

Development patterns & budgets:

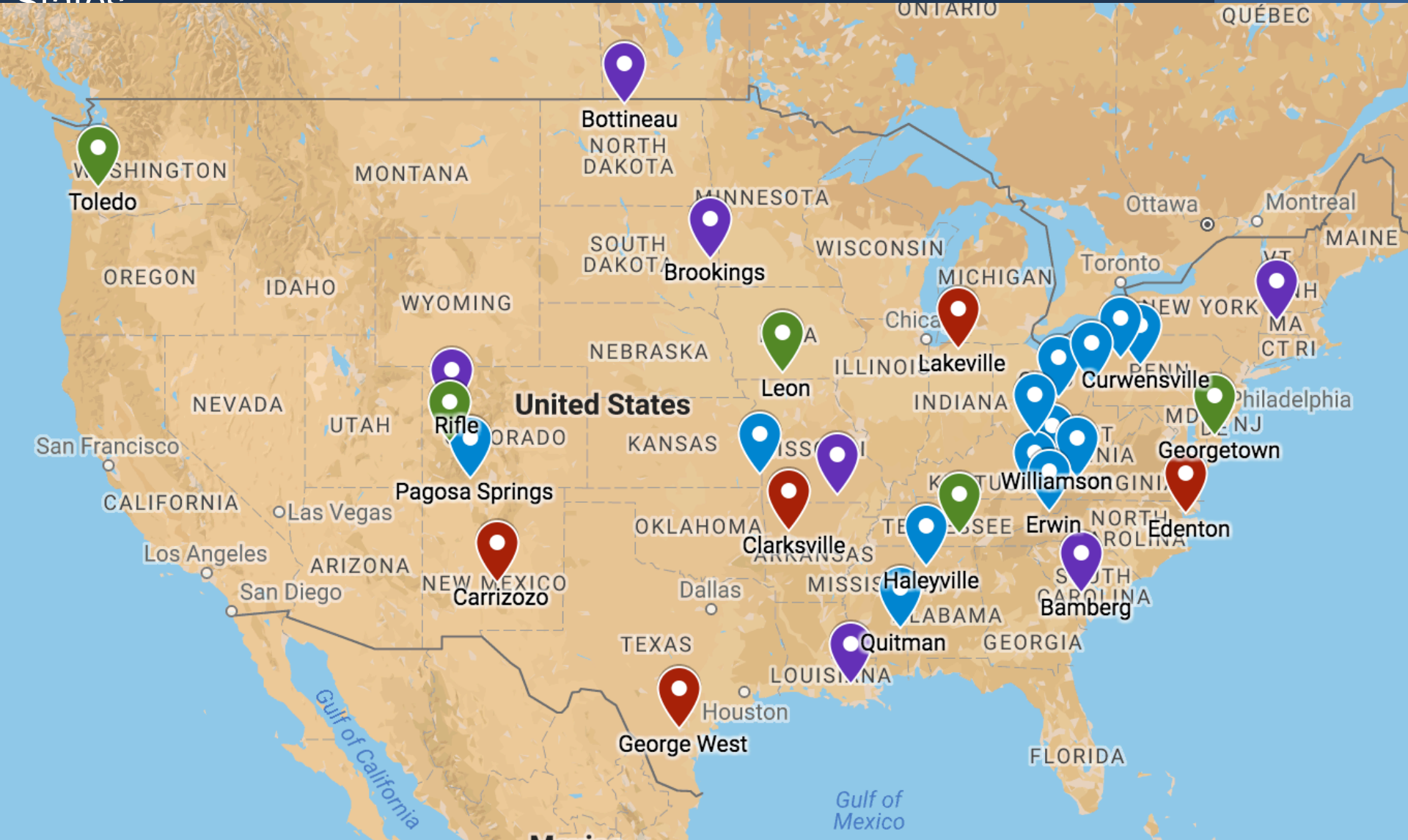
Assessing the cost of sprawl



Smart Growth America
Improving lives by improving communities



Planning technical assistance in 20 communities across the United States



Assist in their efforts to take advantage of enhanced internet access to promote smart, sustainable development.



Goal #1: Protect valuable farmland.

Goal #2: Enhance the existing downtown.

Goal #3: Build new neighborhoods that are adjacent



A scenario analysis tool

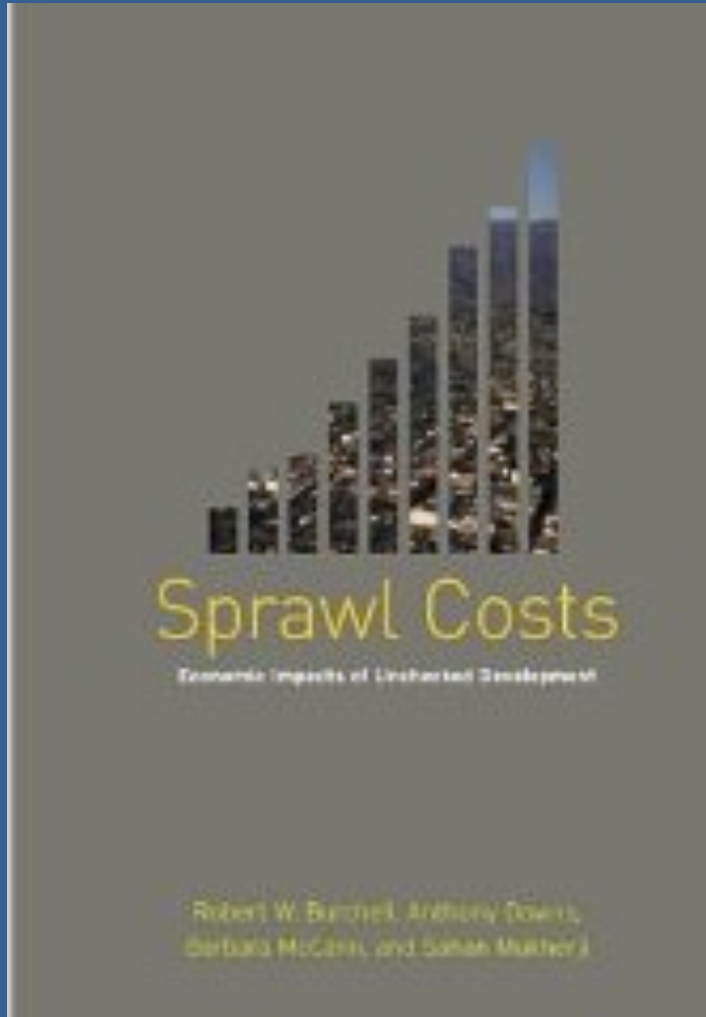
A fiscal impact model focused on the relative effects of sprawl versus compact development

The Fiscal Implications of Development Patterns

A MODEL FOR MUNICIPAL ANALYSIS

April 2015

DOZENS OF STUDIES CONFIRM: Low-density sprawl is expensive



9:51 am ET
Mar 19, 2015 PLANNING

The Cost of Sprawl: More Than \$1 Trillion Per Year, New Report Says

ARTICLE

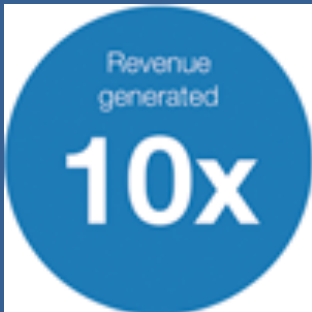
COMMENTS (3)



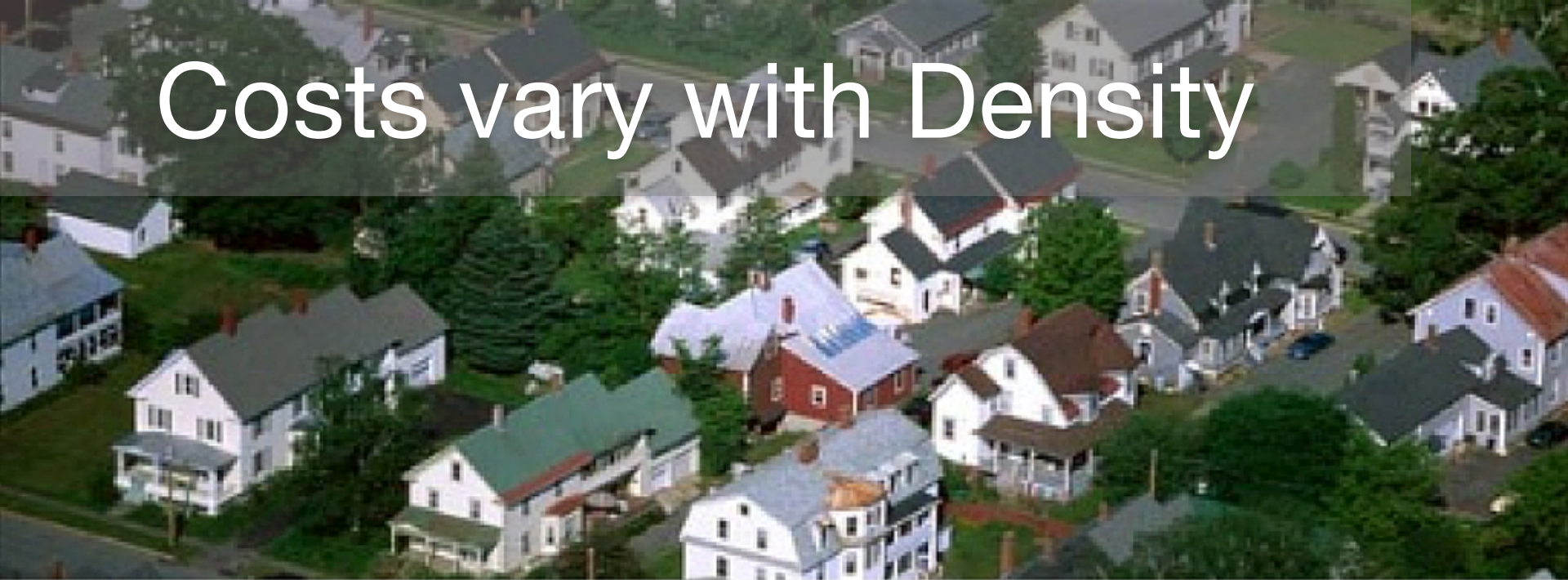
By LAURA KUSISTO [CONNECT](#)

The sprawling suburbs of cities like Atlanta and Houston have hidden costs to the United States economy that come to more than \$1 trillion a year, according to a new report.





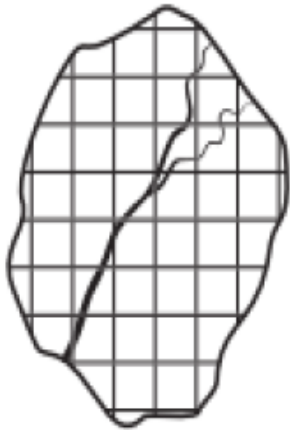
Costs vary with Density



development scenarios

same population

Scenario A



Scenario B



Scenario C



Infrastructure and services



SUMMARY OF RESULTS BY SCENARIO

Total Annual Budgetary Impact
Macon-Bibb County and Schools Combined

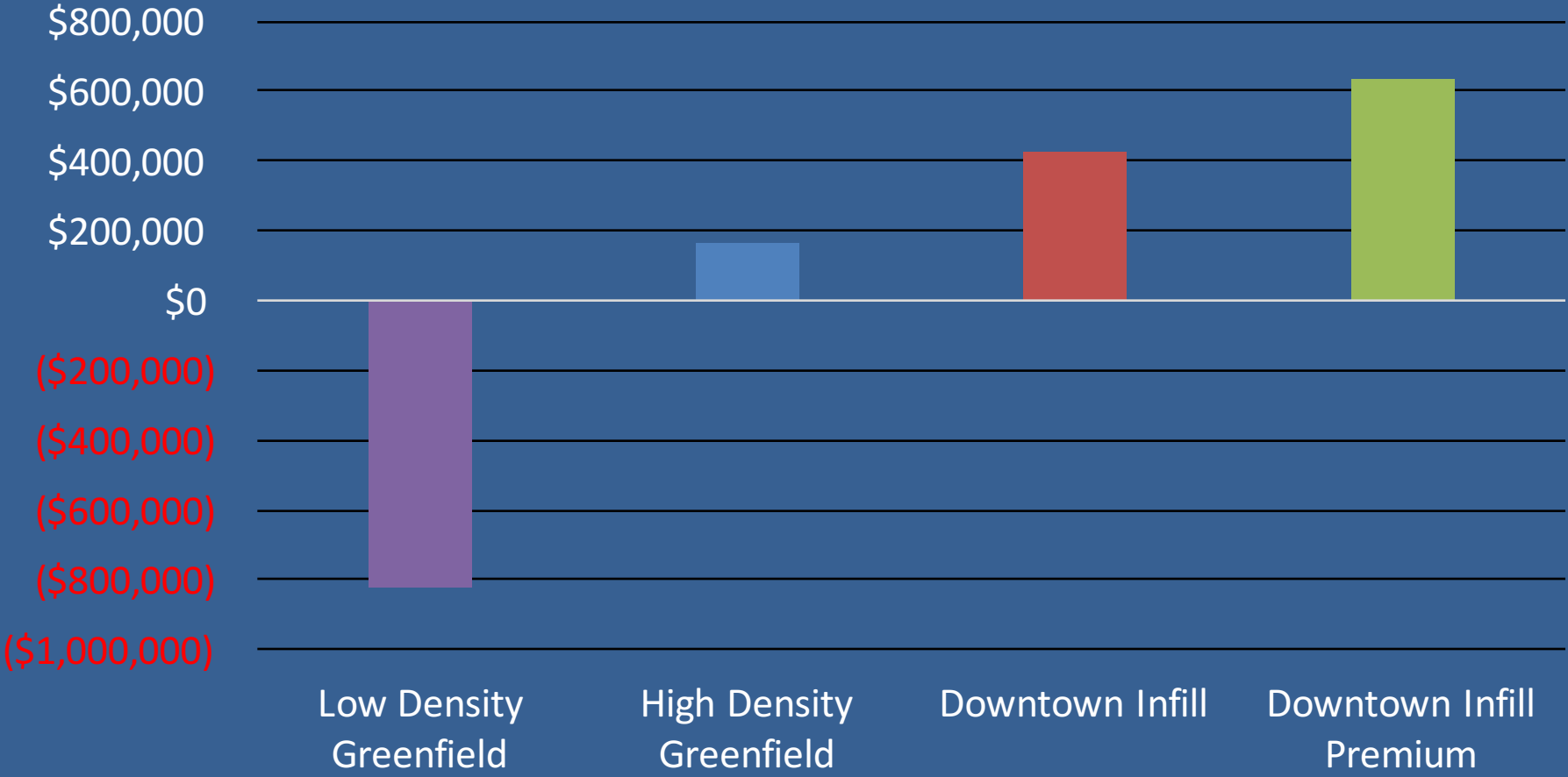


FIGURE 4

Capital infrastructure and annual operating costs for three development scenarios in Natrona County, WY³⁷

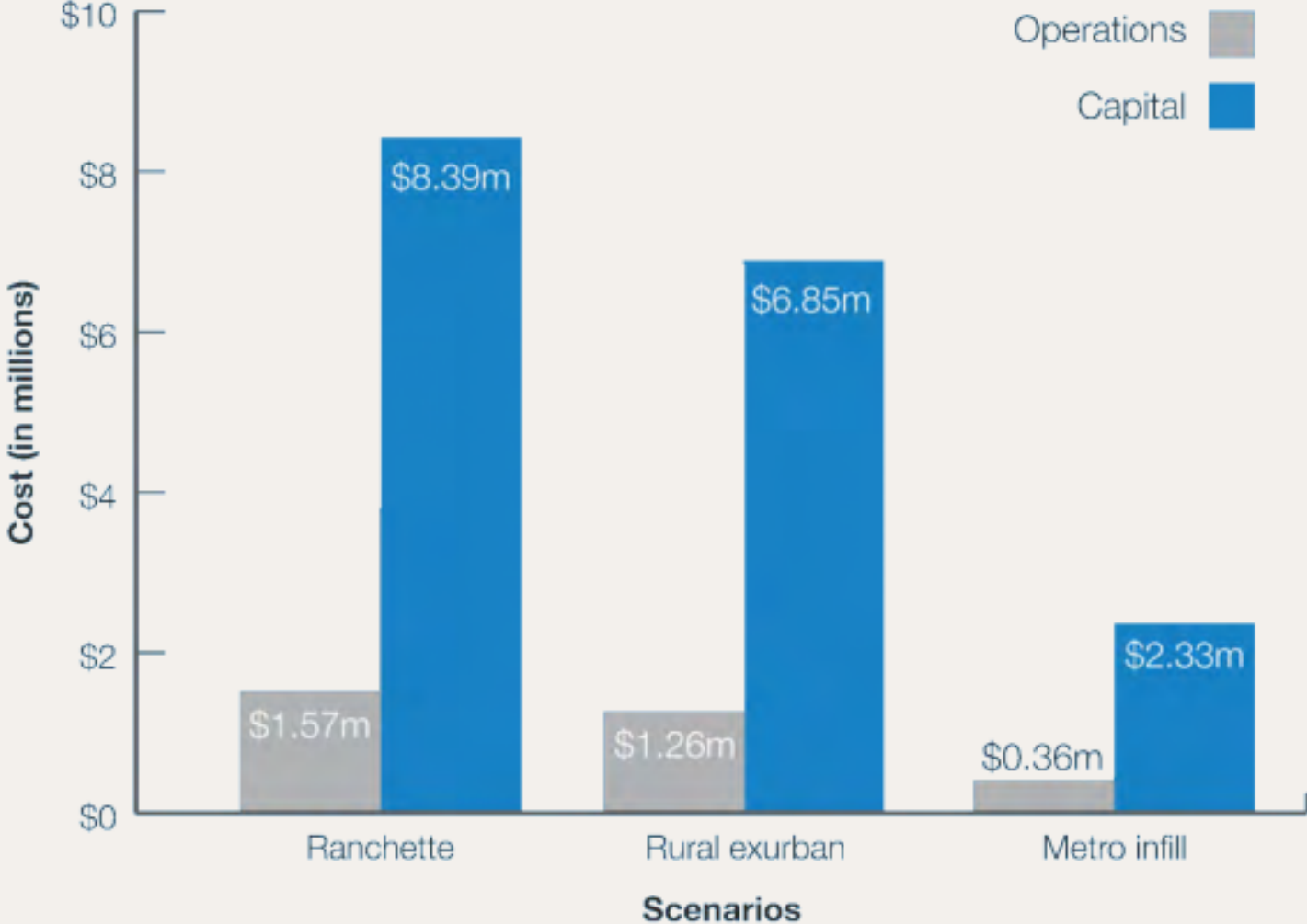
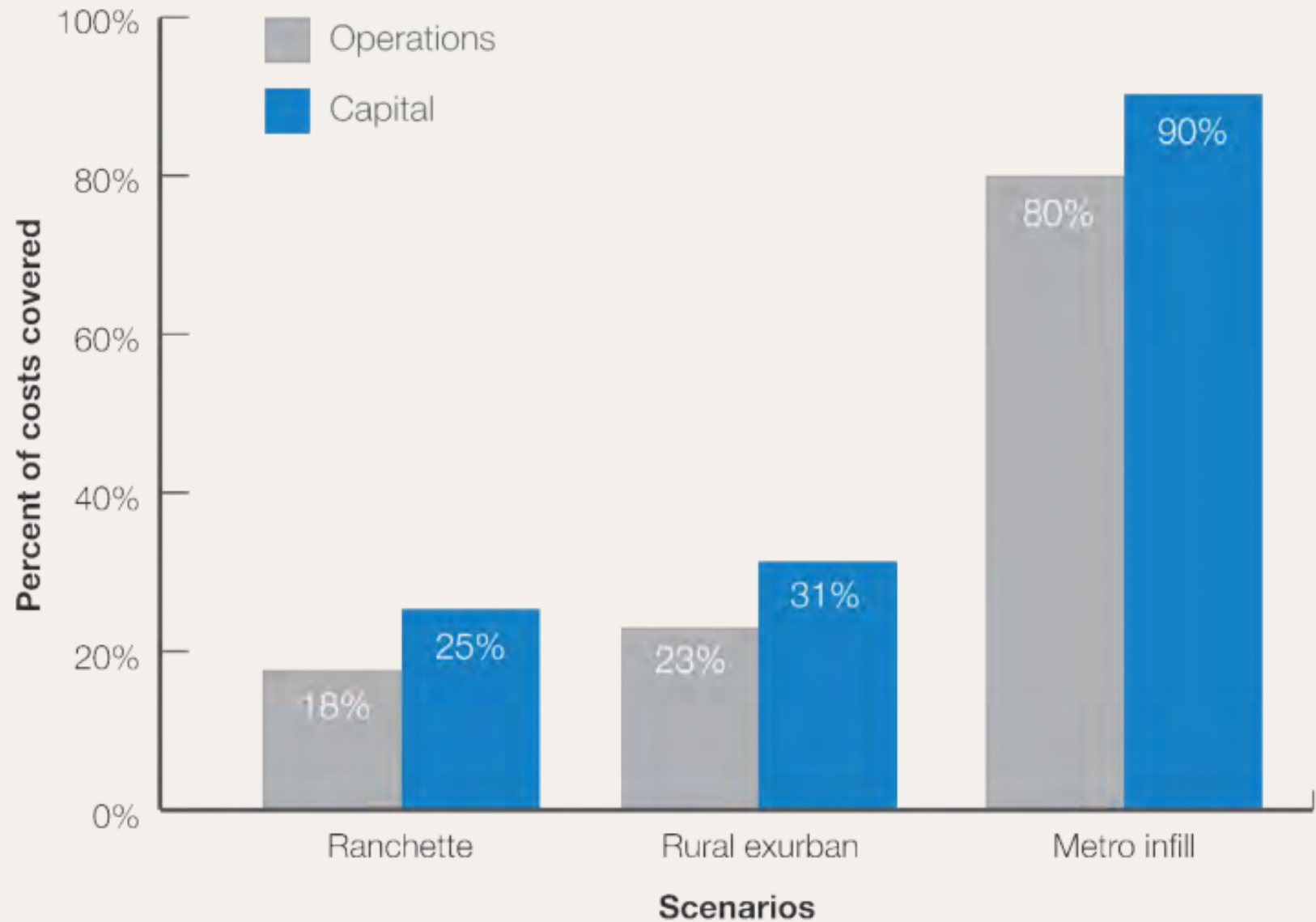


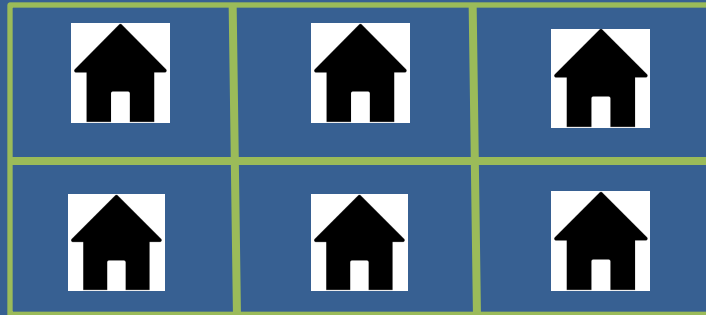
FIGURE 5

Percent of operations and capital costs covered by housing unit revenue contributions³⁸



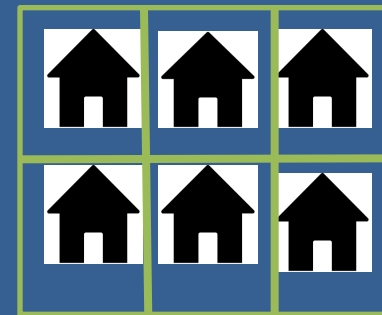
TYPICAL AVERAGE COST FISCAL IMPACT MODEL

Option A



=

Option B



- Costs are assumed to be proportional to residents and employees
- Same number of residents = same additional costs regardless of density

WHAT COST CATEGORIES MIGHT VARY BY DENSITY?

Services & Infrastructure Dependent on Density

Fire	Yes
Roads	Yes
Stormwater	Yes
Sewer and Water	Yes
Solid Waste	Yes (collection)
Schools	Yes (bus transportation)
Libraries	No
Hospitals	No
Parks	No
Police	Maybe

Fiscal Impact Model: Data Inputs



**Roads +
Maintenance**



**Water/
Sewer**



Stormwater



Fire/EMS



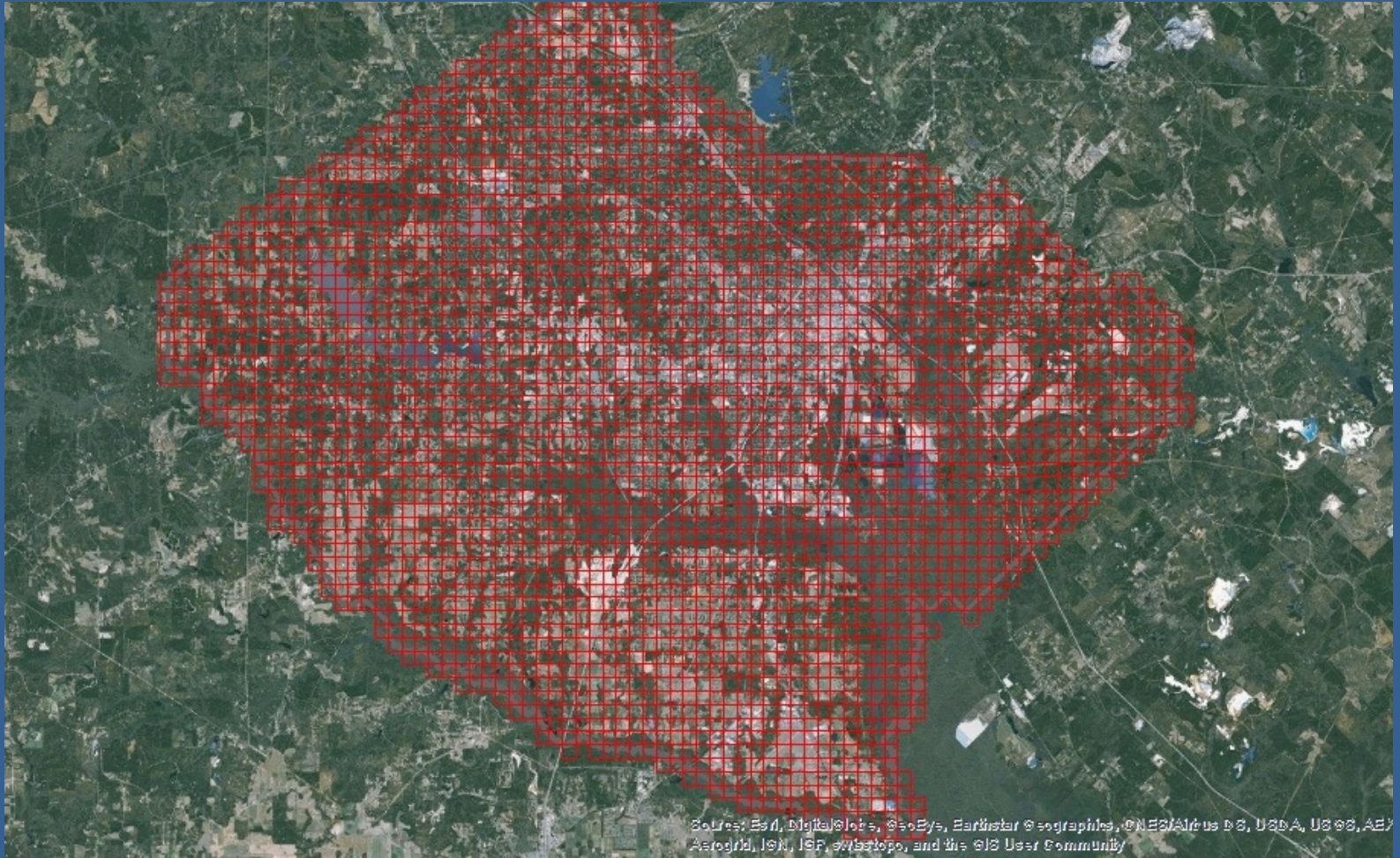
Solid Waste



Schools

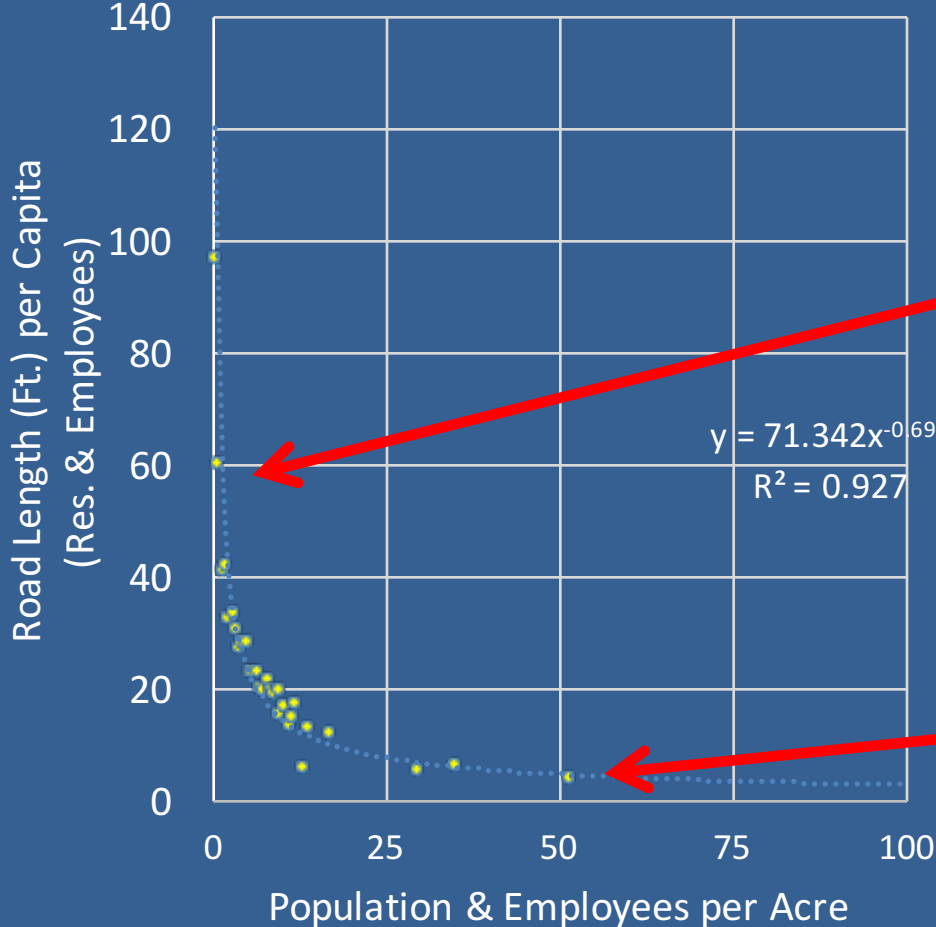
INFRASTRUCTURE COST METHODOLOGY

THE 60-ACRE GRID OVERLAY



Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, ISF, Planet Labs, and the GIS User Community

ROAD LENGTH PER CAPITA DECREASES AS DENSITY INCREASES



Samples from Macon-Bibb Suburban Residential



Residents: 120
 Employees: 12
 Total: 132
 Total Res. & Emp Per Acre: 2.2
 Total Road Length: 7,401
 Road Length per Capita: 56 ft.

Downtown Urban



Residents: 348
 Employees: 2,839
 Total: = 3,187
 Total Res. & Emp Per Acre: 53
 Total Road Length: 17,616
 Road Length per Capita: 5.5 ft.

NOTE: Road area per capita has a similar relationship to density.

Density Options – Population

Baseline



Existing Avg. Density in City
2.3 people / acre

Alt. A



6 people / acre

Alt. B



50% at
12 people / acre
Infill development

50% at
6 people / acre
Greenfield

Density Options – Households

Baseline



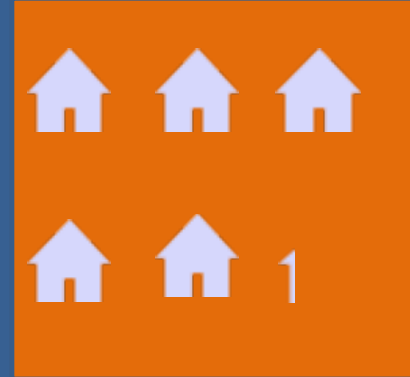
Existing Avg. Density in City
1 household per acre

Alt. A



2.6 households / acre

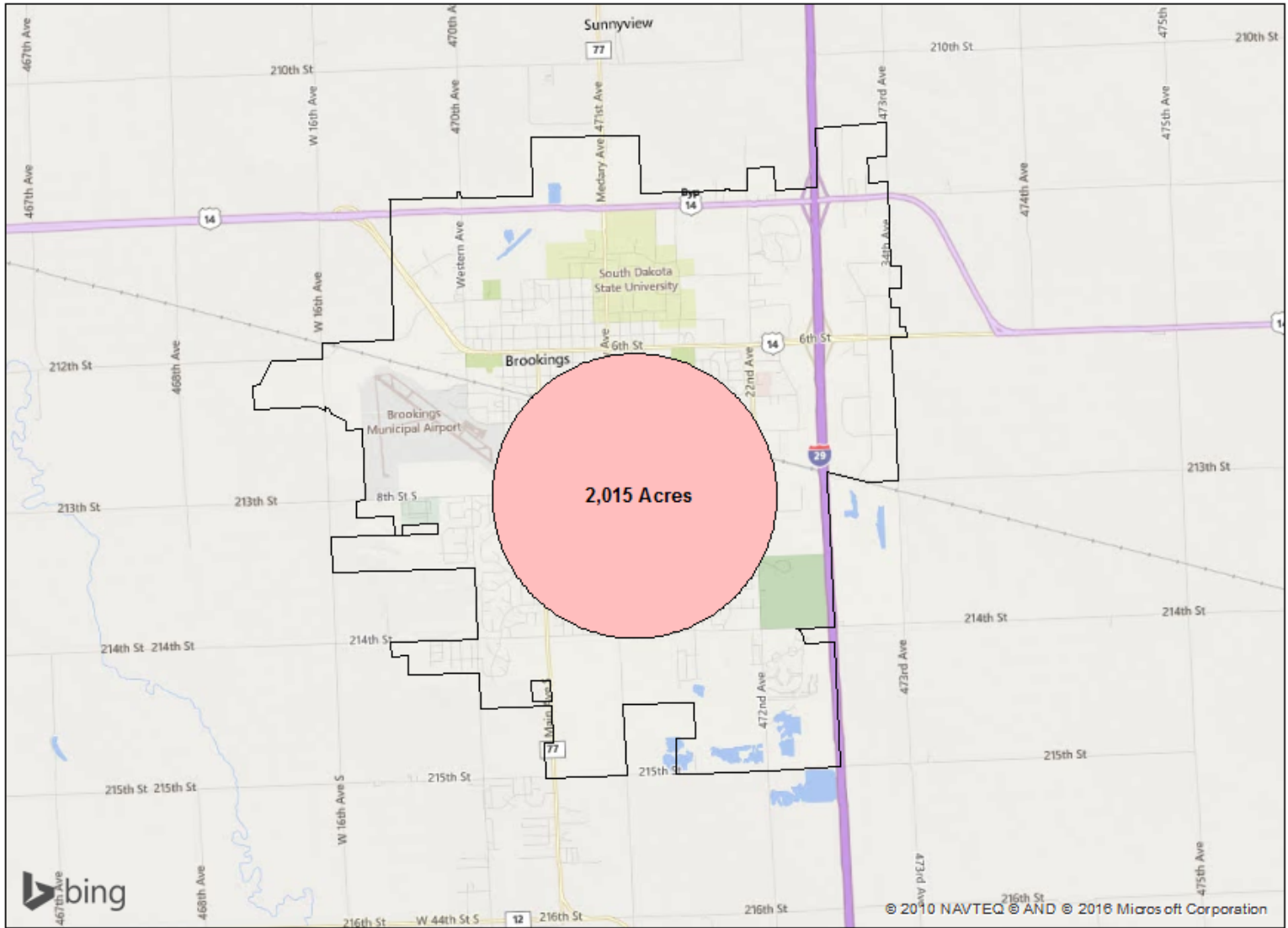
Alt. B

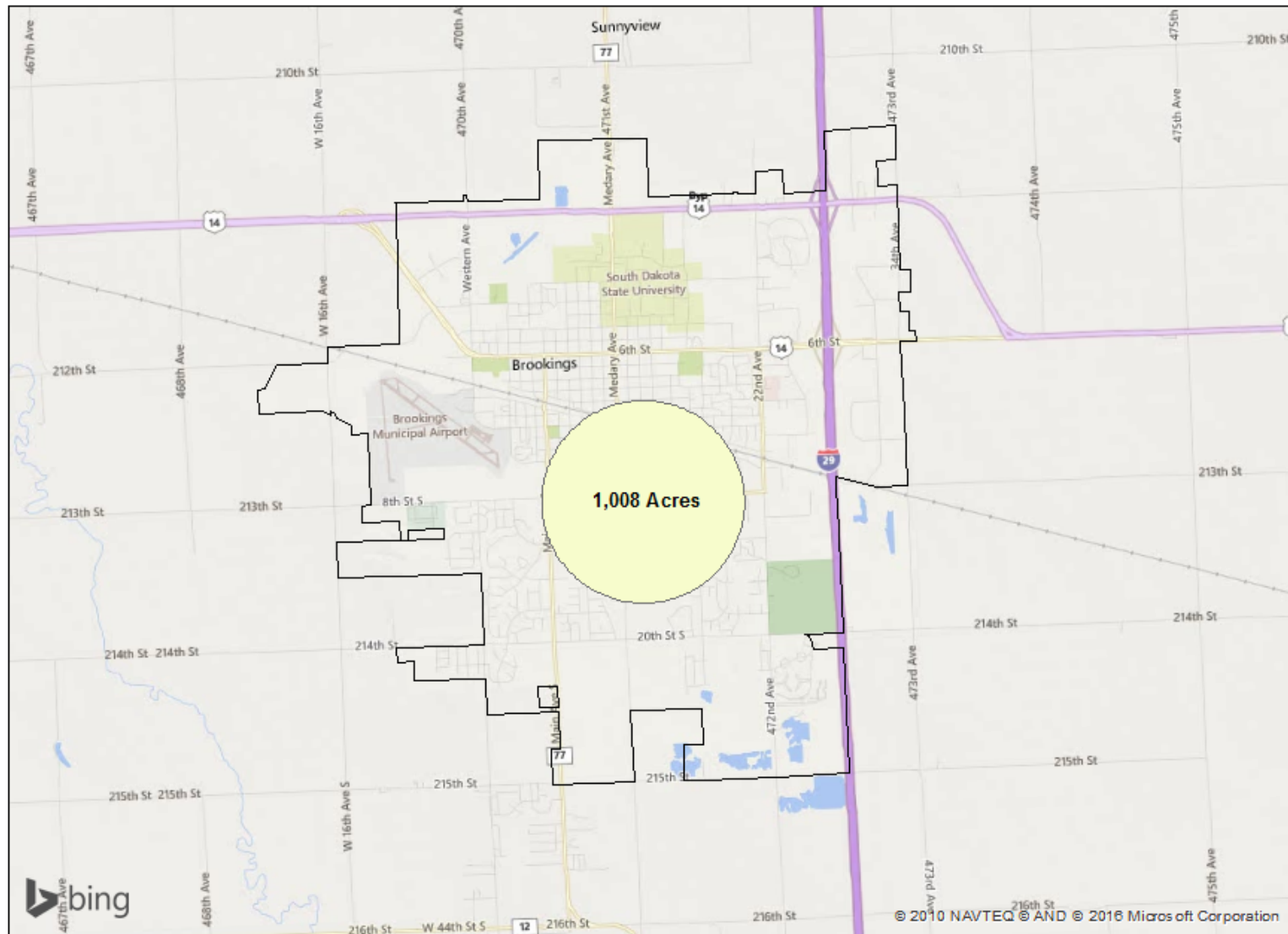


50% at
5.1 households / acre
Infill development



50% at
2.6 households / acre
Greenfield





Results



	Baseline	Alt A	Alt B
Capital Costs – 20 years	\$156.8 mil	\$101.4 mil	\$56.2 mil
Amortized Costs (20 years at 2.2% rate)	\$195.6 mil	\$126.4 mil	\$70.1 mil
Maintenance Costs – 20 years	\$7.8 mil	\$5.1 mil	\$2.8 mil
Total Costs – 20 year	\$203.4 mil	\$131.5 mil	\$73.0 mil
Fiscal Cost per year	\$10.2 mil	\$6.6 mil	\$3.7 mil

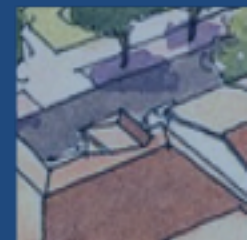
Study costs to accommodate +20% more residents



Thank you.

Alex Hutchinson
John Robert Smith
Christiaan Mader

Pittsburg, KS
October 12, 2016



Smart Growth America
Making Neighborhoods Great Together