

Forecasting In the Shadow of the Cloud

What are possible futures in the footprints of Loudoun County's data centers?

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In the world we live in, the life of an industrial building is tied directly to its economic profitability. As the constituent parts of a data center age or reach storage capacity, requiring maintenance, upkeep, and replacement, data centers lose cost efficiency. Accelerating this economic obsolescence is increased data demands and so-called equipment upgrades to server speed and capacity, all of which generally demands more power, burning out the material components within servers and the equipment that keeps them cool enough to function. Within the industry, the economically productive lifespan of a data center is estimated to be somewhere between 10-15 years. The construction of data center buildings reflects that estimation, created to be easy to put up and perhaps just as easy to take down. As we consider the sunset of a data center, we must also consider what rises in its place. What comes next?

Adaptive Reuse or Abandonment?



MALHA - São Cristóvão, Brazil
Adaptive reuse project of a warehouse hanger into a collaborative space for fashion.

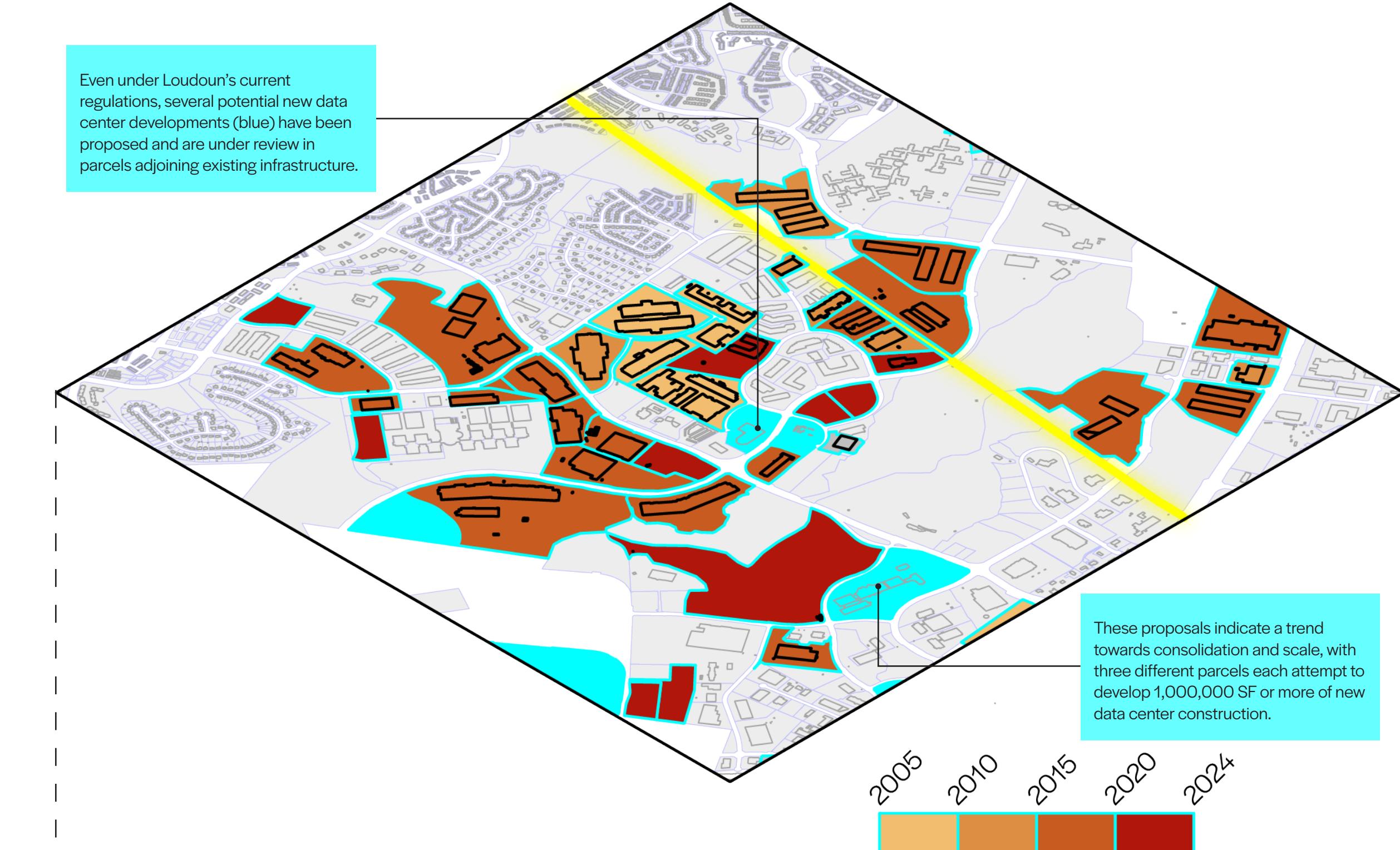


Hicks Lodge - Leicestershire, Great Britain
Adaptive reuse project rehabilitating sites of heavy industry (abandoned mining and open quarry sites) as a national forest.



Fisher Body Plant 21-Detroit, MI
A 3.7 million square-foot car plant that has been abandoned since 1993, up to the present day.

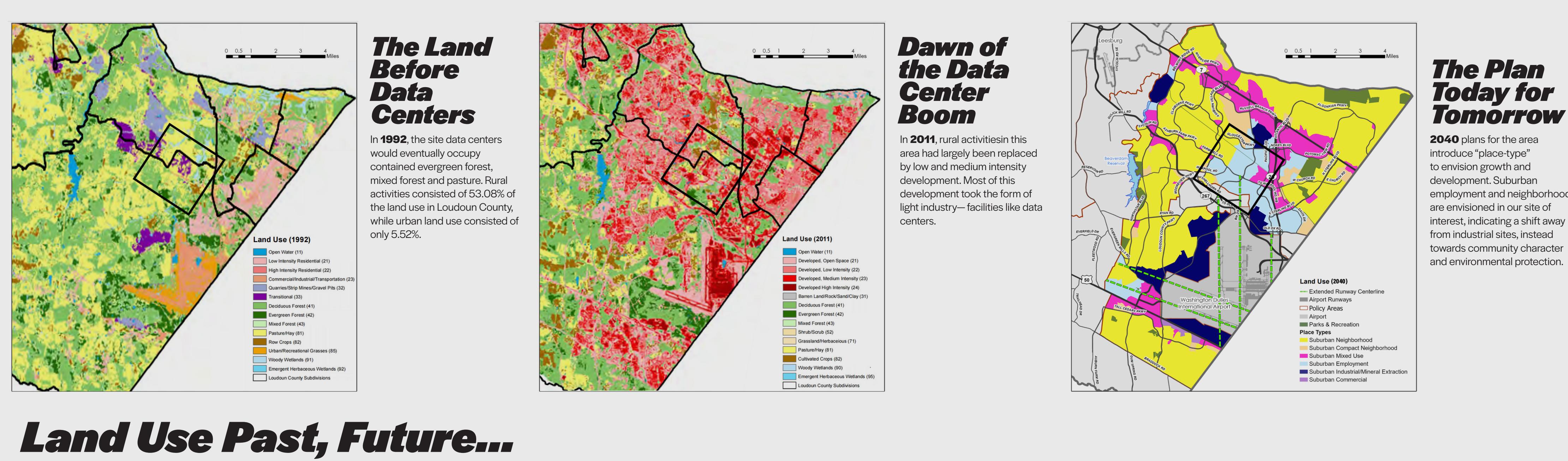
One option for the next-life of data center industrial sites is adaptive reuse: planned reconnection of isolated production sites to the communities and environments that surround it. Another option is abandonment, leaving structures to occupy the space without additional intervention. Abandoned structures might be reclaimed illicitly by people and environment, rather than in a planned fashion.



Build Year

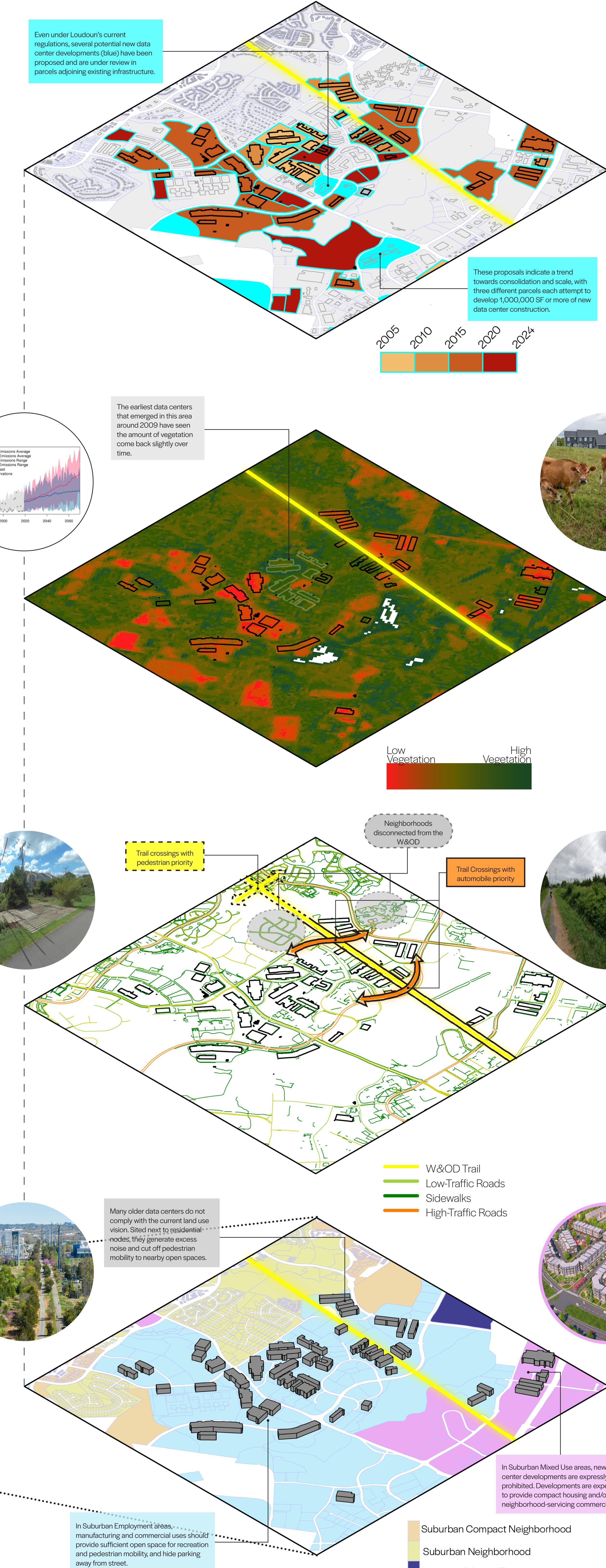
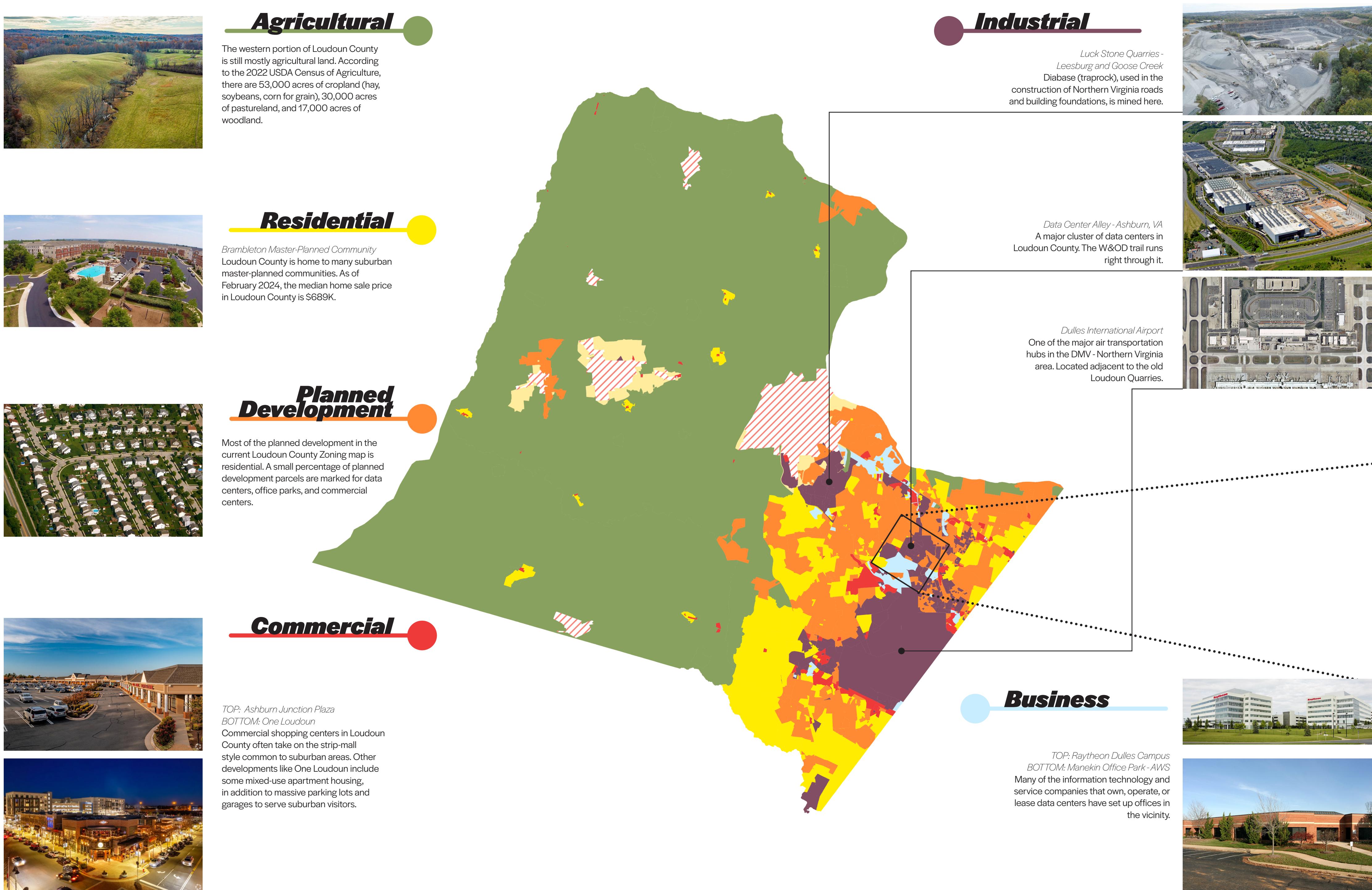
The growth of data center infrastructure in the Ashburn-Sterling corridor began in 2007 and continued exponentially through the 2020s, which saw Loudoun attempting to slow their development for the first time. The oldest data centers are over 15 years old and have typically changed ownership multiple times.

Development accounts for the loss of at least 100 acres of prime agricultural soil in Loudoun County during the past two decades.



Land Use Past, Future...

...and Present



Possibilities

Loudoun's attempts to regulate and limit the growth of data centers have encouraged new visions for the area's land use during and after the centers' lifespans, represented here in an amended Future Land Use Map. How might this change the possibilities for adaptation?