HOUSING UNDERPRODUCTION IN THE U.S.
Economic, Fiscal, and Environmental Impacts of Enabling Transit-Oriented Accessible Growth to Address America’s Housing Affordability Challenge
WHO WE ARE

Up for Growth is a national 501(c)(3) organization that forges policies and partnerships to achieve housing equity, eliminate systemic barriers, and create more homes.

ECONorthwest specializes in economics, finance, and planning. We work with public jurisdictions and developers throughout the United States on housing policy issues, including studies related to density bonuses and inclusionary zoning. Our work is used to inform city comprehensive planning, master planning, site-specific feasibility studies, as well as large-scale housing needs assessments. Our staff hold advanced degrees in economics, community and regional planning, and public administration.

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Up for Growth’s Advisory Board includes leading experts across the housing spectrum, including accounting, finance, academia, planning, development, and law. The purpose of the Advisory Board is to review and offer constructive feedback on Up for Growth’s research agenda and research projects, as well as general organizational advice.

While the Advisory Board’s contributions to the organization are invaluable, it should be noted that research released by Up for Growth and reviewed by the Advisory Board is not necessarily reflective of the views of each individual member, or their organizations, and should not be characterized as such. In addition, Advisory Board members serve in their own capacities and independently of the organizations and institutions they represent.

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EXECUTIVE SUMMARY

From 2000 to 2015, 23 states under-produced housing to the tune of 7.3 million units (or roughly 5.4% of the total housing stock of the U.S.) which has created a supply-and-demand imbalance that is reflected in today’s home prices.

**GDP BOOST**

Using an Accessible Growth development pattern, cumulative gross domestic product (GDP) over a 20-year period would increase by $400 billion compared to More of the Same. Accessible Growth delivers $2.3 trillion in cumulative GDP over the baseline forecast, which represents 2.4% of GDP growth over that period.

**FEDERAL REVENUE Hike**

Accessible Growth generates an additional $66 billion in federal revenue over the 20-year growth period compared to More of the Same: federal payroll and income taxes increase $264 billion with Accessible Growth development compared to the baseline forecast. In the peak year of production, the additional federal revenue generated would equal 6.2% of the current federal deficit.

**CLEAR SKIES AHEAD**

Shifting from More of the Same development to Accessible Growth development would require just 25% of the land to deliver the same number of units. Because these areas would be denser and transit-adjacent, this would reduce vehicle miles traveled (VMT) and cars on the road by as much as 28%.

**MORE OF THE SAME GROWTH**

If housing development continues its current pattern – More of the Same growth – 54% of the 7.3 million new housing units, nationally, would be single-family homes, while 40% would be missing middle and medium-density units, and 6% would be towers. Our scenario-based investigation of growth potential across 23 states with housing shortfalls found that if housing development took on an Accessible Growth pattern, leveraging existing infrastructure to achieve higher density inside transit corridors, 10% of the new 7.3 million units would be single-family homes, while 61% would be in missing middle and medium-density units, and 29% would be in towers.
Cities and metropolitan areas across this country — particularly in the Southwest and along the coasts — are experiencing a housing crisis. As people migrate toward cities in search of jobs, education, and economic opportunities, the demand for housing in our most populous and economically productive regions has far outstripped the production of new housing units. Due to dramatic shifts in generational preferences and household demographic trends, migration to cities over the past decade is at the highest level since World War II, while housing production has fallen to historic lows. This imbalance has led to rapidly rising housing prices, economic displacement of lower-income families and communities of color, and increases in homelessness.

The current imbalance in supply and demand has been exacerbated by the 2008-2009 recession, but also continues a longer-term trend that housing markets have experienced for decades — restrictive local development and land-use policies that reflect opposition to high-density, multi-family urban growth in favor of low-density, single-family suburban sprawl. These policies include:

- Zoning restrictions, which create a shortage of zoned high-density sites;
- Escalating and misaligned fee structures, such as impact and linkage fees;
- Poorly calibrated inclusionary housing requirements;
- Lengthy review processes that invite gaming and abuse by growth opponents and that can delay projects, create unpredictability, reduce incentives to invest, and increase the per-unit of cost of development.

The result of this shift in policy is land that has been used inefficiently, along with an insufficient number of new units that have been constructed. This has adversely impacted housing pricing and limited the choices families and individuals might make about household formation. Housing prices and household formation are closely linked. In many cities, housing prices have increased faster than incomes, which has slowed household formation. The number of households formed impacts housing prices, but the price of housing also impacts people’s appetite for (and financial capability to create) new households. Millennials are living at home with their parents until their 30s at higher rates than any previous generation, and the high cost of housing directly influences this shift.

The conclusions in this report support the need to enact innovative public-private solutions that increase the supply and reduce the cost of new housing in our urban centers. Pervasive NIMBY (“Not In My Back Yard”) sentiments that “all new housing is bad” have become conventional wisdom, stemming from the mistaken belief that new units overburden schools, strain city finances and make traffic worse. Overcoming this damaging narrative requires a public conversation that focuses on delivering units as cost effectively as possible.

The Accessible Growth scenario describes a path toward narrowing the gap between supply and demand that also leverages existing infrastructure, reduces the cost burden on local governments, and changes current, unsustainable development patterns. Focusing on delivering medium-density housing (missing middle and mid-rise products) to vacant and underutilized development sites in transit corridors can reduce transportation costs for households while creating net-positive fiscal revenue for local governments. It also adds density in single-family neighborhoods through accessory dwelling units, quads, and garden-style apartments to increase density in walkable, high-value areas.
Housing production has not kept pace with population growth, incomes, and household formation. This has caused prices to rapidly escalate in certain areas of the country. Land-use policies that make it difficult to build and reduce the productivity of urban land also create hidden costs on existing supply while increasing overall prices. This, in turn, restricts the accessibility and affordability of land and housing in high-demand markets, creates barriers to economic opportunities, and contributes to economic displacement. Those experiencing the greatest impact are historically disadvantaged and vulnerable populations like low-income households and people of color. Furthermore, vacancy rates are at historic lows. Although the lack of affordable rental units may put some additional pressure on ownership products, it disproportionately impacts renters, as low vacancy rates put upward pressure on market rental rates.

When viewed solely through the lens of household affordability and access to economic opportunity, the housing crisis should be among the most urgent and important social equity issues requiring our attention. The lack of housing production and associated price increases carries with it numerous social, economic, fiscal, and environmental implications that, when properly analyzed and appreciated, have rightfully moved the issue of housing supply to the forefront of most local, state, and federal policy agendas.

DEVELOPMENT CYCLES AND VARIED MARKET PERFORMANCE

The map below displays the varied rates of home price changes in counties across the U.S. from 2000-2016. This time frame encompasses the building boom of the early 2000s and the Great Recession of 2009-2009. In many areas across the Midwest and South, home prices collapsed during the financial crisis, and by 2016 remained below the year 2000 prices (indicated in red). In contrast, many places in the West, Southwest, and Northeast have seen home prices more than double since 2000 (indicated in green). It should be noted that housing values are one of the few economic indicators that are conventionally reported in nominal dollars. Reported home price changes over time do not account for inflation. As a point of reference, cumulative inflation from 2000 to 2016 was nearly 40%.
In addition to impacts on household affordability, this study seeks to understand the social, economic, fiscal, and environmental implications of underproduction by assessing housing production potential absent of any regulatory or other impediments. The study quantifies the economic and fiscal impacts of continued market underproduction through a national analysis of the number of housing units that were produced and the resulting price impact at the state level. The study does not address any complementary uses (such as office, industrial, or hospitality) that would accompany an increase and redistribution of housing units. There are likely significant impacts associated with those related uses; however, for the purpose of this study, the focus is on understanding the incremental impact related to housing; therefore, other related impacts have been excluded.

This study also explores the impact of underproduction on our economy, measured by GDP and job growth, as well as the fiscal impact for state and federal tax revenues. As the current development cycle reaches its peak, fewer units of new housing are now being produced than at the lowest points of previous development cycles. Without a fundamental shift in policies to support growth and address the persistent underproduction of units, we should expect the rate of housing production to decrease further from current levels as we head into the next down cycle.

With quantifiable comparisons of these important public- and private-sector investments and policy changes, we expect the findings in this study will encourage housing leaders at all levels of government to implement policies that enable appropriate housing growth. Achieving Accessible Growth development patterns while simultaneously increasing housing production will align prices with incomes, while minimizing public costs and environmental impacts and maximizing economic impact and job creation.

COST BURDENING

Households are considered “cost-burdened” when they spend more than 30% of their gross income on housing expenses (not including transportation costs). This threshold does not change for different income levels. While it is a commonly accepted measure of the maximum amount that should be spent on housing, it fails to account for the disproportionate impacts on low-income households, for whom housing costs are a proportionately higher expense relative to a lower total monthly income.
Historically, the national housing market has produced more units of housing (housing starts) than the growth in the number of households created (household formation). Since 1963, there have been 11 units produced for every 10 new households formed — the additional production allows for vacancies and the demolition of units over time. However, from 2000 through 2016, this ratio dropped to slightly less than one new unit created per new household formed. More recently, since the end of the Great Recession — 2010 to 2016 — this ratio fell even further and only seven homes were built for every 10 new households formed.

Demographic forces, like household formation of the millennial generation and the empty-nest downsizing of the baby-boomer generation, are adding to the increased demand for housing in cities and metropolitan areas across the country. Another factor to consider is potential obsolescence of the existing stock — poor quality homes that were not constructed to last permanently — such as post-WWII stick-on slab developments. Many of these units, which were expected to have short lifespans, are still being used today. The need to replace these homes further increases the demand for construction of units, in addition to demand associated with household formation.

Source: U.S. Census Bureau

8 UP FOR GROWTH
To calculate the total number of units under-produced from 2000 to 2015, we estimated each state’s historic relationship between the production of housing units (supply) and a host of demand-side indicators using an econometric statistical model. We then calculated each state’s baseline housing production through 2000 and forecasted the number of units that would have been produced in 2015 if each market maintained its historic equilibrium. Then using the actual number of housing units in 2015, we calculated the total units that were under- or over-produced from 2000 to 2015 at the state level. The historic data needed for this calculation was not available for smaller geographies.

The map below shows which states under-produced housing during the 2000-2015 time period. States that produced housing at their long-run equilibrium rate are displayed in gray. Nationally, 23 states under-produced housing to the tune of 7.3 million units, or roughly 5.4% of the total housing stock in the United States.

DATA INPUTS TO THE MODEL INCLUDE:

- Home Prices
- Income
- Population
- Housing Stock

Source: ECONorthwest estimates, U.S. Census Bureau ACS 1-year Estimates of Housing Stock
This section of the report investigates the economic, fiscal, and environmental impacts associated with different growth patterns. The report constructs two scenarios to test the implications of policies that encourage housing production in a denser, more cost-efficient manner, compared to an approach that perpetuates the same development patterns seen since World War II. As detailed in the following pages, continuing to build the same types of units in the same locations at the same densities is unlikely to deliver a range of housing units that are affordable to households along the entire income spectrum. The two development scenarios are:

- A More of the Same approach, which distributes housing and density as they have been in the past
- An Accessible Growth approach that leverages existing infrastructure by building housing at higher densities around high-capacity transit and in high-opportunity neighborhoods

It is important to note that both scenarios produce the same number of total housing units. However, the real differences lie in the varied building prototypes — single-family homes, missing middle and medium-density housing and residential towers — and the range of construction costs that would be produced in each scenario (see page 12 for details on the building prototypes).

To distribute this new housing development, the 2015 housing density is calculated in units per acre (UPA) at the census “block group” level — an area with 600 to 3,000 people that varies in size based on population density. To account for areas that cannot easily accommodate additional development (i.e., water, wetlands) and with a goal of preserving natural areas (forests and farmland), the housing density is adjusted using the 2011 National Land Coverage Database’s satellite imagery data to include only those areas considered to be “developed.”

New development is not added in areas with density below one UPA to take advantage of existing infrastructure and to avoid increasing the footprint of land required to accommodate additional units. The map below shows the existing adjusted housing density for the Portland, Oregon Metro area.

**ADJUSTED HOUSING DENSITY**

**PORTLAND METRO AREA**

![Map showing adjusted housing density](source: NLCD 2011, U.S. Census Bureau)
MORE OF THE SAME GROWTH
This scenario looks at the current share of single-family homes, missing middle and medium-density, and high density towers in each state, and it assigns new growth proportionally above the threshold of one UPA. If a state has only 5% of dwelling units in high-rise towers, it will get 5% of new growth as high-rise towers. The map showing housing density for the Portland, Oregon metro area is a prime example of how regulation can limit where development is permitted. The impact of an urban growth boundary can be clearly seen on the map where density drops to below one unit per acre as you move away from the core.

ACCESSIBLE GROWTH
The Accessible Growth scenario assigns new housing units based on a formula of existing density, distance to transit stops, and the share of commuters in the census block group who drive their own vehicles to work. Building prototypes are estimated using the matrix on page 13, which uses examples from the existing built environment and block group densities from 2010 to determine the estimated mix. The goal of the Accessible Growth scenario is to increase density in a way that conforms with the existing urban form, focusing on delivering lower-cost, mid-rise units and, most importantly, locating units in transit corridors to reduce vehicle miles traveled (VMT) and the number of cars on the road. In order to achieve these goals, unit distribution was prioritized in:

- Locations within a quarter mile of existing transit stations;
- Locations within a half mile of a high-capacity transit station;
- Non-transit corridor locations with a low share of people using private transportation to commute to and from work (A proxy for low VMT is described on pages 14 and 15).

Due to the availability of low-density land in transit corridors, 53% of the new units were located within a half mile of stations, and 36% of units were within a quarter mile of transit stations. In order to achieve higher densities in priority areas, the addition of new units could triple existing density within the first quarter mile (subject to a cap of 150 UPA) and could double existing density from a quarter mile to a half mile (subject to a cap of 120 UPA).
From an urban planning and design perspective, the additional units built in each block group match the existing housing prototypes observed in that block group. This avoids situations where adding new high-density housing units in block groups with mostly single-family homes drastically changes the neighborhood composition. Each block group is assigned a prototype distribution based on the existing density of that block group, which can be seen on the table on page 13. The cutoffs for the prototype bins were determined by looking at satellite imagery of block groups and attempting to find breakpoints that matched the existing distribution of prototypes.

The images on page 13 demonstrate examples of existing neighborhoods with different levels of housing density. The image on the left is the upper limit of density — showing a block group with 150 units per adjusted acre. Adjusted densities measure gross land and include rights of way and other non-residential uses. The achievable density on a residential parcel is higher than the average density for the block group. The picture on the right shows a block group with 30 units per adjusted acre. In the Accessible Growth scenario, block groups with more than 30 units per acre will receive additional housing units until they look more like the picture on the left. Similarly, block groups with density between 12.5 and 30 units per acre (less dense than the photo on the right), would receive a variety of missing-middle housing to achieve higher densities. The table on page 13 details this density distribution.

Each growth scenario builds the same number of total units but differs on the types of prototypes built (single-family homes, medium-density units, and towers). Each development prototype has different construction costs and different infrastructure investment requirements. The two different growth scenarios allow for comparison of the same number of units produced with different development patterns. For example:

- Infill projects located in urban cores do not require new roads and require minor infrastructure investment compared to greenfield development.
- Building near transit infrastructure reduces VMT and emissions (see VMT discussion on pages 14-15).
- Missing-middle housing can be built in high-opportunity single-family neighborhoods and can be built at a lower cost-per-unit than the existing stock of housing.
- Obtaining better locational balance between jobs and housing improves agglomeration benefits and reduces traffic congestion in a region.
The table above shows the prototype distribution for the Accessible Growth scenario. Block groups with more than 30 UPA see 100% of new units added in towers, until they reach the density threshold for that scenario based on the location of the block group. The scenario distribution then moves to the next-densest block group and adds units in a 50% tower/50% medium-density mix. This continues further, adding additional medium-density units and, finally, single-family units until the total number of units underproduced has been allocated. The net result of the prototype allocation is to achieve higher densities than are currently observed by including a mix of units to better utilize the existing infrastructure.

The More of the Same scenario does not use a distribution mechanism because it assigns new growth proportionally based on the currently-observed distribution of prototypes. For example, an area with only 5% of units in high-rise towers will see that same share of new units built as high-rise towers.

The photos below provide visual examples of block groups. The left has 150 units per acre and would see 100% of new housing built in towers. The right has 30 units per acre and would see new housing built in a mix of towers and missing middle/medium-density.
The Accessible Growth scenario targets areas of existing high density combined with low vehicle miles traveled (VMT) in transit corridors as the priority in assigning unit growth. The goal of this scenario is to achieve improved economic and fiscal impacts while also delivering additional positive environmental impacts compared to the More of the Same scenario. At its most basic level, Accessible Growth achieves higher density than current housing development patterns, and therefore requires less land to accommodate the same number of units. Nationally, Accessible Growth requires just 25% of the land area required for the More of the Same scenario. Utilizing less land means higher economic efficiency for local jurisdiction service delivery, as well as environmental benefits such as storm water remediation and undisturbed room for forestry and farming.

In addition to land-use benefits, locating housing near public transportation reduces the burden of cars on the road. This important relationship is a focus for the Accessible Growth scenario, which prioritizes housing in transit corridors with low VMTs.

To compare the environmental and congestion impacts of our modeled growth scenarios, a VMT model was developed to predict average household VMT for each census tract in the analysis. The model is based on data related to the built environment of each census tract and the average household characteristics of the tract. For example, the model uses features such as housing density, distance to transit, median household income, percent of households commuting through public transit, and others to predict average VMT per household. The VMT model was developed using publicly available data on household driving behavior.

After developing the model, the output was used to estimate the additional VMT produced by each new housing unit developed in the growth scenarios. Using a conversion rate of 13,476 VMT per car per year from the Federal Highway Administration, we converted the estimate of additional VMT to the number of additional cars on the road.

This map shows commuting VMT for the Bay Area with BART transit stations overlaid. The Accessible Growth scenario in California results in 38 million fewer miles traveled daily for commuters compared to the More of the Same scenario, a difference that is equivalent to 1.2 million fewer cars on the road annually. As the table on page 15 shows, building housing near transit in an Accessible Growth approach would reduce daily miles traveled by 66 million, when compared to a More of the Same approach.
Building the underproduced housing units in an Accessible Growth approach, with its focus on already dense transit corridors, would put residential apartment towers in locations where there is similarly dense housing already, where there is existing infrastructure, and where zoning already allows it. In addition, this could also be a valuable way to reduce VMT and leverage public infrastructure investments.

Clearly, the Accessible Growth approach delivers meaningful environmental benefits compared to other housing development patterns. The Accessible Growth strategy also delivers numerous benefits such as increasing GDP, jobs, tax revenues, and housing density — all of which are explored in the next pages.
As cities grew in the post-World War II era, high rates of new housing unit growth paid for costly infrastructure projects that were generally funded by local governments with federal- and state-level subsidies. More recently, as rates of growth have decreased, cities have struggled with funding new infrastructure to support growth. This forms a classic “Catch-22.”

Infrastructure is needed to make greenfield development possible, but the cost of infrastructure limits the ability to develop in said “green fields.” In most cities and metro areas around the country, the prime developable areas have already been consumed. The remaining areas available for development either require costly infrastructure upgrades or are far away from existing infrastructure. As a result, the cost-per-unit of infrastructure has increased over time as homes are built further and further away from urban cores.

Cities and local governments have reacted to these higher infrastructure costs in rational ways by raising fees to cover the higher costs of installing new infrastructure. However, this response ignores difficult questions: Do the revenues generated by new units support the up-front costs? More importantly, do these recurring incremental revenues cover the continued public operations and maintenance costs of this new infrastructure?

The short answer is no, particularly for low-density housing in greenfield locations requiring new infrastructure. Because infrastructure costs for a single-family home typically exceed the local government revenues collected off such a home, municipal debt is used to finance the required infrastructure. However, adding new debt service limits the ability to properly maintain existing facilities, which leads to increased costs for deferred maintenance. In the long run, an existing property tax base consisting of primarily single-family homes cannot support the installation of new infrastructure as well as the deferred maintenance costs of all the roads, sewers, and other infrastructure necessary for this type of housing.

Continuing to build new housing units in this manner — away from the existing infrastructure in urban cores — not only fails to remedy the problem but also exacerbates it. One consequence has been that the development costs and prices of new single-family homes have increased faster than inflation over the past decade. Nationally, 60% of new single-family homes are priced at more than $300,000, 20% higher than at the peak of the previous housing bubble.

Remedying the problem requires cities and municipalities to compare the cost of new development infrastructure to the associated fee revenues that development produces: What are the infrastructure costs and tax revenues from a single-family home in a green field, and how does that compare to the costs and revenues associated with medium- or high-density development in the urban core?

In the early stages of sprawl, new growth fueled the expansion while long-term maintenance obligations had not yet been incurred, so net-negative infrastructure costs were still a minor issue. However, this dynamic is changing.

Cities now face unfunded operating liabilities that will require new units to bring in more revenues than the associated costs of installing and operating the infrastructure to service each unit. This profitability is necessary if there is hope to “right-size” municipal budget problems, and there are several ways to do this:

- Growth policies can target areas that already have existing infrastructure, thereby reducing the demand for increased infrastructure investment.
- Policies can also set impact and development fees on a per-acre, gross land, or square-foot basis, rather than a per-unit basis to reflect the true infrastructure costs.

This report demonstrates that changing development patterns for the 7.3 million units that were underproduced across the country can have positive effects for local government infrastructure funding. If these units were built in an Accessible Growth approach, 75% less land would be needed compared to building in a More of the Same approach — just 148,000 acres compared with 602,000 acres. Furthermore, the cost of infrastructure is more than seven times smaller in the Accessible Growth approach — just $85 billion compared to $612 billion in the More of the Same approach.

<table>
<thead>
<tr>
<th></th>
<th>MORE OF THE SAME</th>
<th>ACCESSIBLE GROWTH</th>
<th>% OF TOTAL DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Acres</td>
<td>602K</td>
<td>148K</td>
<td>-75%</td>
</tr>
<tr>
<td>Total Infrastructure Spend</td>
<td>$612.0B</td>
<td>$84.7B</td>
<td>-86%</td>
</tr>
<tr>
<td>Total O&amp;M Spend</td>
<td>$14.0B</td>
<td>$3.5B</td>
<td>-75%</td>
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This study is the first to use the Regional Economic Model (REMI) to simulate large-scale housing development. REMI is a structural representation of a regional economy and uses publicly available data to build an economic forecast. Variables can be altered to reflect changes in public policy (e.g., lower taxes, new regulation or new consumer preferences). The model then simulates the economic impacts of such policy changes and produces a new forecast capturing these effects. By comparing the simulated forecast to the baseline forecast, the economic impacts of the policies modeled can be quantified.

The model has feedback loops to capture the cumulative impacts of development spending, as well as any time-based changes to the structure of the economy, such as migration, induced demand, lower costs, supply chain spending and tax effects, among others. Any change to one sector of the economy will ripple through the others. This is beneficial, as the model is able to capture the relationships between different economic and demographic changes, such as migration, government spending, personal income, etc.

The Accessible Growth scenario produces robust economic growth: A housing expansion under this scenario would produce a $2.3 billion cumulative increase in U.S. GDP through 2037 compared to the baseline economic forecast.

ASSUMPTIONS

- **HARD CONSTRUCTION COSTS**
  Calculated based on industry standards for the three different housing prototypes and varied across each state.

- **SOFT CONSTRUCTION COSTS**
  Primarily architecture, engineering, and legal costs (excluding financial costs), assumed as a percentage of hard costs.

- **INFRASTRUCTURE COSTS**
  Includes installation costs and ongoing operations and maintenance costs. Paid for by impact fees estimated by state. Assumes government sector pays for infrastructure not covered by impact fees, through bond issuance.
  (Provided by Arup Engineering based on real data from developments in California, adjusted regionally.)

NEW HOUSING UNITS PRODUCED

Our model phases in new housing development over a 20-year period. It is not feasible to assume the housing construction industry could immediately start producing new units at this scale. The industry — including producers up the supply chain — needs time to recruit and train new employees and to increase supplies of raw materials.
This section describes the economic impacts of developing 7.3 million units across the country by comparing the Accessible Growth approach to the More of the Same approach.

The Accessible Growth development approach generates greater economic benefits compared to the More of the Same scenario by requiring less government-financed borrowing for infrastructure, and by creating more tax-generating units per acre in denser developments. Developing housing in transit corridors leverages existing infrastructure, requiring less debt to finance infrastructure costs and maintain new roads, sewers, and grids. This puts a smaller burden on local governments and can lower home prices by putting less risk and cost onto property developers, who pass these costs on to consumers. With much of this infrastructure already in place, building density of this type in cities around the country would not require a radical restructuring of existing land-use and zoning policies.

Over the simulated 20-year period of housing production, the Accessible Growth scenario generates $400 million of additional GDP compared to More of the Same. With lower up-front infrastructure costs and reduced operating and maintenance costs associated with development, this scenario deploys capital more efficiently and produces higher economic output.

The chart above displays the states with the largest price reductions associated with the additional production of units. For example, if 3.4 million units are built in California during the next 20 years, prices would be 21.7% lower than they would have been without the additional production of units. This does not mean that prices are reduced from their current level, but are lower in the future than they would have been due to the increase in the number of housing units.

This chart demonstrates the cumulative GDP achieved in each growth scenario. The growth in GDP is measured against the REMI model’s baseline growth projections.
The Accessible Growth scenario produces greater economic benefits than the More of the Same approach. This scenario targets development in transit corridors: areas with existing transportation infrastructure and a large number of households commuting by public transit. Jobs are added to the economy in each year compared to the baseline over the 20-year production period for both scenarios. Jobs should not be thought of as cumulative impacts. It’s not uncommon for one individual to be employed by the same company for several years, so it’s difficult to trace the number of individuals employed year by year. Looking at employment impacts, however, we can see in a given year how many more jobs are supported compared to the baseline scenario. For example, at the peak job year, Accessible Growth creates 2.1 million more jobs than the REMI baseline projection.

To summarize, both growth scenarios lead to large economic benefits for the national economy. Producing 7.3 million housing units (in addition to expected development over the next 20 years) provides a boost to the national economy, as well as at the state and local levels of government. However, there is opportunity for greater economic growth, fiscal health, and environmental impacts by implementing a growth scenario that concentrates growth in areas of existing density and transportation infrastructure.

Increased housing production reduces housing prices, which increases personal income and spending, which increases GDP, which creates more jobs.

ANNUAL U.S. JOBS BY SCENARIO
20-YEAR PRODUCTION PERIOD COMPARED TO BASELINE

This chart demonstrates the increase in “job years” above the REMI model baseline projections resulting from the Accessible Growth scenario. Job years are an economic measure representing one year’s worth of full-time work. One job year could be one person working full time for one year, or two people working half time for one year. The increases in jobs correlate with the 20-year development time frame and span every sector.
The higher proportion of development occurring in towers and medium-density units means that the Accessible Growth scenario produces higher-value units compared to More of the Same, contributing more to local and state revenues through higher property taxes.

Throughout more than 20 years of additional housing production, Accessible Growth generates $225 billion of cumulative property tax revenue, compared to $204 billion with More of the Same. This is an important finding because the ongoing operations and maintenance costs associated with infrastructure improvements are far greater for the More of the Same scenario, while producing lower property tax revenues compared to the Accessible Growth strategy.

Property tax revenues are calculated in each state in constant 2017 dollars. The chart above displays the sum of all the states, representing the total property taxes generated nationally on an annual basis throughout the 20-year production period. Revenue increases annually as more units are built and as the assessed value of the existing units increases.
Net fiscal revenues are reported in constant 2017 dollars, where the total property taxes generated from the new units represent the total revenue. The cost of constructing the required infrastructure and the ongoing operations and maintenance is subtracted from the total revenue to equal the net revenue. As units are built in the More of the Same scenario, revenue is negative in every year through the production period, continuing beyond 2045 as displayed on the chart. The long period of net negative revenue associated with each incremental unit is problematic when added to the natural production of units (which presumably also have net negative revenue). Conversely, each incremental unit of the Accessible Growth scenario generates positive revenue, so it is possible to cross-subsidize existing deferred maintenance and move towards a sustainable development pattern.

The Accessible Growth scenario generates $300 billion more in property taxes than the More of the Same scenario ($36 billion versus $33 billion respectively — see opposite page). However, as the chart above shows, the Accessible Growth scenario delivers $28 billion more in net fiscal revenues than the More of the Same scenario ($23 billion versus -$5 billion). As units are built in the More of the Same scenario, revenue is negative in every year through the production period, continuing beyond 2045 as displayed on the chart. The long period of net negative revenue associated with each incremental unit is problematic when added to the natural production of units (which presumably also have net negative revenue). While the fiscal revenues are positive in the last few years of production for the More of the Same scenario, the cumulative effect is still negative over the 20-year period. Conversely, each incremental unit of the Accessible Growth scenario generates positive revenue, so it is possible to cross-subsidize existing deferred maintenance and move towards a sustainable development pattern.

The table above demonstrates the cumulative anticipated impacts of the two different growth scenarios.
The findings supported in this study demonstrate the clear and compelling need to enact innovative public-private solutions that will bring down inflated development costs of new housing in our urban centers. The most viable method for reducing the cost of housing is to make more of it available. Effective solutions must be incentive-driven and market-based.

Building the right product in the right location to maximize the built environment and leverage existing infrastructure is the most efficient pathway forward to build the necessary units to keep up with household creation. Over the past 30 years, for example, the federal government has invested $324 billion in transit and $1.4 trillion in roads. By marrying housing policy with transportation policy, we can ensure that investments in one sector reinforce goals in the other.

Following is a four-pronged policy prescription for achieving higher densities and more housing units, through accessible growth in transit corridors and urban infill development.
BY-RIGHT APPROVAL
Establish “by-right” high-density residential development in a half-mile radius around a transit station (roughly 5% of a metropolitan region’s land area).

IMPACT FEE RECALIBRATION
Recalibrate impact fees to reflect actual costs of infrastructure service for high-density development.

PROPERTY TAX ABATEMENT
Use property tax abatement as a gap financing tool to enable denser and more affordable housing production.

VALUE CAPTURE
Establish mechanisms to capture value created through up-zones and tax abatement investments to be used as dedicated funding for a range of housing programs.