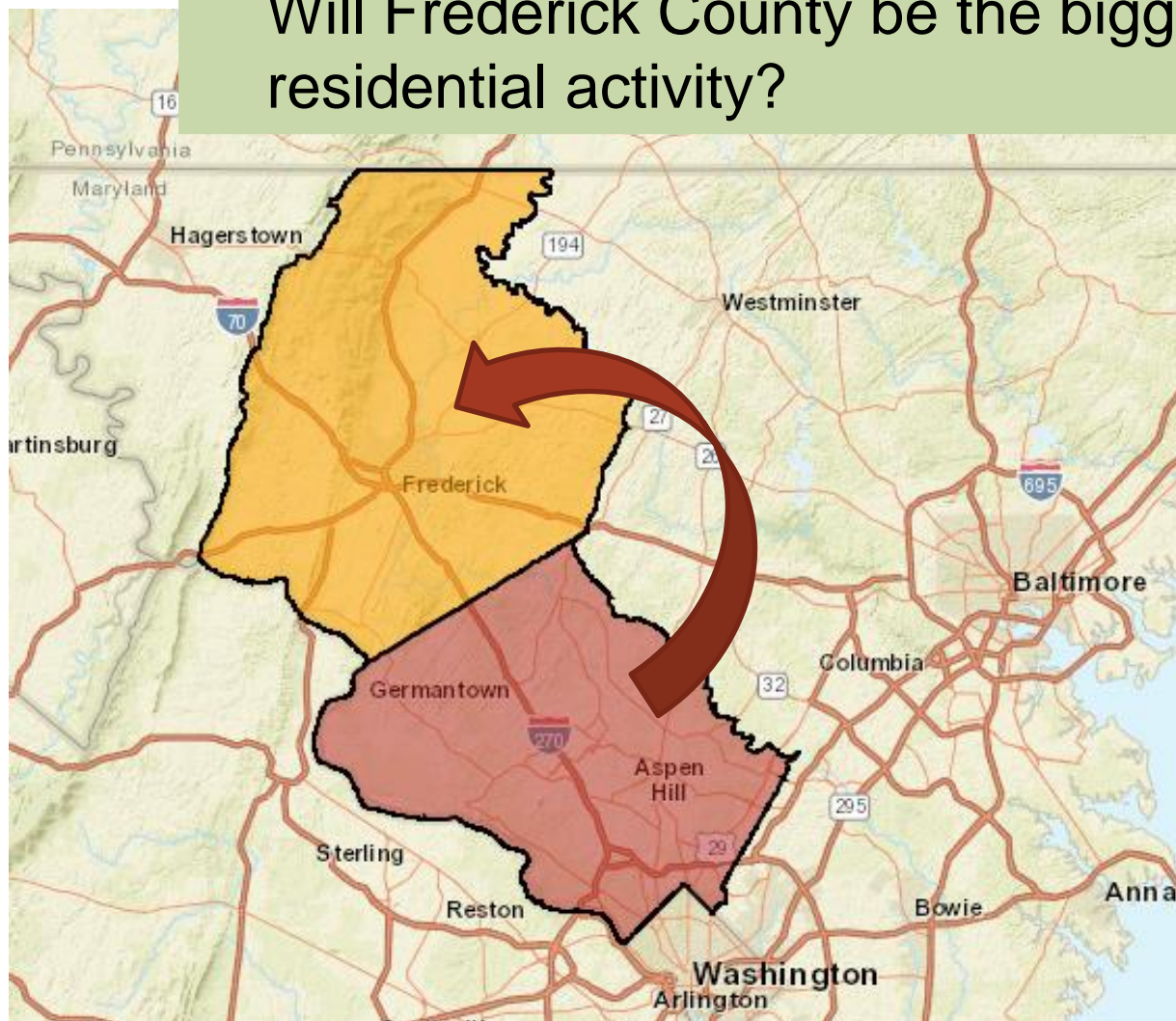


Area apartments built since 2000 have nearly all been transit-oriented, driving up land prices, rents and income inequality in the County.

SOURCE: Axiometrics

THE LONG DISTANCE COMMUTE – OR DRIVE TO QUALIFY WILL GAIN BE FEASIBLE:

Will Frederick County be the bigger beneficiary of new residential activity?



WE CAN REUSE EXISTING INFRASTRUCTURE:

Excess highway capacity can be used for parking.

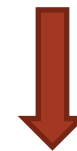


The challenge will be to adapt regulations, incentives, and plans to these new market forces to enable **the type of growth you want to see, where you want to see it.**

Infill Development,
Redevelopment



Greenfield
Development



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