Jan. 5, 2017

Jefferson County Commissioners,

We are PhD economists writing to summarize economic research pertaining to rezoning case #16-108156RZ, which would allow the construction of auto dealerships at the Northwest Corner of Alameda and C470. We believe this letter summarizes mainstream economic thinking on the issues relevant to this rezoning case.

The county's Comprehensive Master Plan emphasizes *primary employment*, which is employment producing goods and/or services for customers living outside the community. This emphasis reflects an important economic insight: that the impact on regional economic growth varies dramatically from one form of commerce to the next. Unfortunately, car dealerships at this proposed location will contribute exceptionally little to local economic development.

Our analysis is divided into two parts. Part I summarizes clear-cut data-driven evidence that these dealerships will not meaningfully contribute to primary employment or economic growth. Part II describes the risk that they may negatively impact the regional economy moving forward.

Part I: Automobile Retail Near Alameda and C470 Will Be Exceptionally Ineffective at Delivering Economic Growth to Jefferson County

Auto retailing differs from many other forms of retail in that customers are unlikely to purchase more cars in total as the number of dealerships increase. Instead, each sale by one dealership means a lost sale for a competing dealership.

Total car sales in the county increase to the extent that sales at a new dealership would otherwise happen outside the county. However, the new dealership does not increase economic activity when its sales are offset by decreased sales at other Jefferson County dealerships.

Economists Charles Murry and Yiyi Zhou use Department of Motor Vehicle (DMV) data to understand geographic patterns in automobile purchases.[1] They find that most auto buyers purchase from nearby rather than distant dealerships.

For example, only 21% of buyers traveled more than 10 miles beyond their nearest dealership. Over a quarter of buyers simply purchase from the nearest dealership. The DMV data shows that dealerships cluster together to attract uncertain customers, but few customers travel far beyond the nearest dealership cluster.

If there weren't other dealerships nearby, geographic purchasing patterns might support the creation of dealerships in the area. However, there are currently 18 dealerships within an 8 mile radius of this site. Taken together, the dominant effect of adding dealerships at Alameda and C470 would be to shift vehicle sales within the county rather than to increase economic activity.

Because the new dealerships' sales are largely offset by decreased sales at nearby dealerships, the impact on employment, tax revenue and other economic measures will be similarly muted.[2]

In many markets, a company can provide economic value even if it does not directly increase sales in its industry. However, unique characteristics of car dealerships and this geographic area minimize these potential benefits as well.

For instance, in most industries, consumers benefit when increased competition generates lower prices. However, the research by Murry and Zhou finds that prices do not dramatically decrease for automobiles. This appears to occur because of "information frictions," where purchases are too complex for consumers to select dealers based on direct price comparisons.

Similarly, consumers in many industries benefit when competition leads to decreased travel costs or an increased variety of offerings. However customers purchase cars

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[1]Consumer Search and Automobile Dealer Co-Location. Murry and Zhou. Available at SSRN: https://ssrn.com/abstract=2623208

[2]One possible exception would be if dealerships experience significant economies of scale. In that case, selling any fixed number of cars spread over two dealerships would require more labor than selling the same number of cars at one dealership. In this case, opening a second dealership would increase the total number of jobs, but it would also reduce wages. The extent of increased employment and decreased wages would depend on how strong economies of scale are. This situation likely lacks sufficient economies of scale to prioritize this concern.

quite infrequently, so their savings in transportation costs are minimal; and consumers in Jefferson county already have access to all major vehicle brands and models.

Part II: Construction of Automobile Retail at Alameda and C470 Poses Significant Economic Risks for Jefferson County

Harvard economist Edward Glaeser describes the key to modern economic development saying "consumer sovereignty is pushing the population towards areas with attributes that consumers value… The future of cities increasingly depends on whether cities are attractive places for consumers to live."

With more than 20% of Americans moving between counties in the last 5 years, a region's economic growth is largely determined by the region's ability to lure entrepreneurs and high-skilled workers. Nobel Prize winner Robert Lucas has shown that these high-skilled workers increase the economic welfare of all others around them.

This can be seen in numerous statistics, including the fact that workers without college degrees earn higher wages and have lower unemployment if they live in an area with a high concentration of college educated residents.[3] While this has been true for a long time, the importance of knowledge workers such as doctors, engineers, managers and programmers has only accelerated in the last decade.

Jefferson County is well positioned to flourish in this new economic reality. The area has outstanding amenities, and it has used these amenities to attract a highly skilled workforce. As a small fraction of available examples:

- In 2012, Coleman moved its leadership, marketing, sales and product management teams and part of its finance department to the county. Commissioner Rosier is quoted saying that the company projected creating 35-70 jobs in the area with an annual salary of around $108,000.[4] The company specifically cited the area's research opportunities and "Gateway to the Rockies" brand as part of their location decision.

[3] Smart Cities: Quality of Life, Productivity, and the Growth Effects of Human Capital. Jesse Shapiro. Available at http://www.nber.org/papers/w11615.pdf

[4] http://www.denverpost.com/2012/06/08/coleman-to-inaugurate-its-headquarters-return-to-golden-colorado-4/

- Yeti bicycles describes the area's recreational opportunities as a critical part of the company's culture.

- Colorado School of Mines is one of the area's larger employers, and the Jefferson County Master Plan specifically mentions Dinosaur Ridge as an advantage to the college:

  > An advantage to the college is unique landforms in close proximity to the school, including Dinosaur Ridge. Dinosaur Ridge was home to one of the most complete paleontological discoveries in 1878 and is a topographical feature that is visible from Downtown Denver. Not only is it an amazing formation but also serves as a natural departure from plains and cities to the serenity of the mountain highways and byways.

Golden Group Real Estate Co-Owner Brian Quarnstrom confirmed that these sentiments are widespread, saying "Everyone talks about access to the outdoors when they are looking for a home here. It's why my clients move here and it's why they stay. So our reputation for mountain views is critical to local realtors like me."

How dramatic of an effect would car dealerships at this location have on the area's ability to attract these entrepreneurs and workers that drive economic growth?

There are admittedly many natural landscapes, and someone otherwise excited about living in Jefferson County is unlikely to move solely due to this rezoning.

However, with so many people moving in and out of the county, there will be many "marginal" migrants whose decision is sensitive to even small changes. With over 21,000 signatories opposing rezoning, this issue appears poised to affect the county's brand as Gateway to the Rockies.

However many people are affected in the short run, there is strong evidence of "positive feedback loop" whereby the short-term effect is magnified over time. Areas with those high-skilled workers who create strong economies can continue to attract more of those workers. This phenomenon is called agglomeration.

Like other macroeconomic trends mentioned in this letter, the agglomeration of high skilled workers in appealing geographies is also accelerating.[5] So diminishing an area's amenities and its brand may have negative long term economic consequences.

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[5] High Skilled Migration and Agglomeration. Kerr et al. Available at http://www.hbs.edu/faculty/Publication%20Files/KKOP-Migration-Agglomeration_58bb7d41-1da4-41bb-a681-73f48a47d68b.pdf

It may be tempting to think you are choosing between natural amenities and economic development. There are obviously some situations where this tension is relevant. Businesses need places to operate, and people need places to live.

However, rezoning property situated so close to this natural landmark for the construction of car dealerships will not help, and may meaningfully harm Jefferson County's long-term economic growth.

Sincerely,

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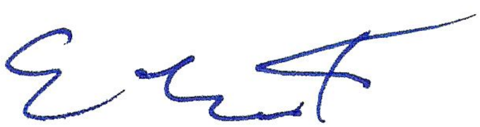

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