

2MAPS

Parcel-Level Climate Change Reversal Geospatial Model Enabling Town Workers to live where they Work

P R E S E N T A T I O N



HUD Office of Policy Development and Research
Affordable Housing Research and Technology Division

April 7, 2016

M E E T I N G R E C A P

Boundary Solutions, Inc.

Mill Valley, California

In Support of

University of Wisconsin @ Milwaukee

Department of Architecture and City Planning

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Reversing Climate Change by Enabling Town Workers to live where they Work Premise

What we have here is not a Traffic Gridlock/Carbon Emissions Problem
What we have here is a lack of affordable Housing Problem

Town Worker** Income has remained flat while that of Knowledge Workers at the Regional, National and International levels continues to climb, forcing rents up. With no protection and no or just token affordable housing, Town Worker are displaced, forced to live far away where they can make rent.

** Police, Fire, Teachers, Retail Clerks and Managers, Restaurant Workers, Bar Tenders, Nurses, Local Government Staff, Bookkeepers, Domestic Workers, Gardeners, Mechanics and all others who perform a service for local town residents that has to be done.

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Reversing Climate Change by Enabling Town Workers to live where they Work

PROBLEM OVERVIEW

What we have here is not a Traffic Gridlock/Carbon Emissions Problem

What we have here is a Shortage of Affordable Housing Problem

- **Ignoring the plight of the Town Workers** faced with ever longer commutes can be done by dismissing it as their problem.
- **Ignoring the plight of everyone** forced to spend ever more time in traffic can be done by dismissing it as a nuisance everyone gets used to.
- **Ignoring the 30% contribution of automobile use** to Climate Change however leads to a future **NO ONE WILL BE ABLE TO GET USED TO - -**

IRREVERSIBLE CLIMATE CHANGE

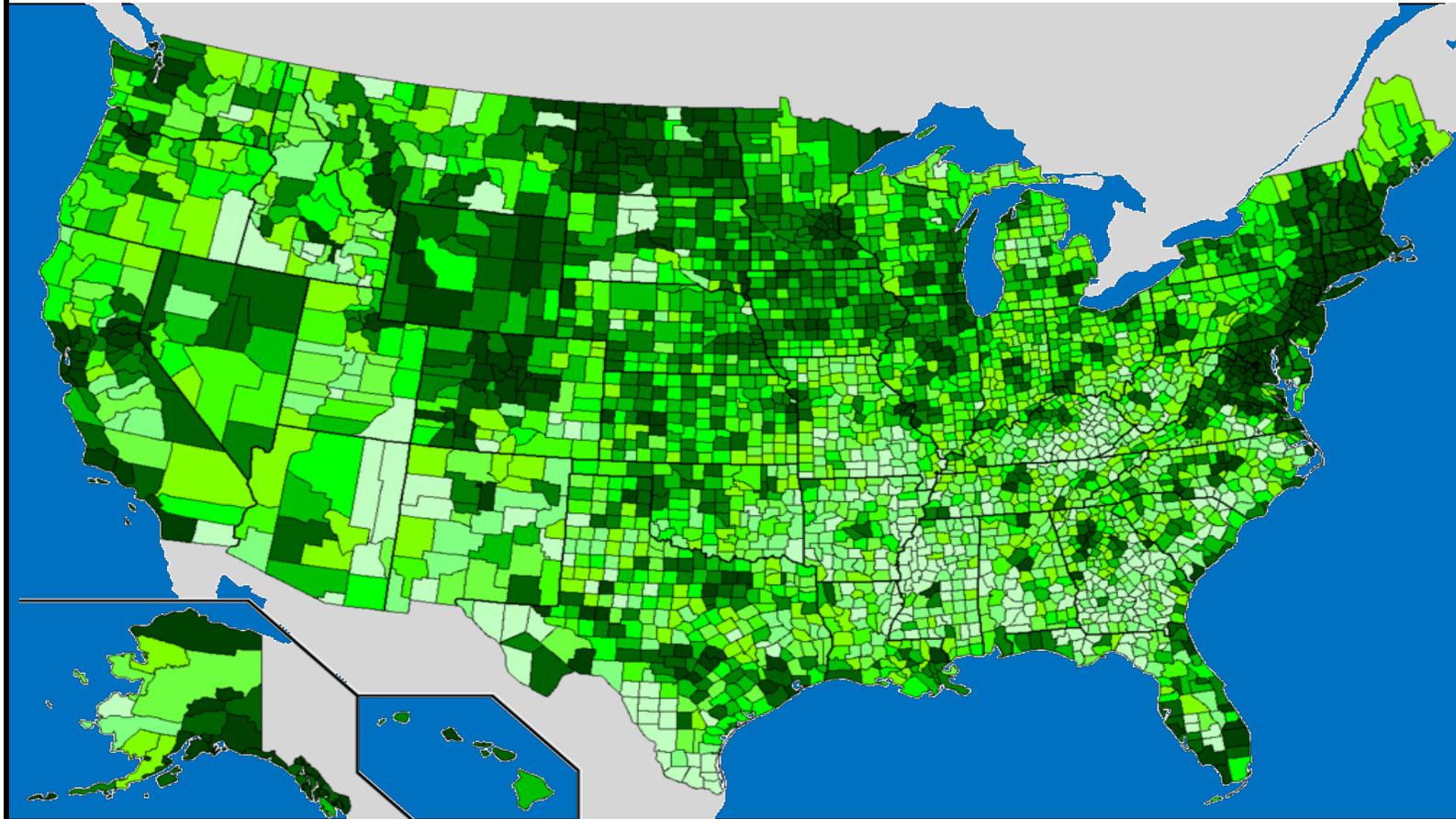
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PROBLEM SIZE

**TOP 315 Most Affluent
USA Counties**

1 st DECIL	
Counties	315
Population:	174,000,000
Median Income:	\$30,225 – \$62,500



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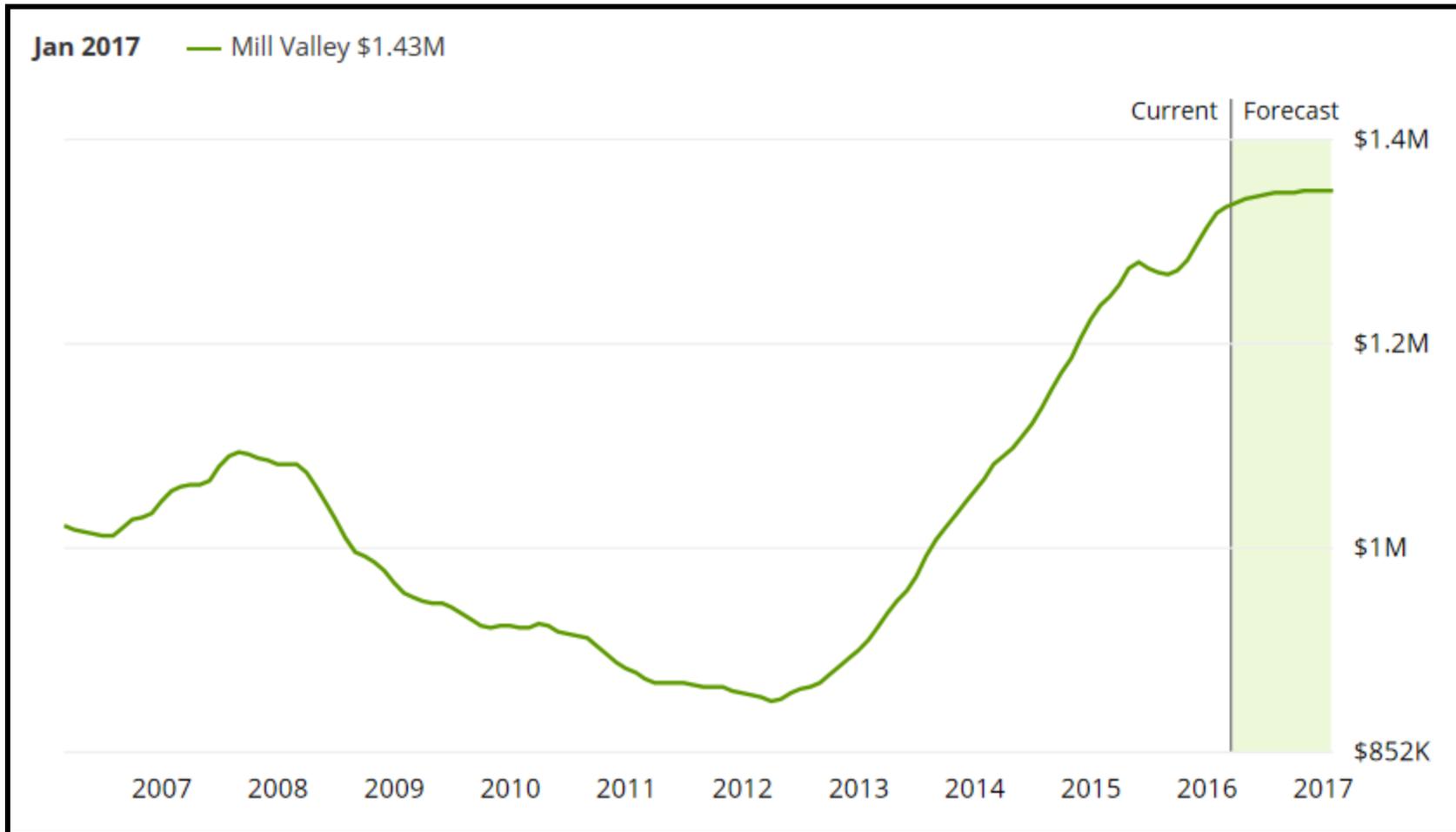
Marin County Real Estate Has Been TOO Successful Mill Valley as Sample Case Study

Since the 70's the very income inclusivity that gave **Mill Valley** its desirable 'We're all-in-this-together' Small Town Character has been all but extinguished by the soaring real estate values its desirability has inadvertently caused. While the **population grew by only 6%**, the number of people who BOTH LIVE AND WORK in Mill Valley is now **ONLY 10%**, down from 60%. At the same time, **the traffic on the main road in and out of town grew 78%!** Why? Rapidly rising rents pushed out 2,000 Town Workers, increasing commute trips, and also pushing out basic retail, exploding service trips. Now you cannot even buy a screw driver in Mill Valley causing near everyone to head for the freeway for everything. Mill Valley's roads are broken. Ditto the regional freeway system for the same reason – **SOARING RENTS**

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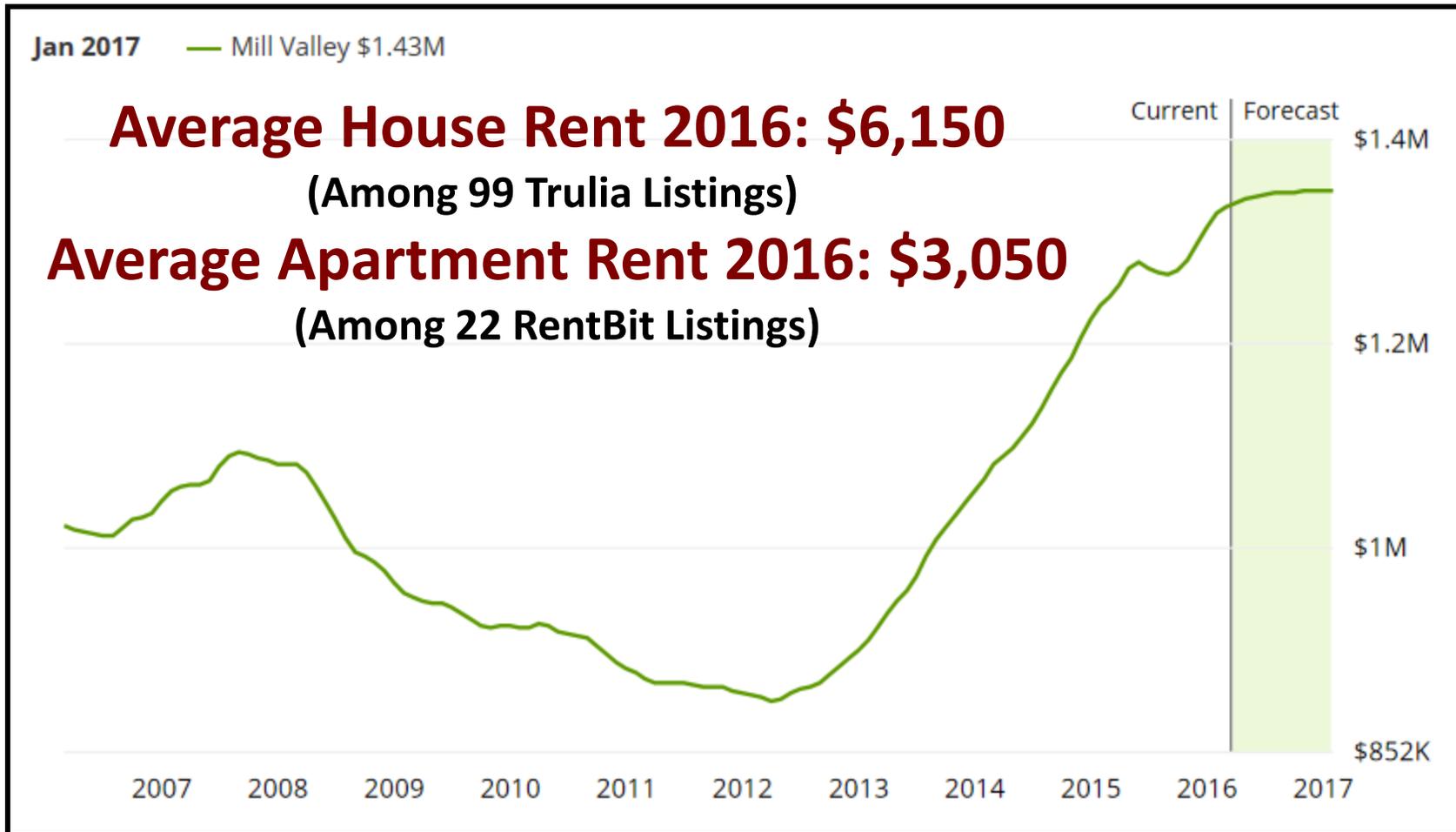
Median Residential Price Mill Valley



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Reversing Climate Change by Enabling Town Workers to live where they Work

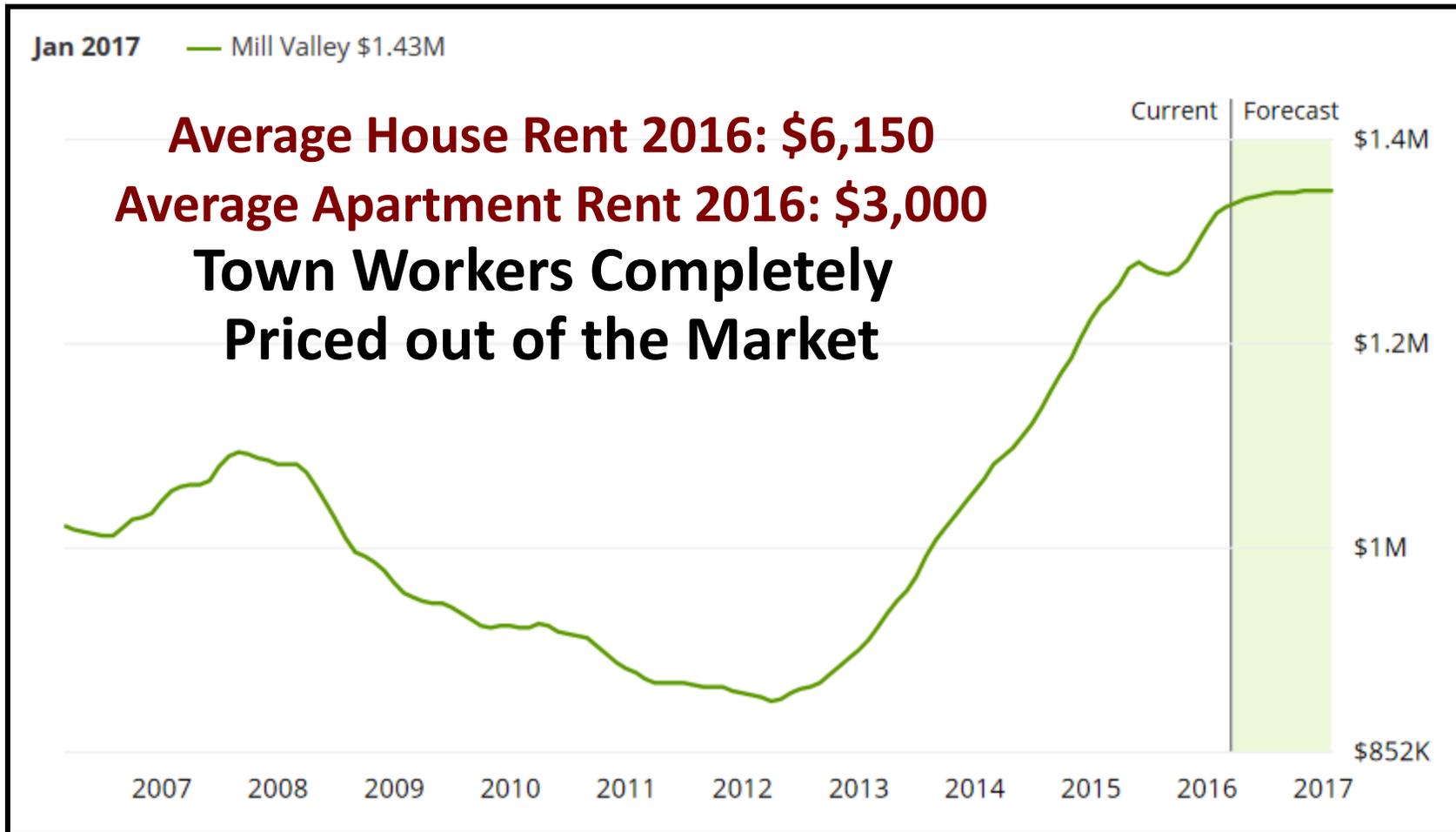
Median Rental Rates in Mill Valley



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Reversing Climate Change by Enabling Town Workers to live where they Work

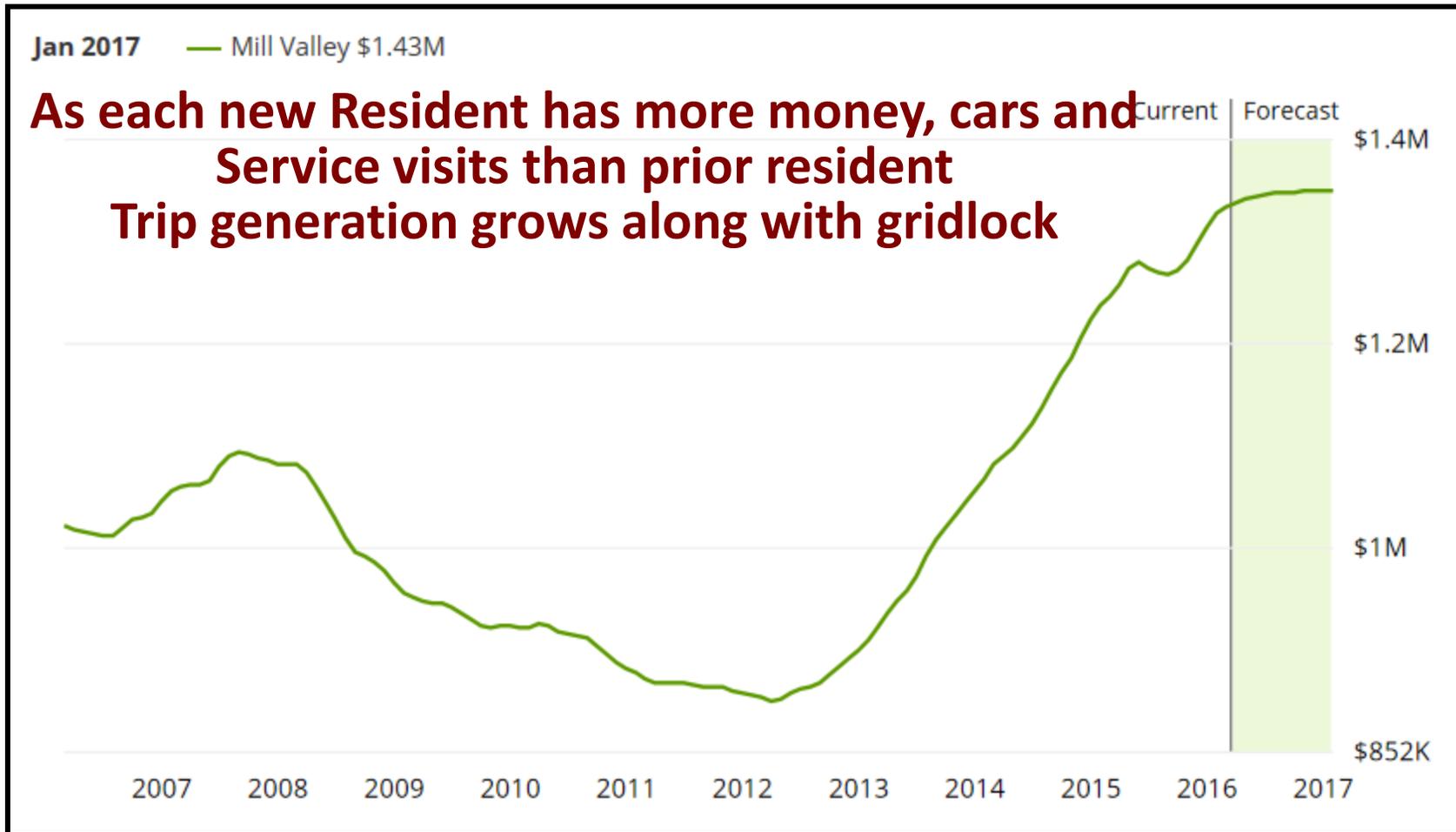
Median Rental Rates in Mill Valley



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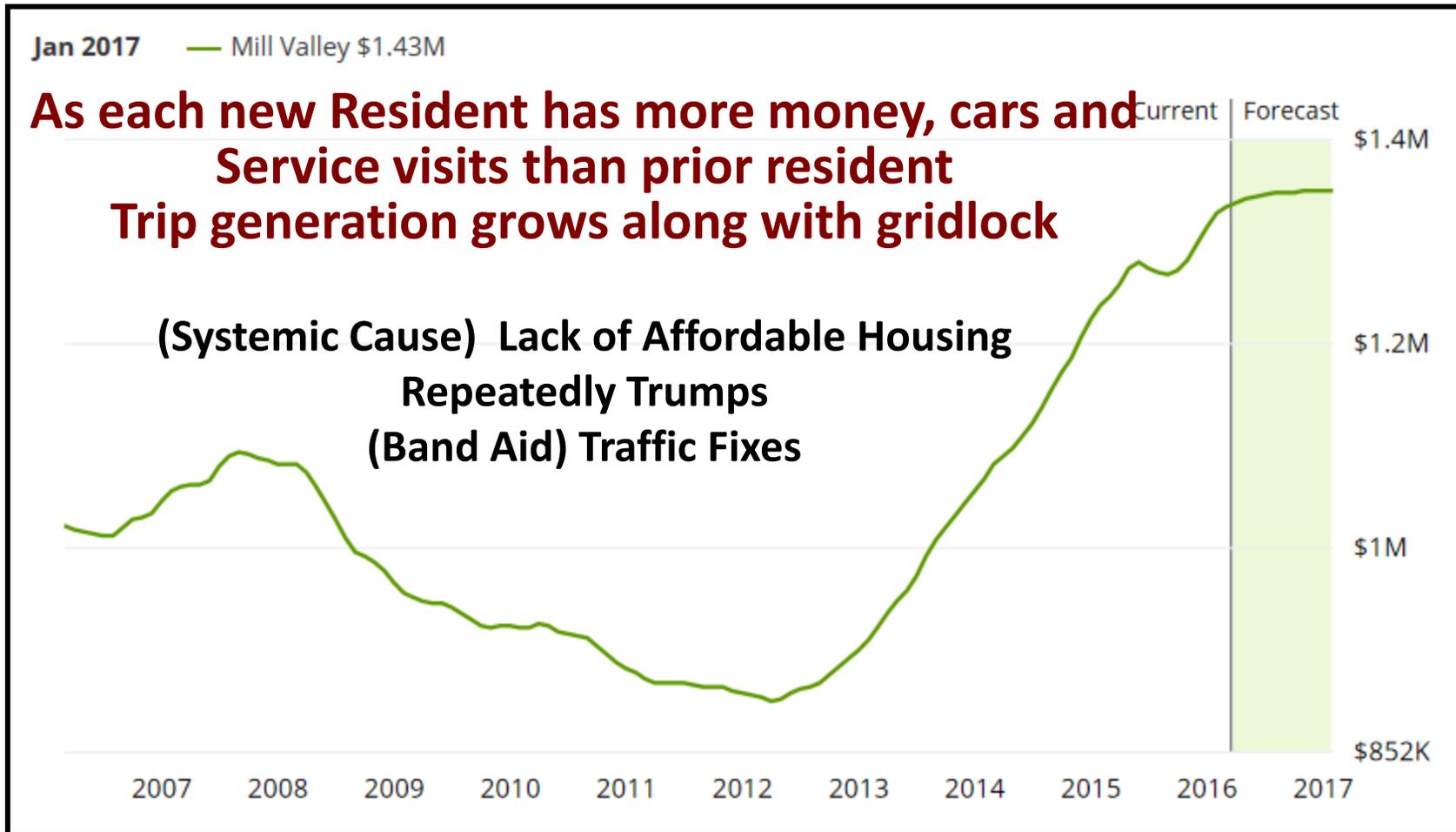
Median Residential Price Mill Valley



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Reversing Climate Change by Enabling Town Workers to live where they Work

Median Residential Price Mill Valley



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Reversing Climate Change by Enabling Town Workers to live where they Work

Permanent Remedy – Adding Town Worker Housing

Worse than lack of Town Worker and retail in the town grid-locking main roads in and out of town, most displaced Town Workers discover that they not only have to relocate in the middle of nowhere to make rent, they cannot even afford to live near a transit stop. Instead of walking to work to do a job that has to be done, they face hour+ commutes, made ever longer as their car causes just enough additional traffic every work day to trigger grid lock at multiple freeway interchanges. This shuts down the Richmond Bridge, 101, and E. Blithedale, wrecking the regional transportation system, not to mention dramatically increasing per capita carbon production. **Marin County already ranks as the highest category of per capita carbon footprint in America.**

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Reversing Climate Change by Enabling Town Workers to live where they Work

Permanent Remedy – Adding Town Worker Housing

NOT JUST ANYWHERE

Just the right places where increased use will melt traffic most

WHERE IS THAT?

Parcels that are both Highly Walkable and Transit Intensive



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Reversing Climate Change by Enabling Town Workers to live where they Work

Permanent Remedy – Adding Town Worker Housing

2MAPS

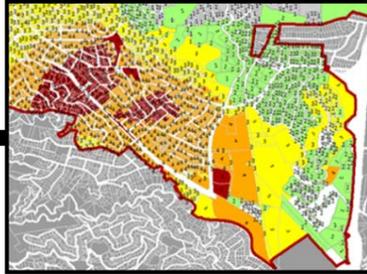
Rates every parcel for Traffic Reduction Potential

**To Locate Just the Right Places to Assemble
for Adding Town Worker Housing, Retail and Rent Control**

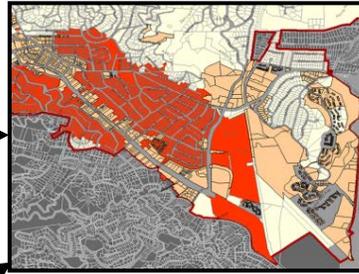
**BUFFERED
DESTINATION PARCELS**



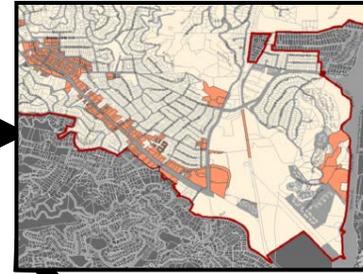
**RELATIVE
WALK POTENTIAL**



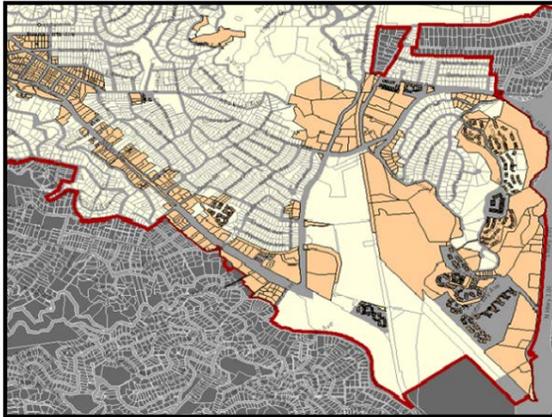
**CANDIDATE PARCELS
IN HIGH WALK AREA**



HIGH WALK ZONE



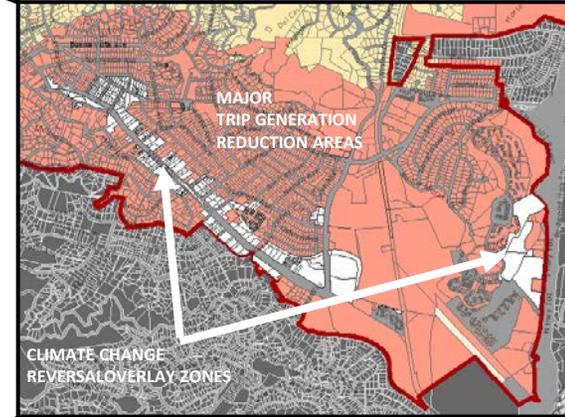
**CANDIDATE DEVELOPMENT PARCELS
LAND OKAY TO DEVELOP**



2MAPS

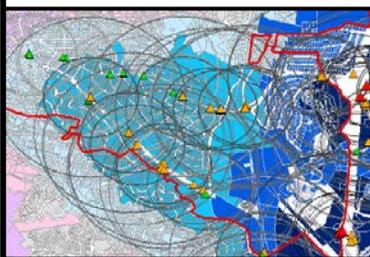
Rates Every Parcel in America for
Relative WALK Potential
Relative TRANSIT Intensity
WHIGH WALK/TRANSIT parcels that are
ALSO Developable are assembled into
CLIMATE CHANGE OVERLAYS
Locating Town Worker housing, retail and rent control THERE
will decimate Traffic/Carbon Footprint enough to
REVERSE CLIMATE CHANGE

**CLIMATE CHANGE
REVERSAL OVERLAY**

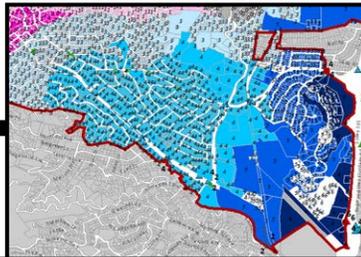


**HIGH WALK/TRANSIT
Developable Parcels**

**BUFFERED BUS STOPS
WITH JOB ACCESS RATINGS**



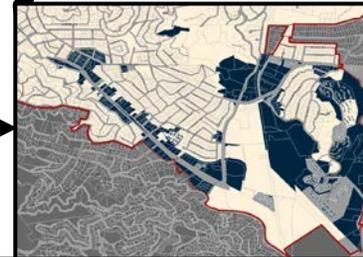
**RELATIVE
TRANSIT POTENTIAL**



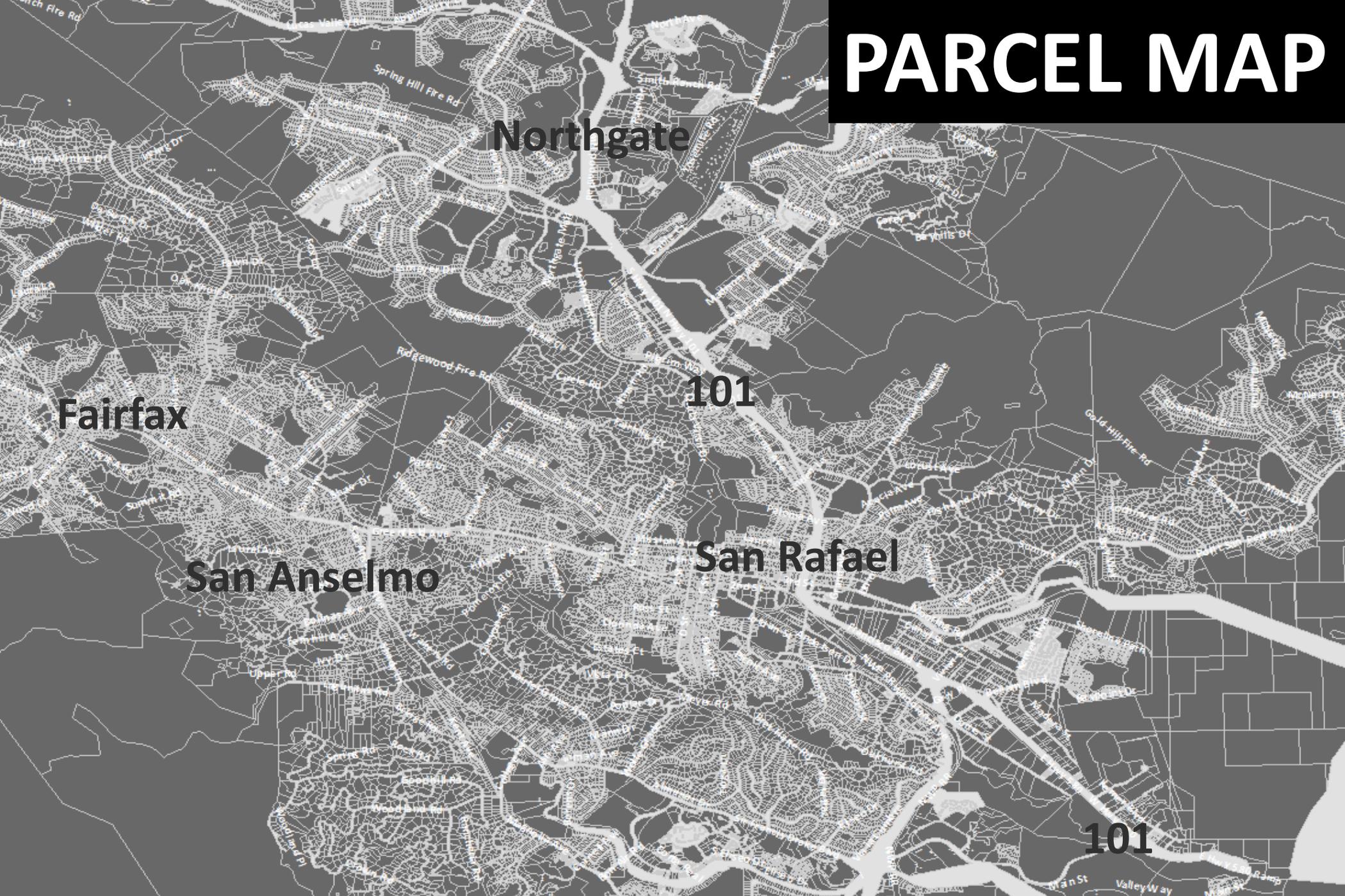
**CANDIDATE PARCELS
IN HIGH TRANSIT AREA**



HIGH TRANSIT ZONE



PARCEL MAP



Northgate

Fairfax

San Anselmo

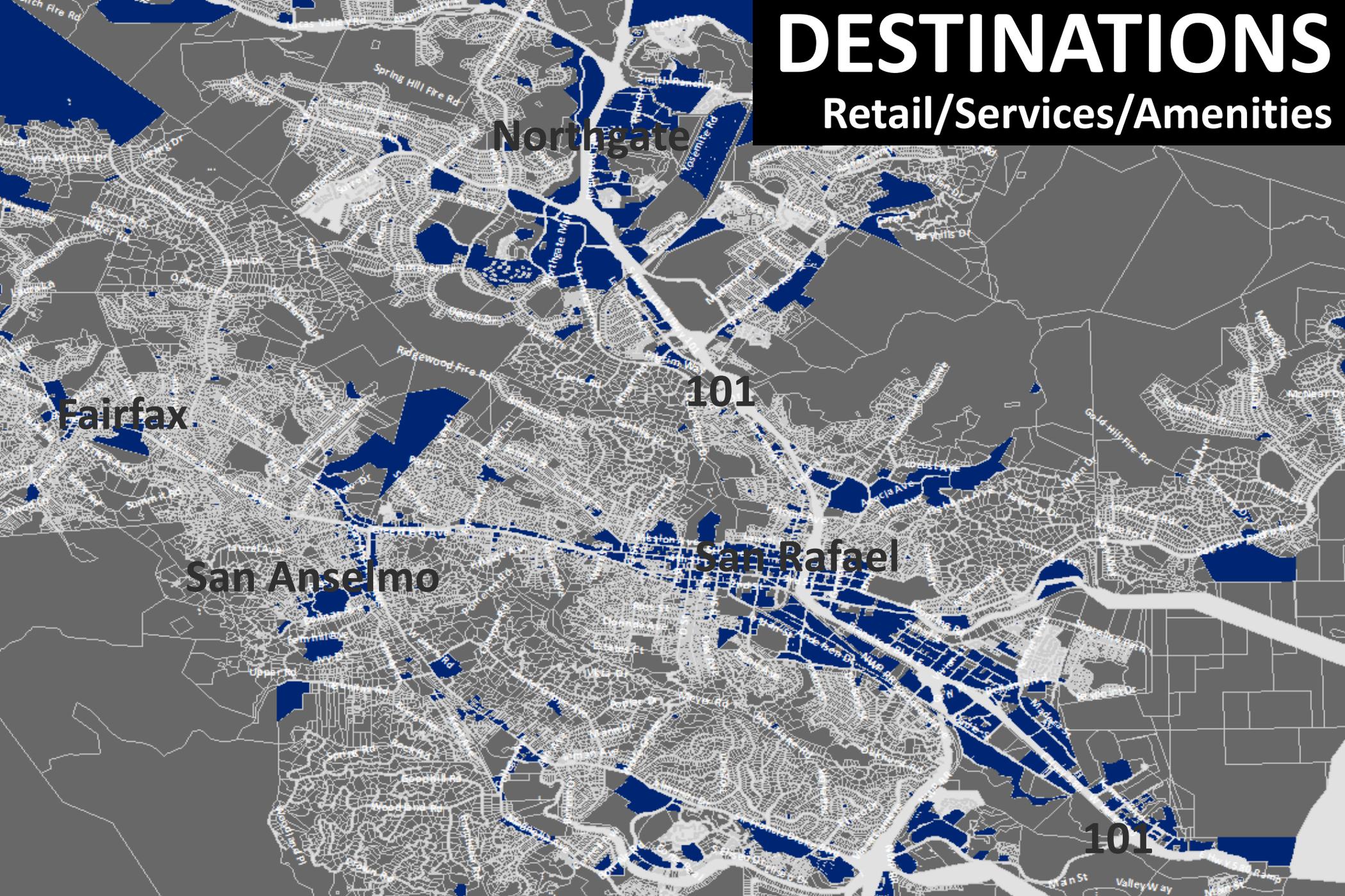
San Rafael

101

101

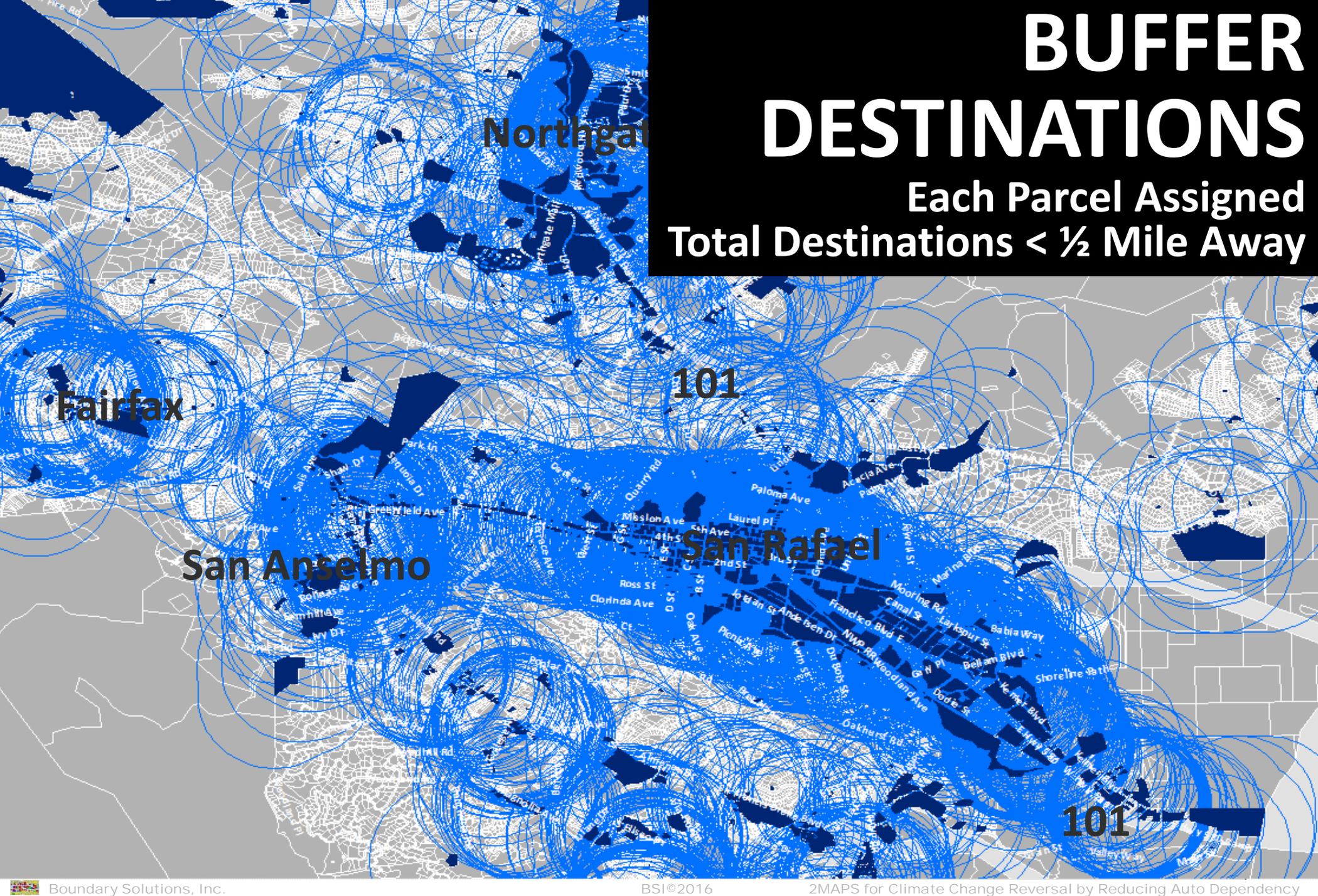
DESTINATIONS

Retail/Services/Amenities



BUFFER DESTINATIONS

Each Parcel Assigned
Total Destinations < 1/2 Mile Away



Northgate

Fairfax

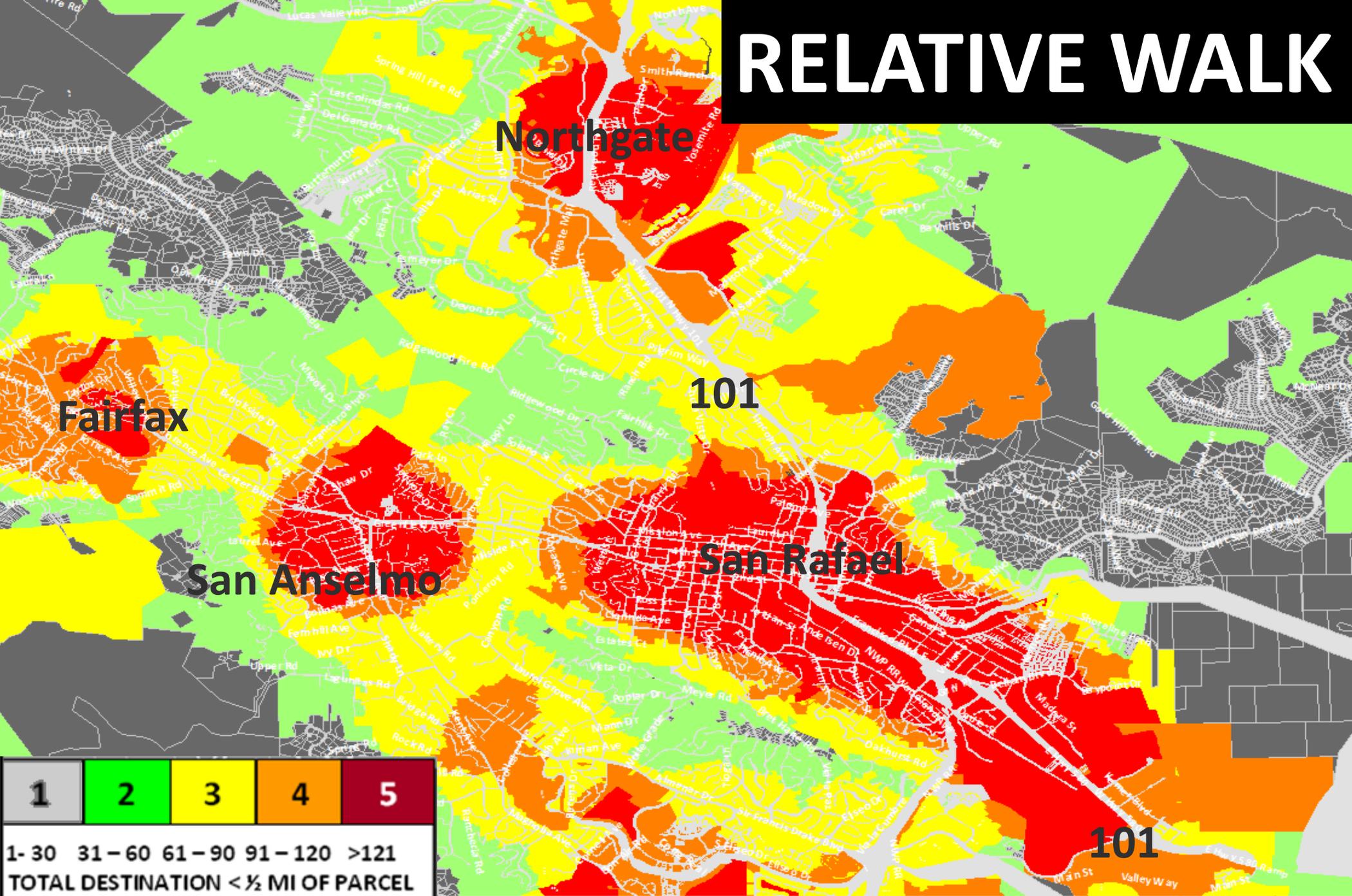
San Anselmo

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San Rafael

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RELATIVE WALK



Northgate

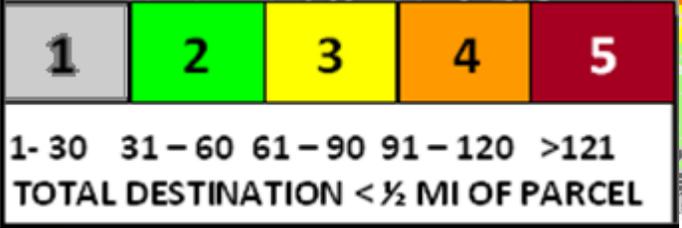
Fairfax

San Anselmo

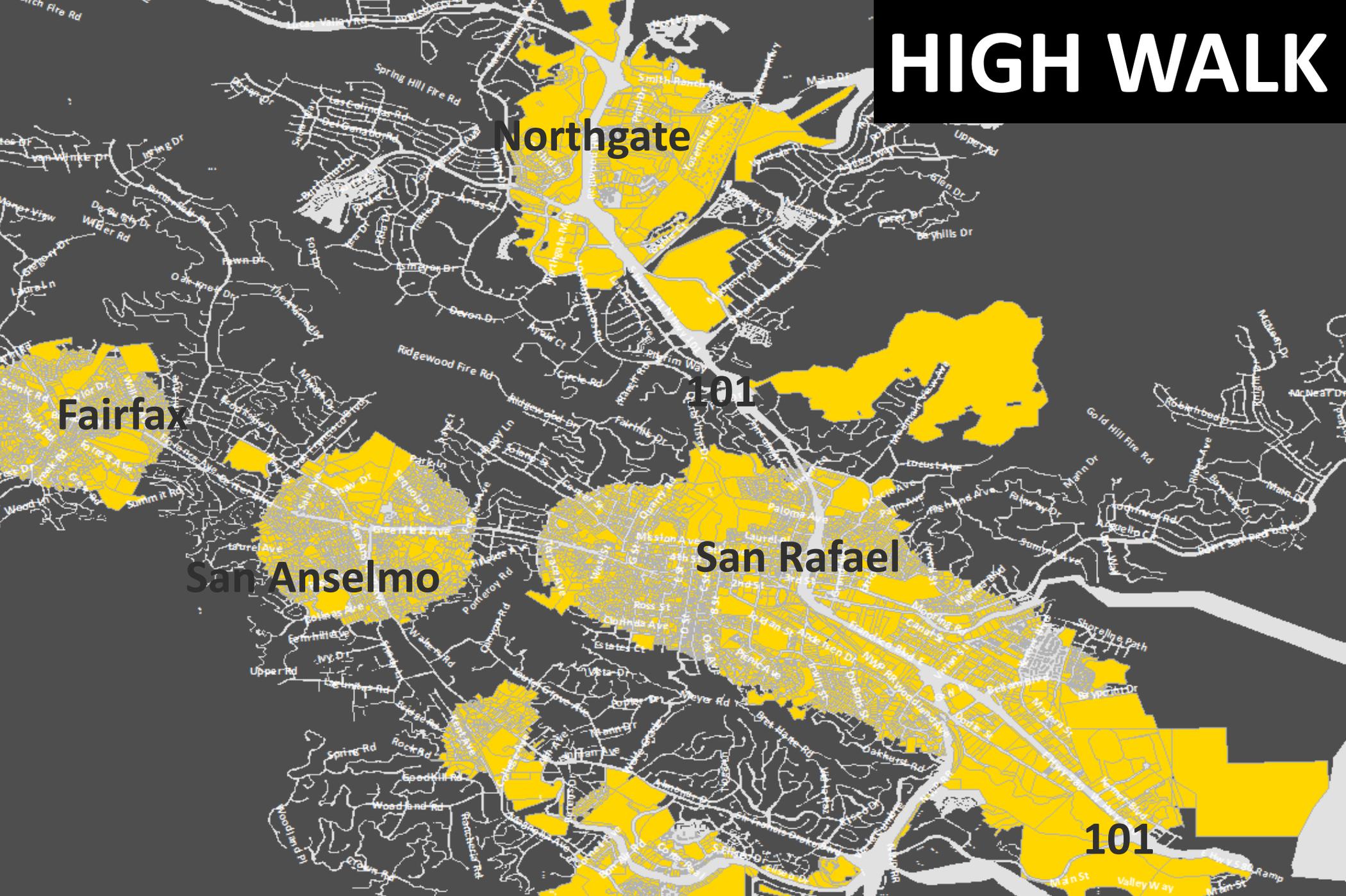
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San Rafael

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HIGH WALK



Northgate

Fairfax

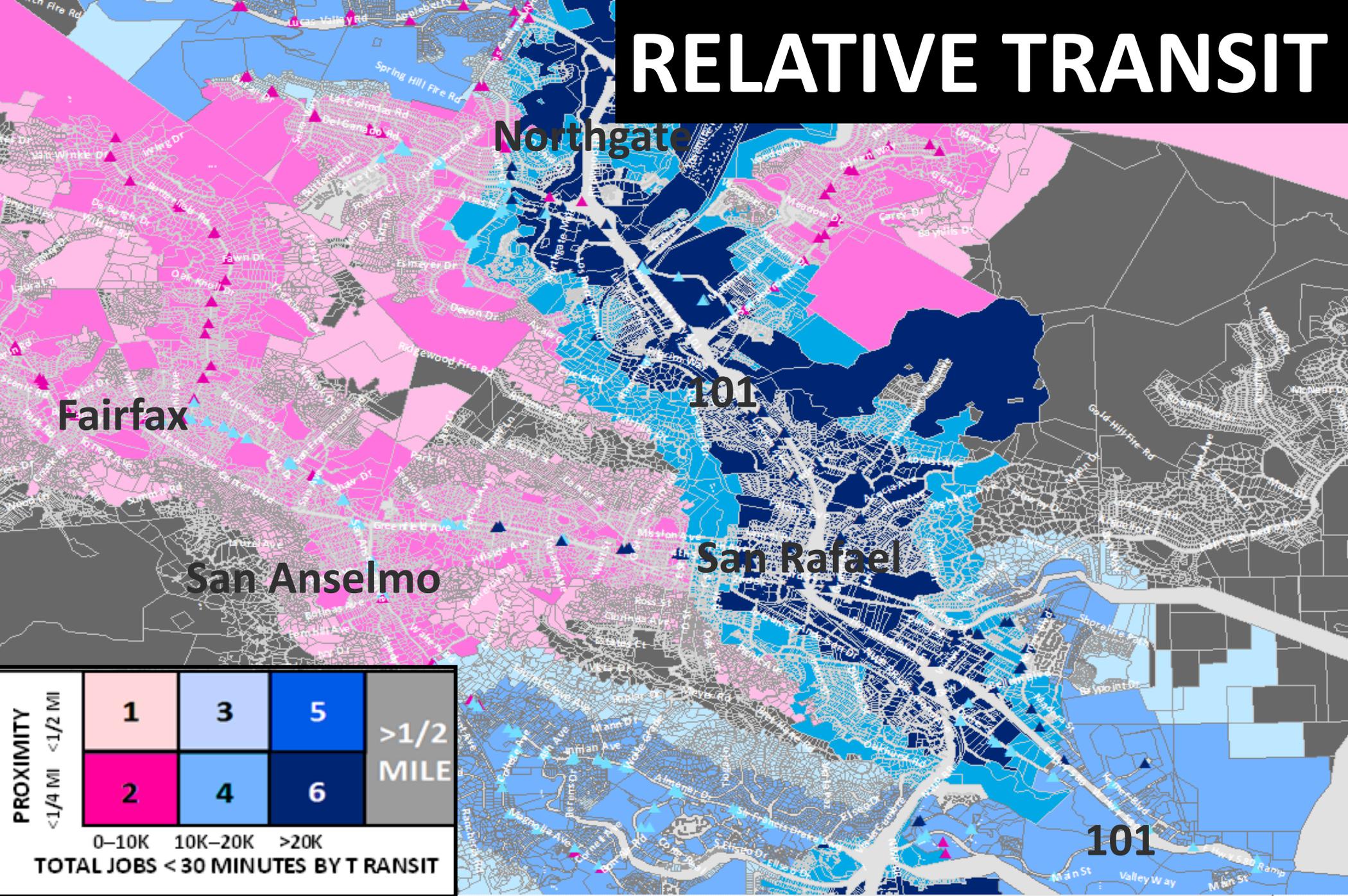
San Anselmo

San Rafael

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101

RELATIVE TRANSIT



Northgate

Fairfax

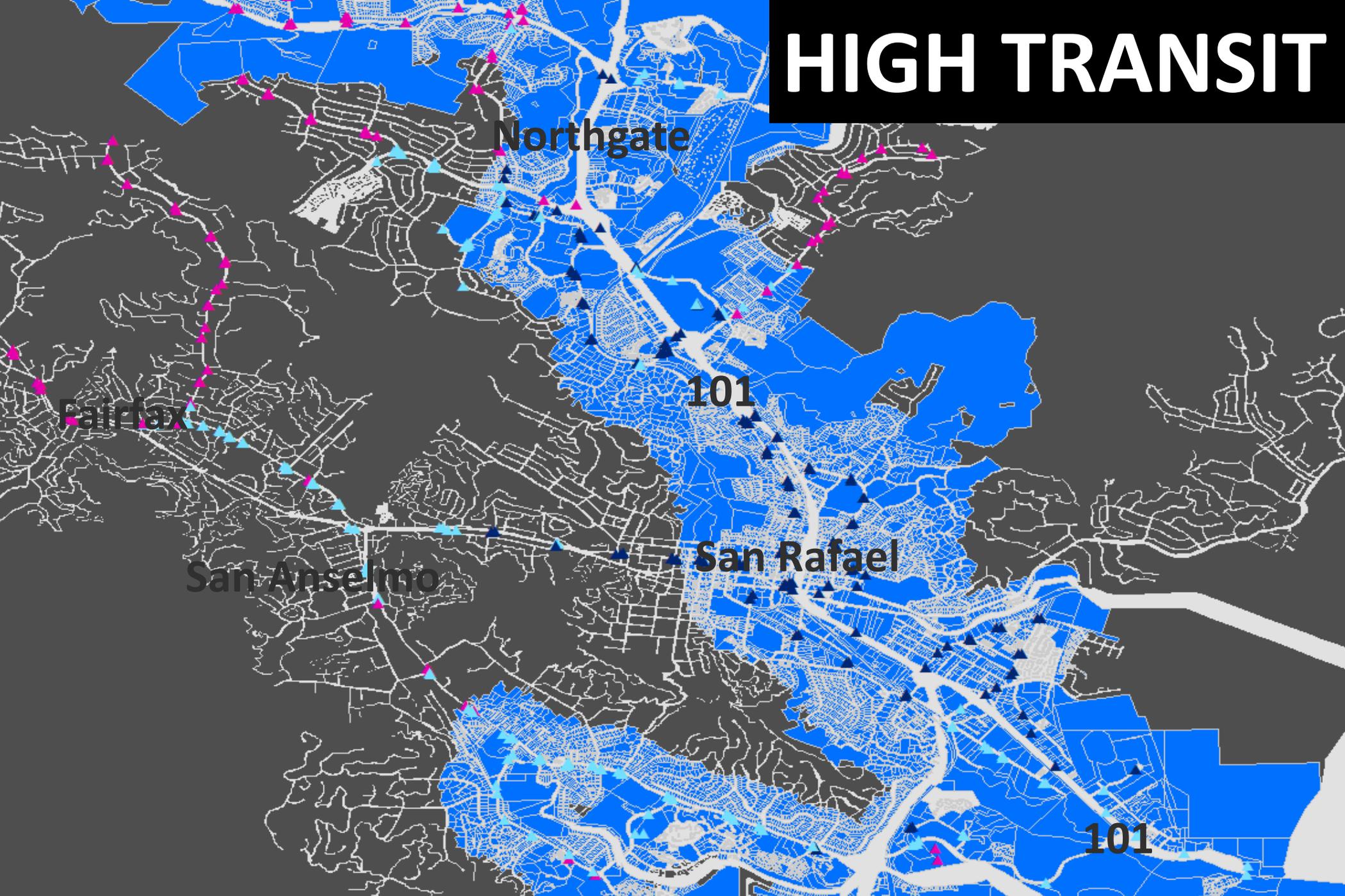
San Anselmo

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San Rafael

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HIGH TRANSIT



Northgate

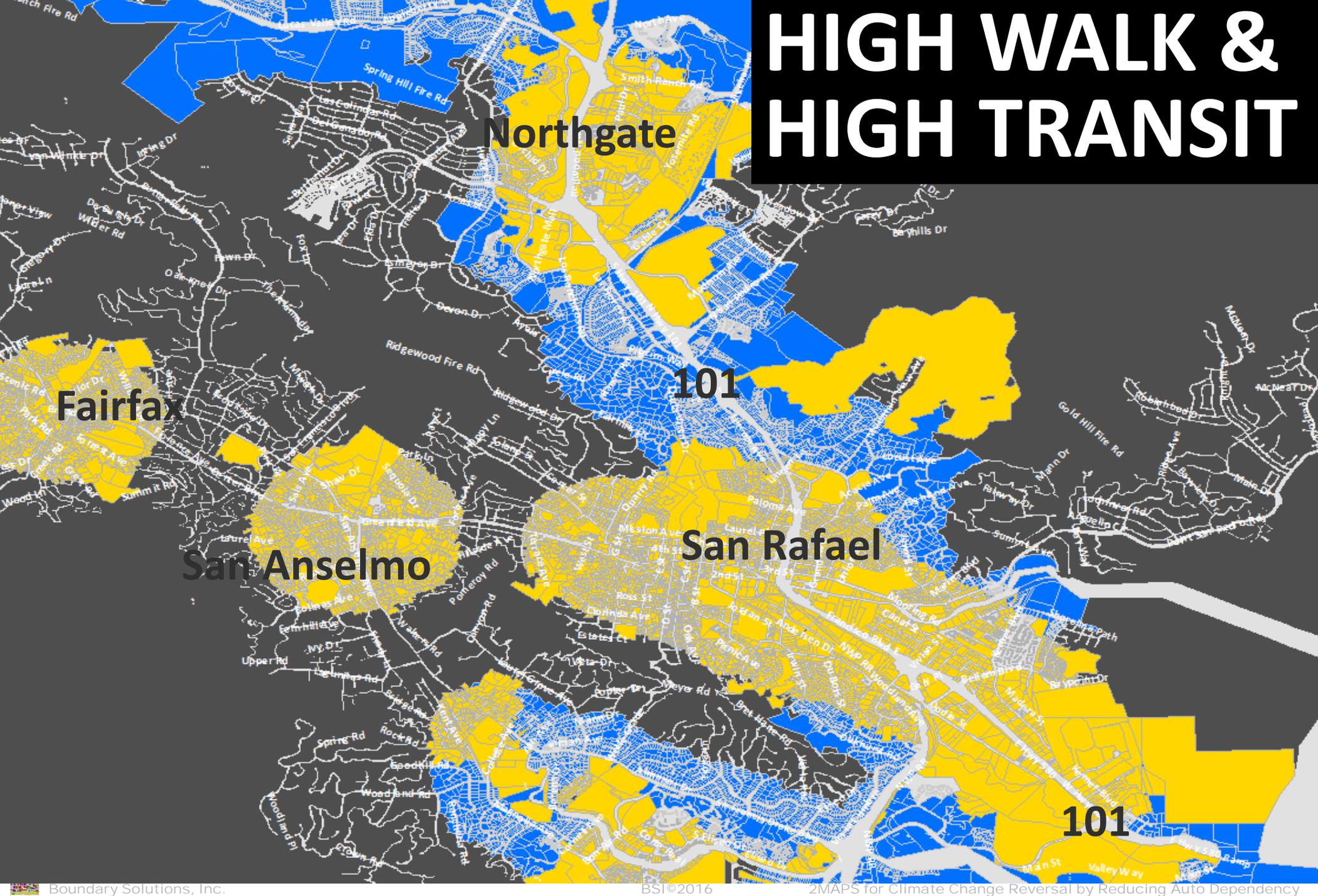
San Anselmo

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San Rafael

101

HIGH WALK & HIGH TRANSIT



Northgate

Fairfax

San Anselmo

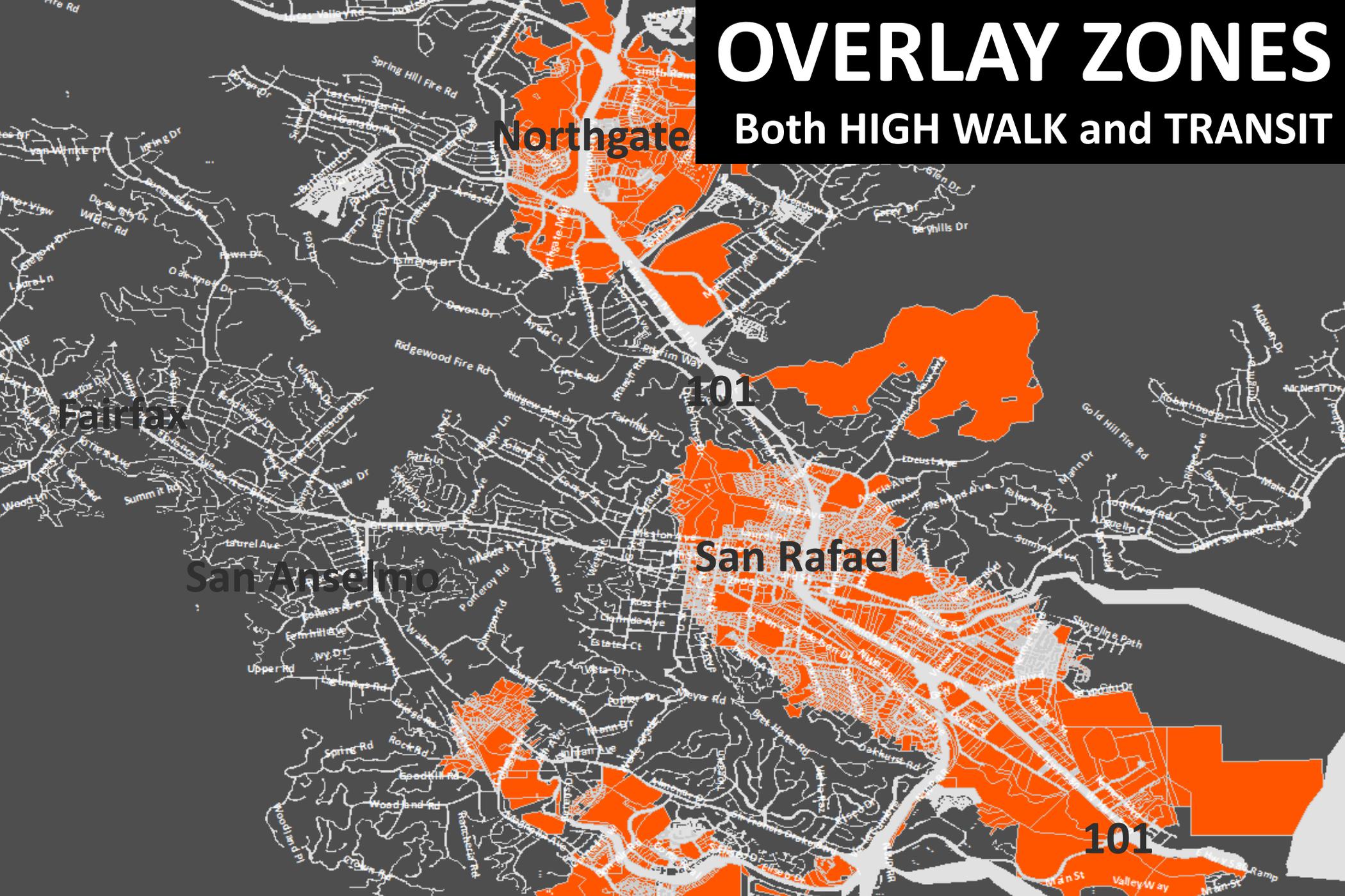
San Rafael

101

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OVERLAY ZONES

Both HIGH WALK and TRANSIT



Northgate

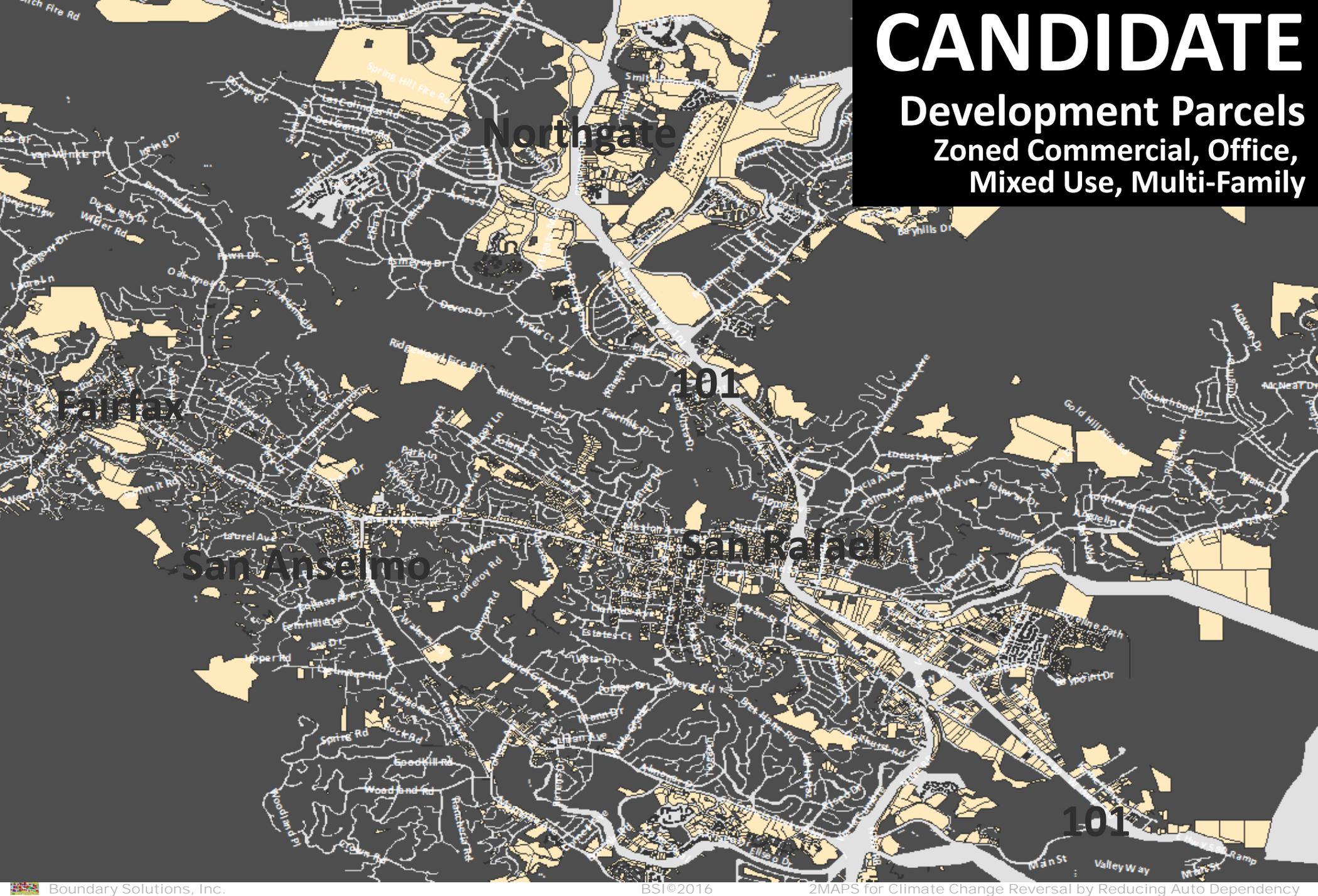
Fairfax

San Anselmo

San Rafael

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CANDIDATE

Development Parcels
Zoned Commercial, Office,
Mixed Use, Multi-Family

Northgate

101

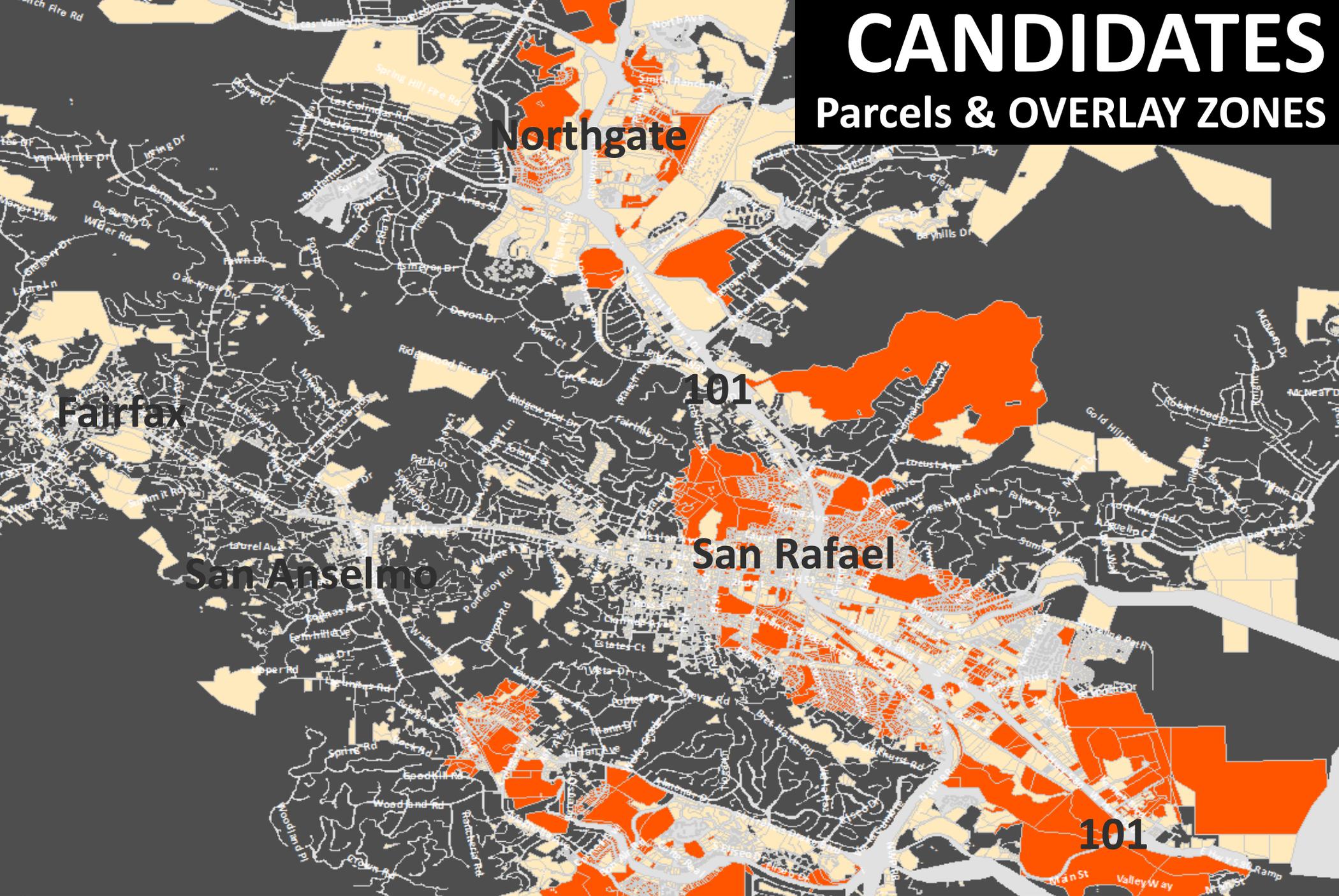
San Rafael

San Anselmo

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CANDIDATES

Parcels & OVERLAY ZONES



Northgate

Fairfax

San Anselmo

San Rafael

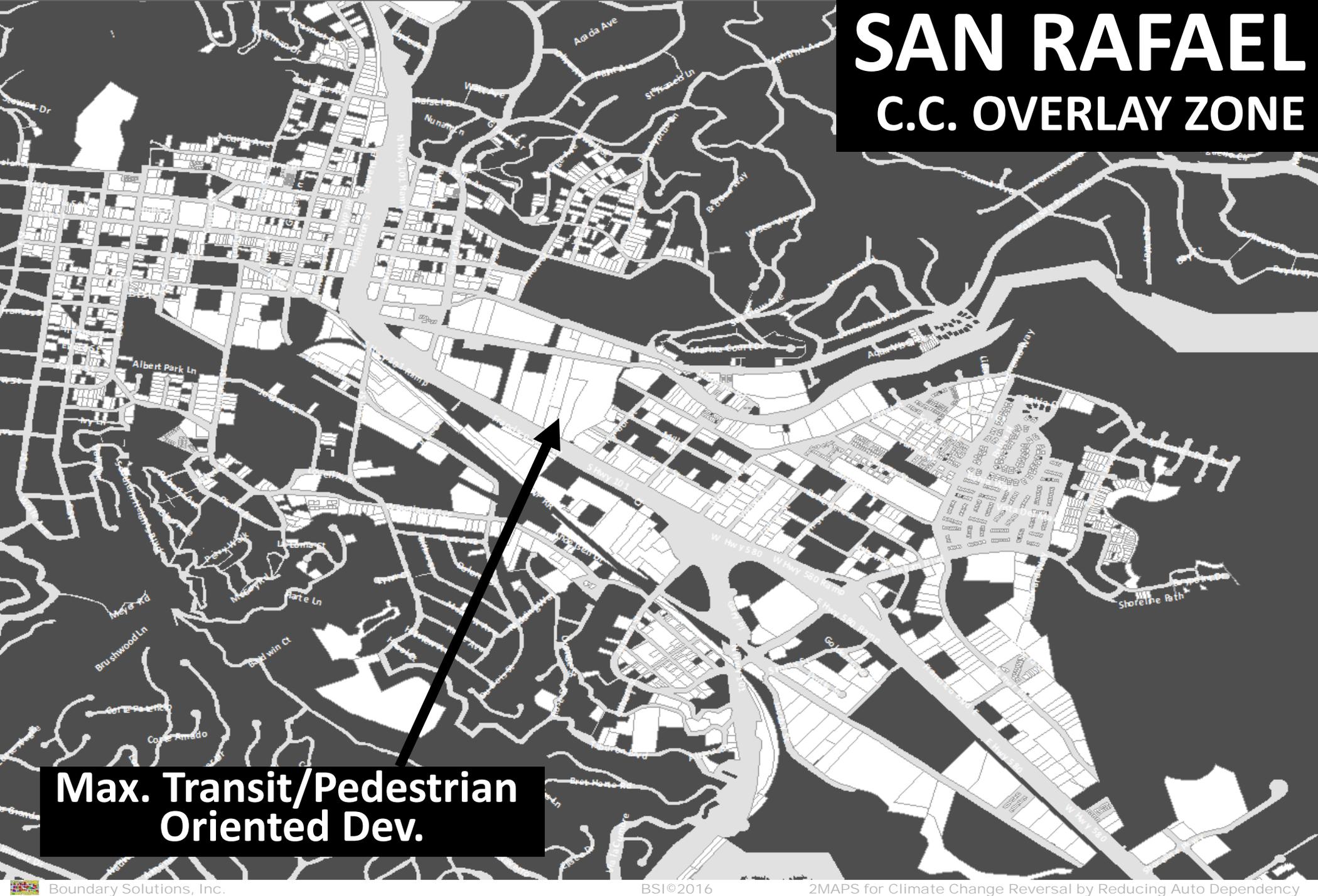
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CLIMATE CHANGE OVERLAY ZONES



SAN RAFAEL C.C. OVERLAY ZONE

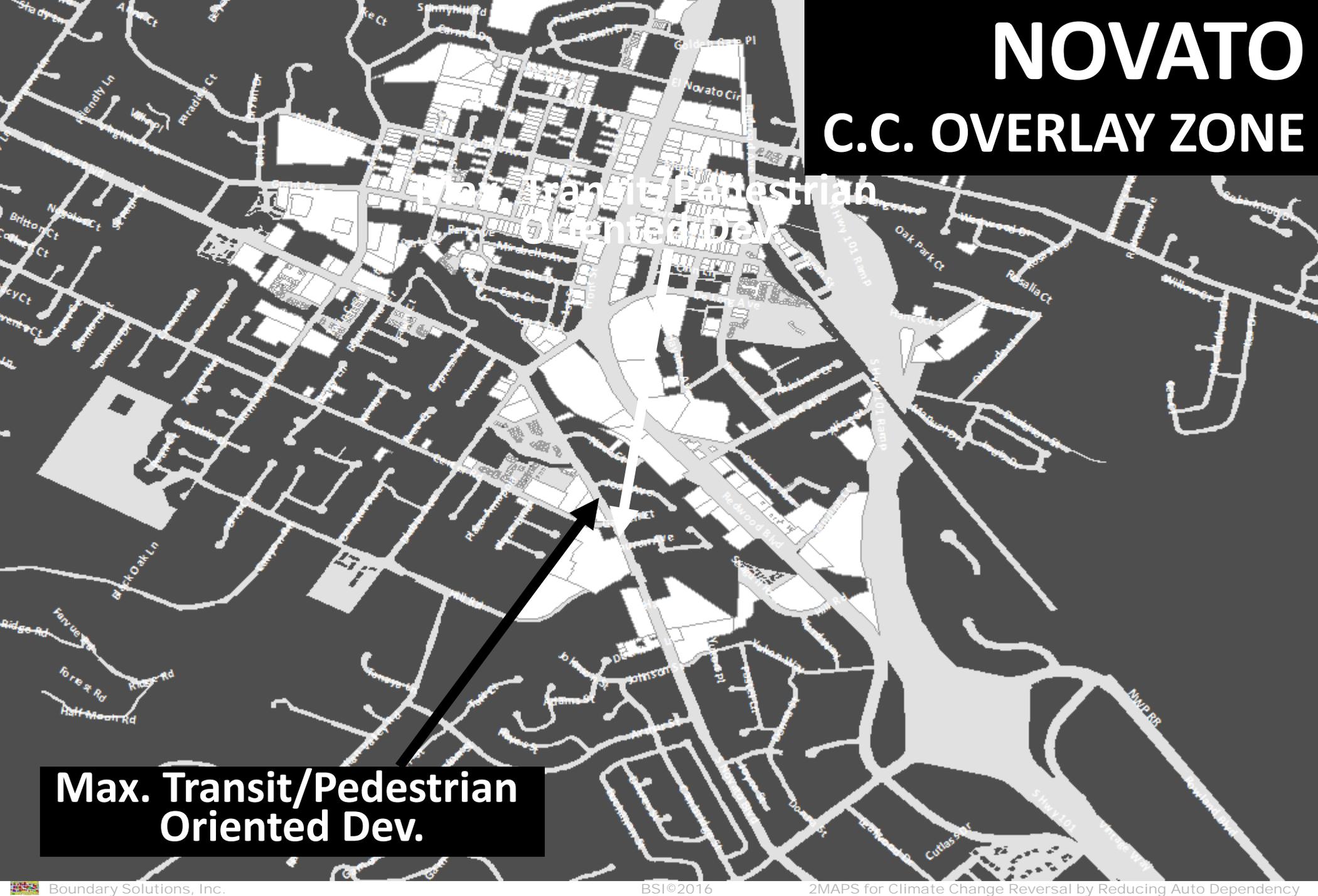


**Max. Transit/Pedestrian
Oriented Dev.**

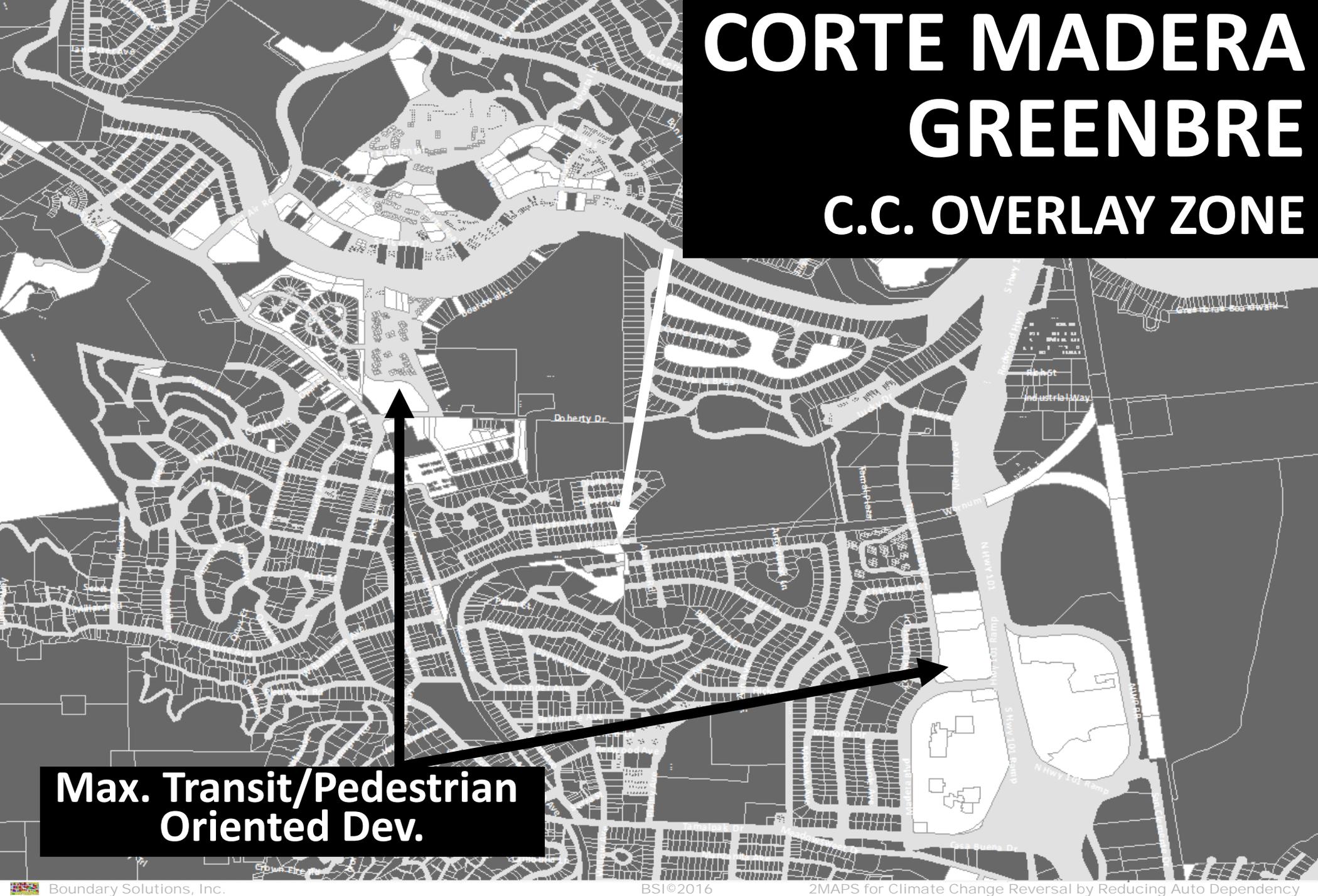
NOVATO C.C. OVERLAY ZONE

Max. Transit/Pedestrian
Oriented Dev.

Max. Transit/Pedestrian
Oriented Dev.



CORTE MADERA GREENBRE C.C. OVERLAY ZONE

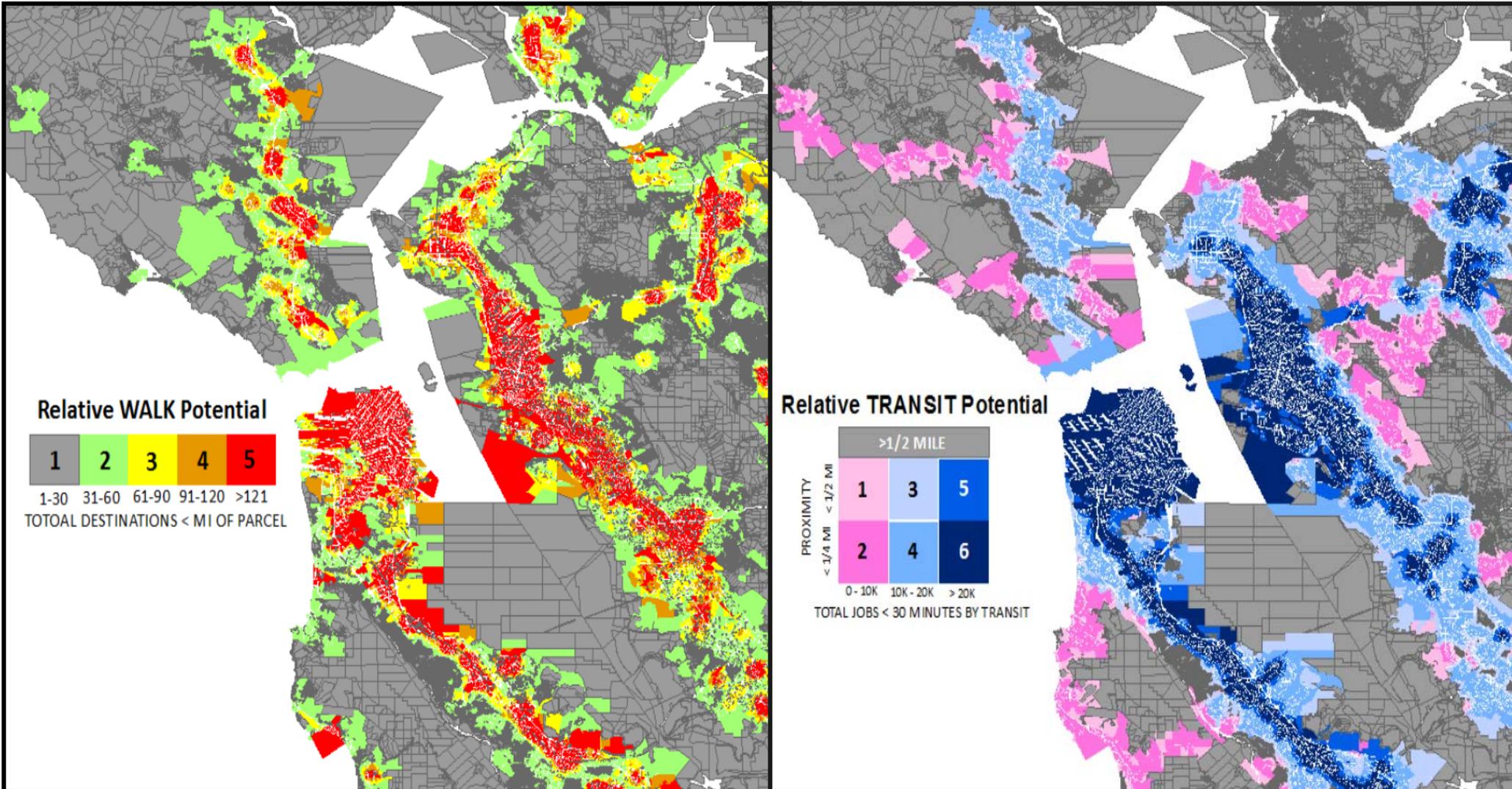


**Max. Transit/Pedestrian
Oriented Dev.**

2MAPS

Reversing Climate Change by Enabling Town Workers to live where they Work

SAN FRANCISCO BAY AREA MAPS PARCEL-LEVEL GEOSPATIAL MODEL



2MAPS

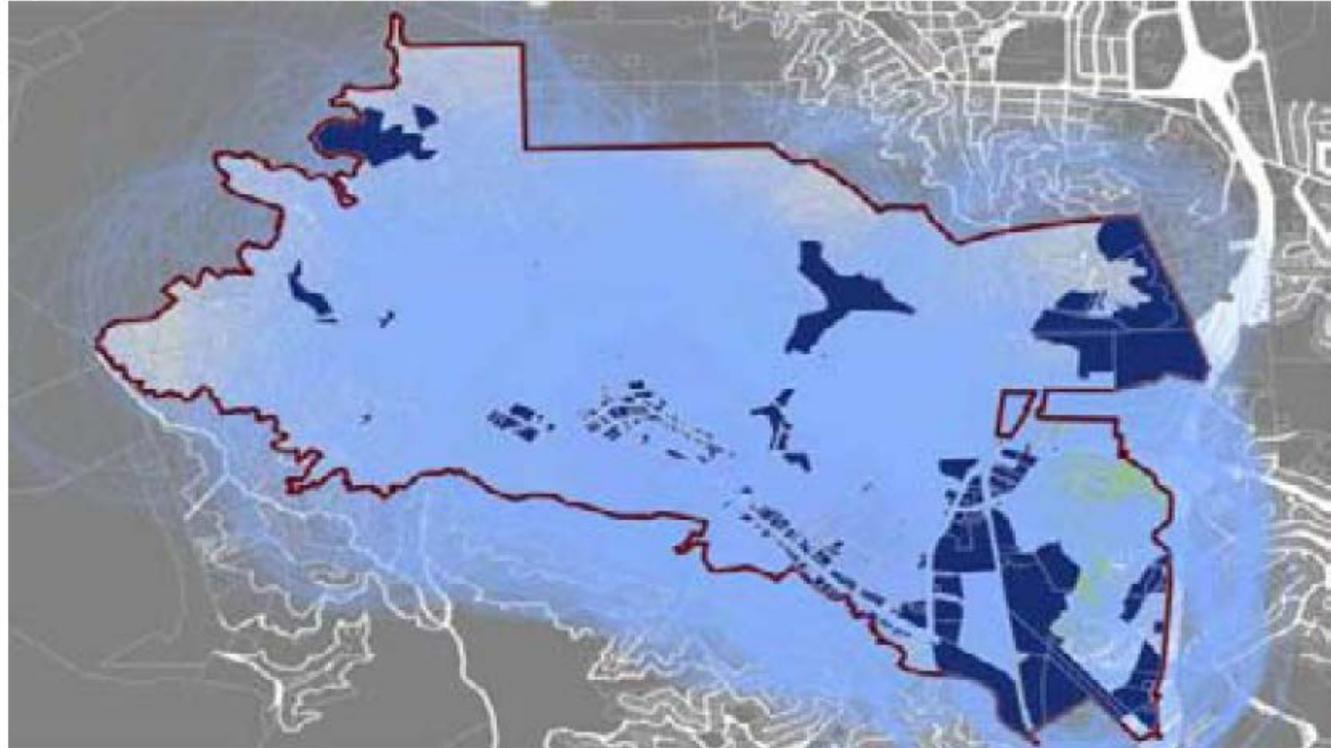
**For More Town Workers Living Where they Work
to Beat Climate Change: Sample Story**

CASE STUDY: MILL VALLEY
2MAP CLIMATE CHANGE REVERSAL
TRAFFIC/CARBON REDUCTION
GEOSPATIAL MODEL

BUFFERED DESTINATIONS

Relative WALK Score is total Destinations <1/2 Mile
With each Parcel assigned one of five categories from
NOT WALKABLE to HIGHLY WALKABLE

Figure B.1: Destinations in Mill Valley and Relationship to City Parcels



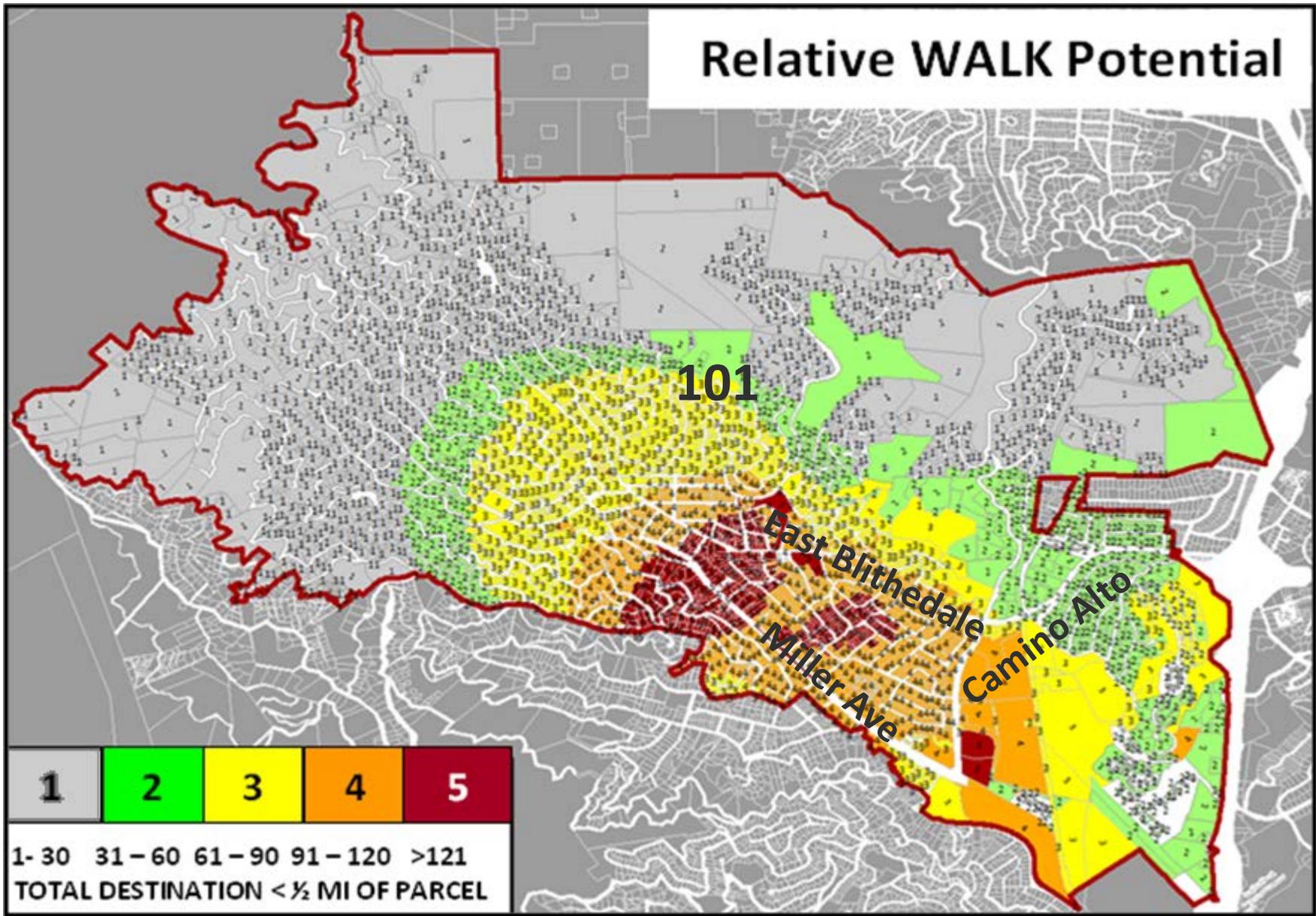
Legend

-  Destinations
-  Half-mile distance from every parcel in the city

CITY OF MILL VALLEY
Housing Element
2015-2040

Volume II - Appendices
Adopted May 4, 2015

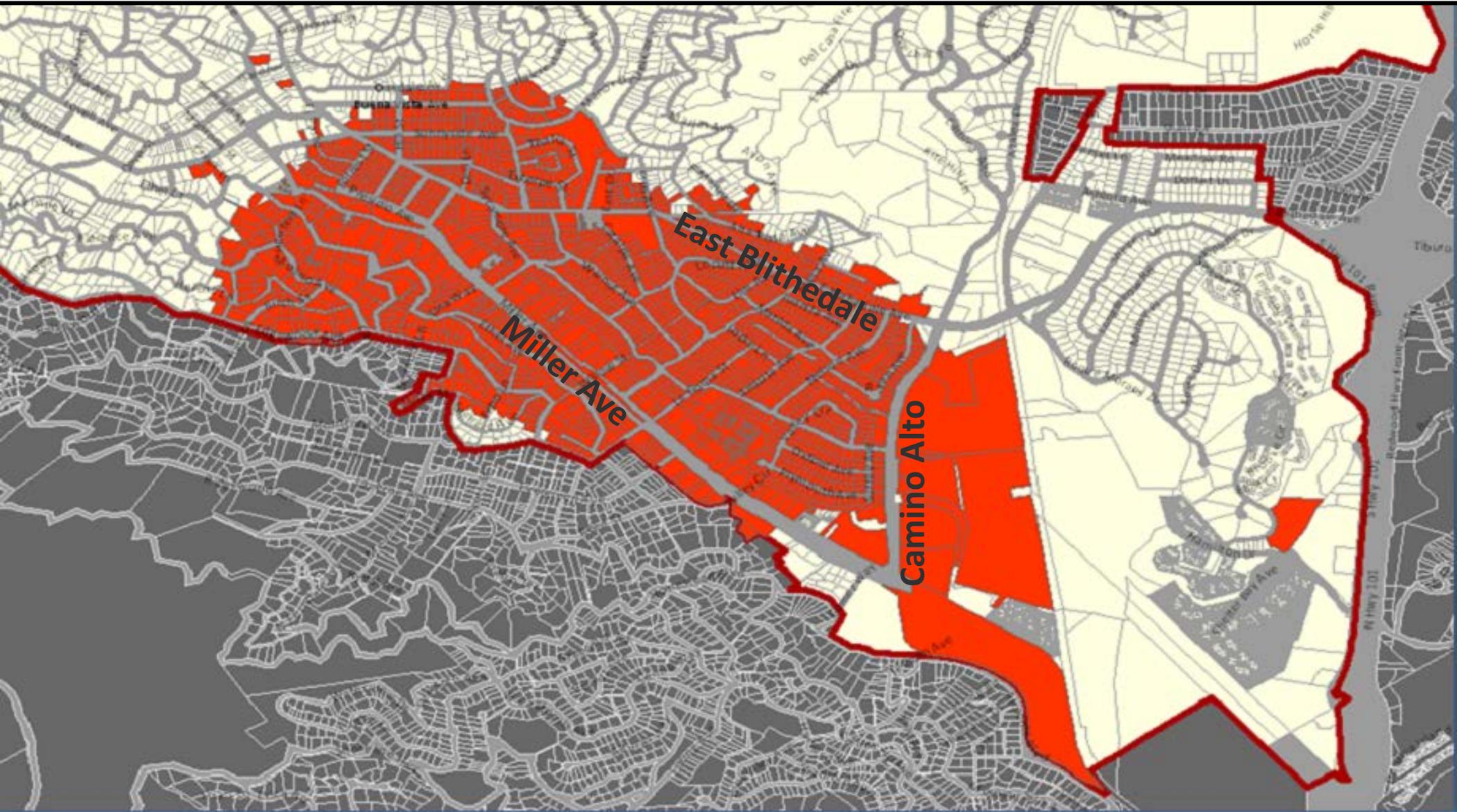
B. Housing Constraints Analysis
Page B-43



Source: Mill Valley 2040 General Plan

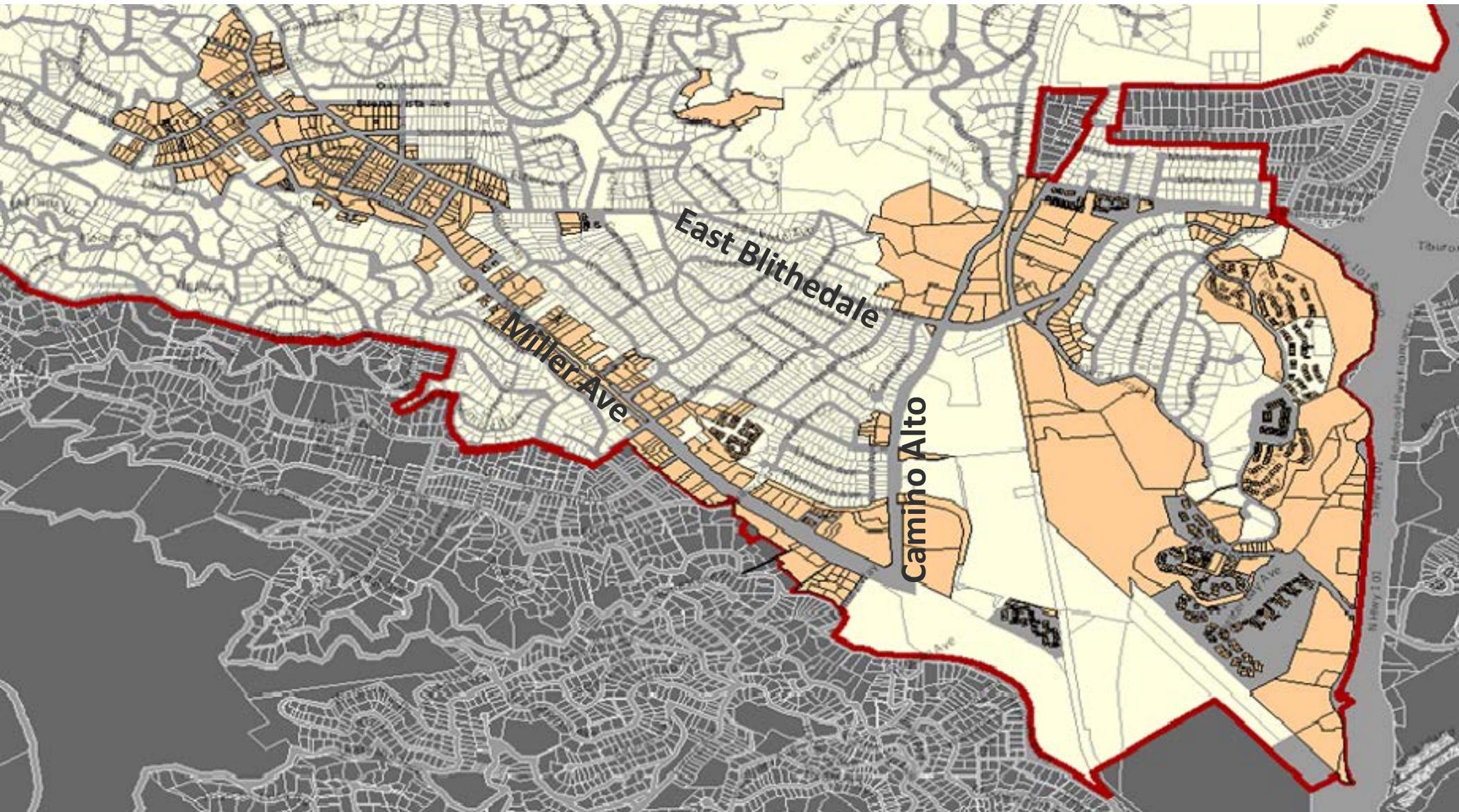
HIGH WALK POTENTIAL

All Parcel in the top 2 Walk Categories are Isolated as HIGH WALK Parcels



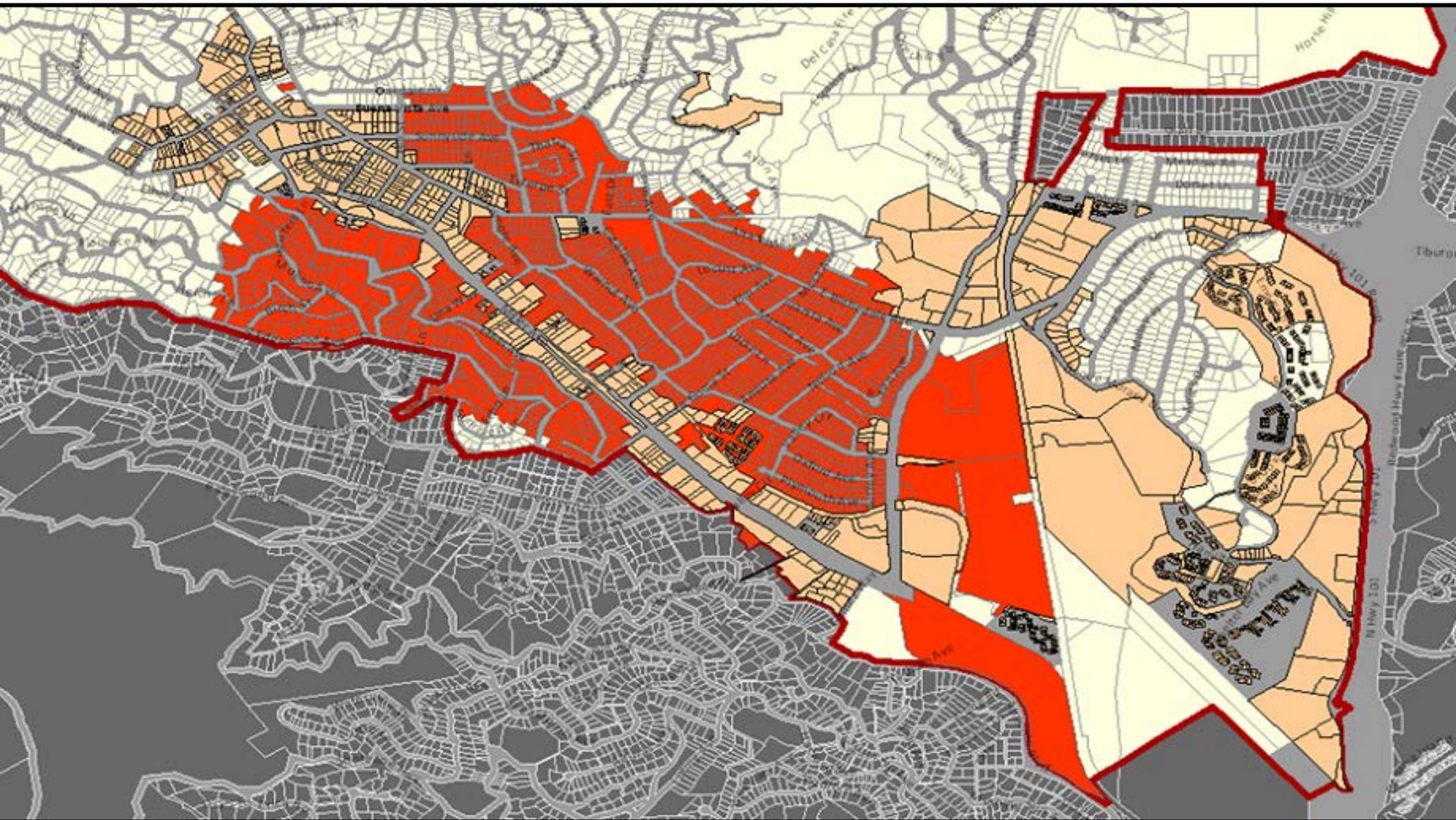
CANDIDATE DEVELOPMENT PARCELS

Then all Legally, Environmentally and Politically Compliant Non-Single Family Parcels are identified and made into a Candidate Site 'Footprint'



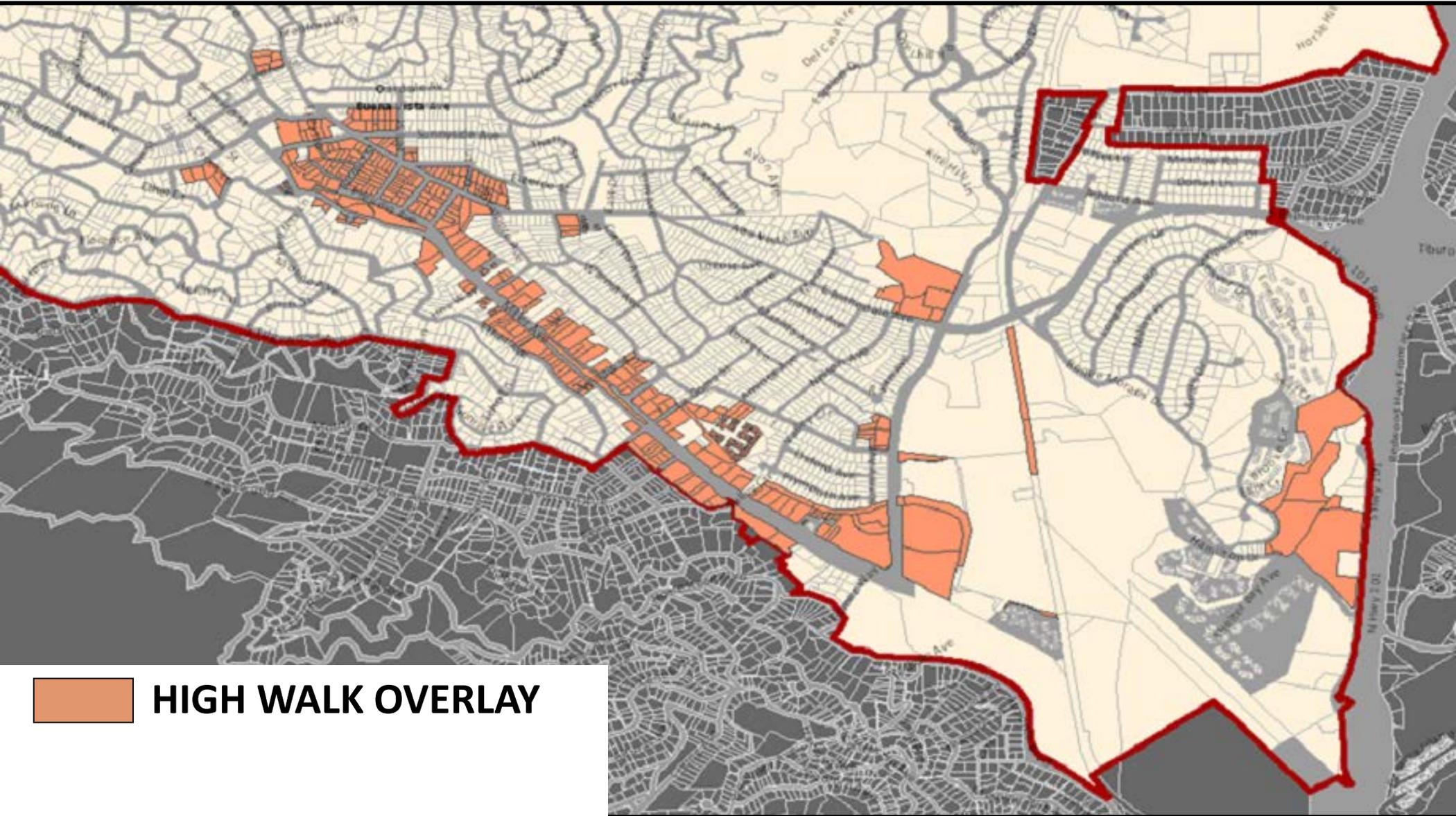
INTERSECTION

All Candidate Parcels and All HIGH WALK Parcels



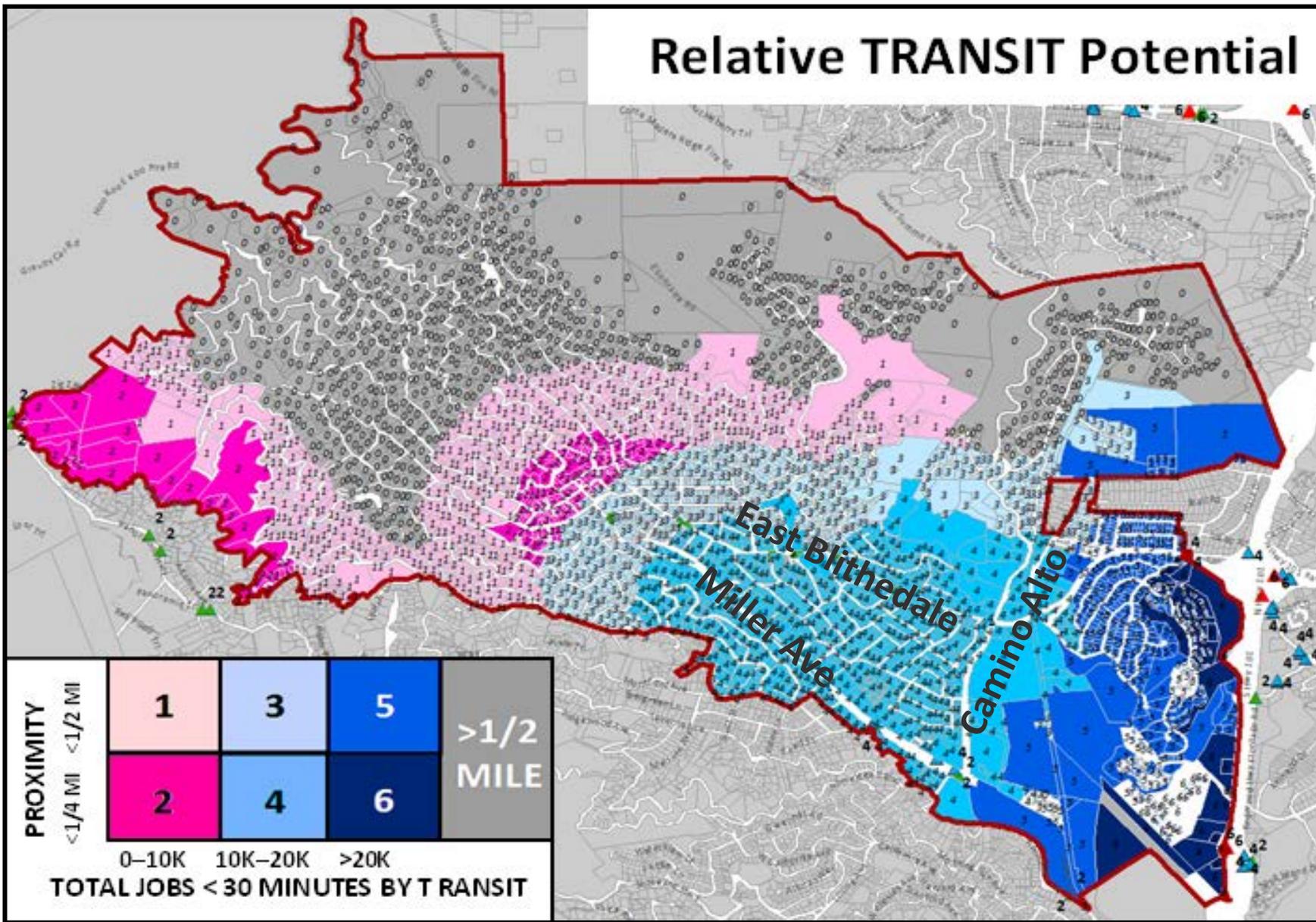
HIGH WALK POTENTIAL OVERLAY

All CANDIDATE Parcels that are also HIGH WALK Parcels



HIGH WALK OVERLAY

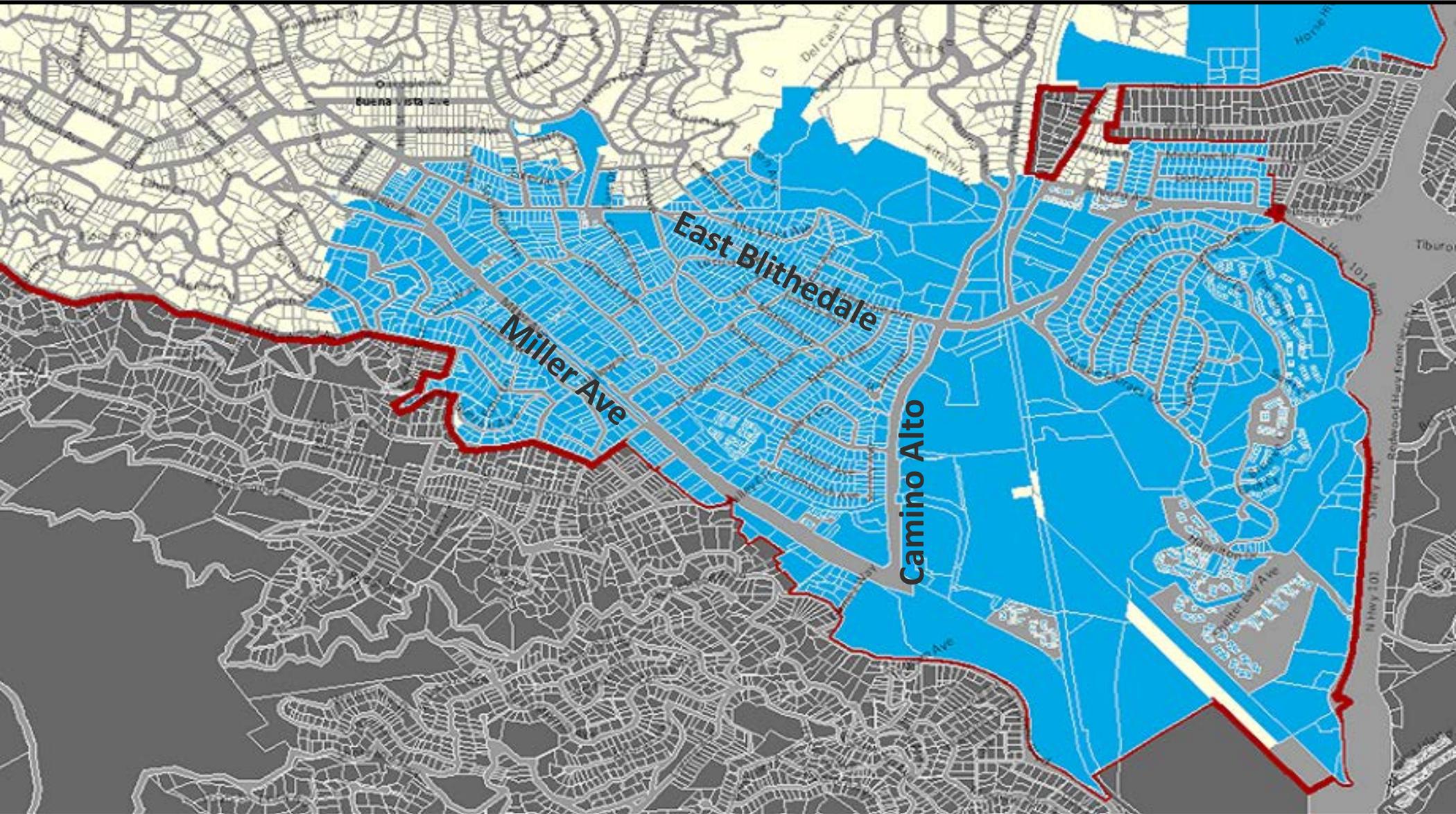
Relative TRANSIT Potential



Source: Mill Valley 2040 General Plan; University of Minnesota Accessibility Observatory, Transit Access Across America

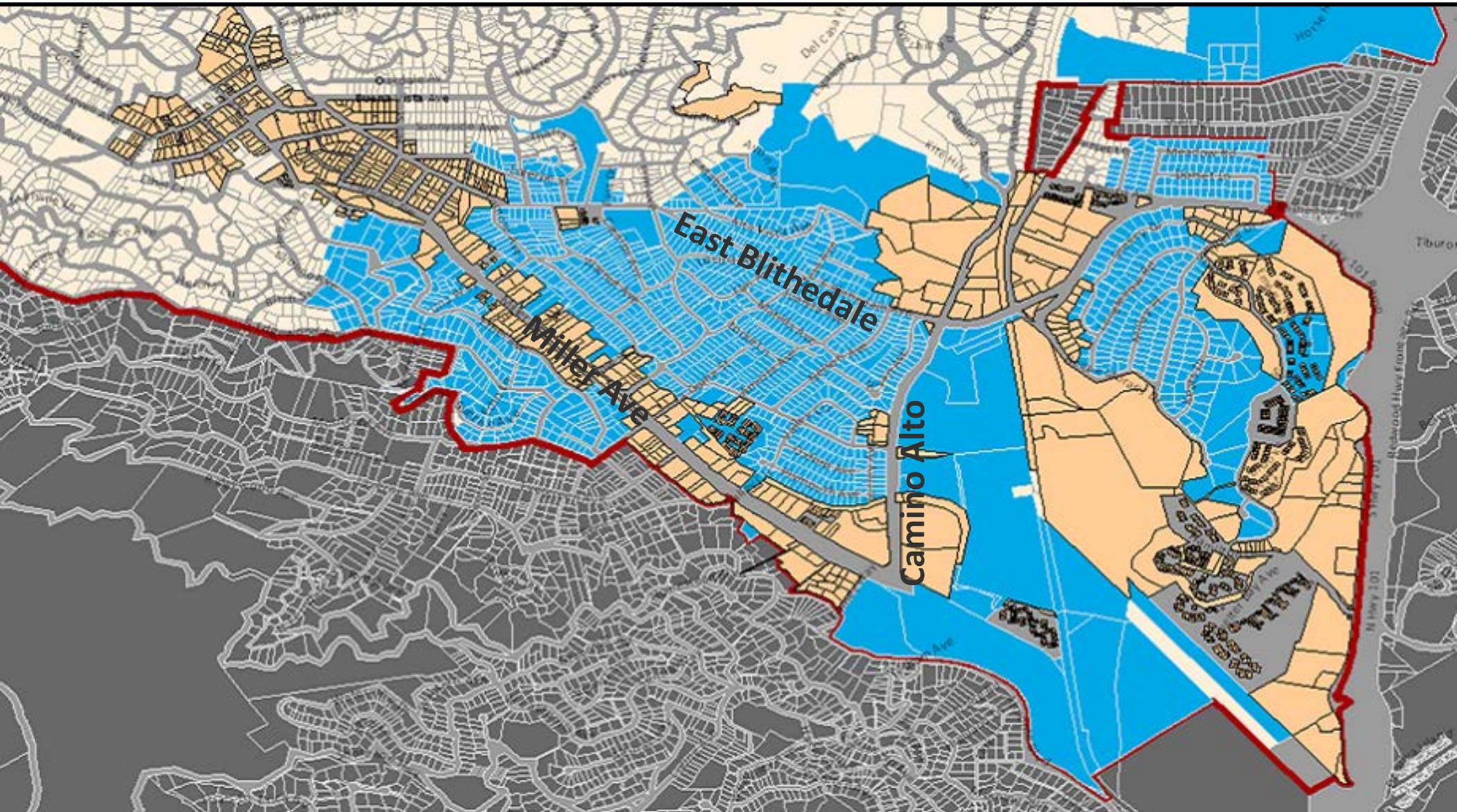
HIGH TRANSIT POTENTIAL

All Parcel in top 4 TRANSIT Categories are Isolated as HIGH TRANSIT Parcels



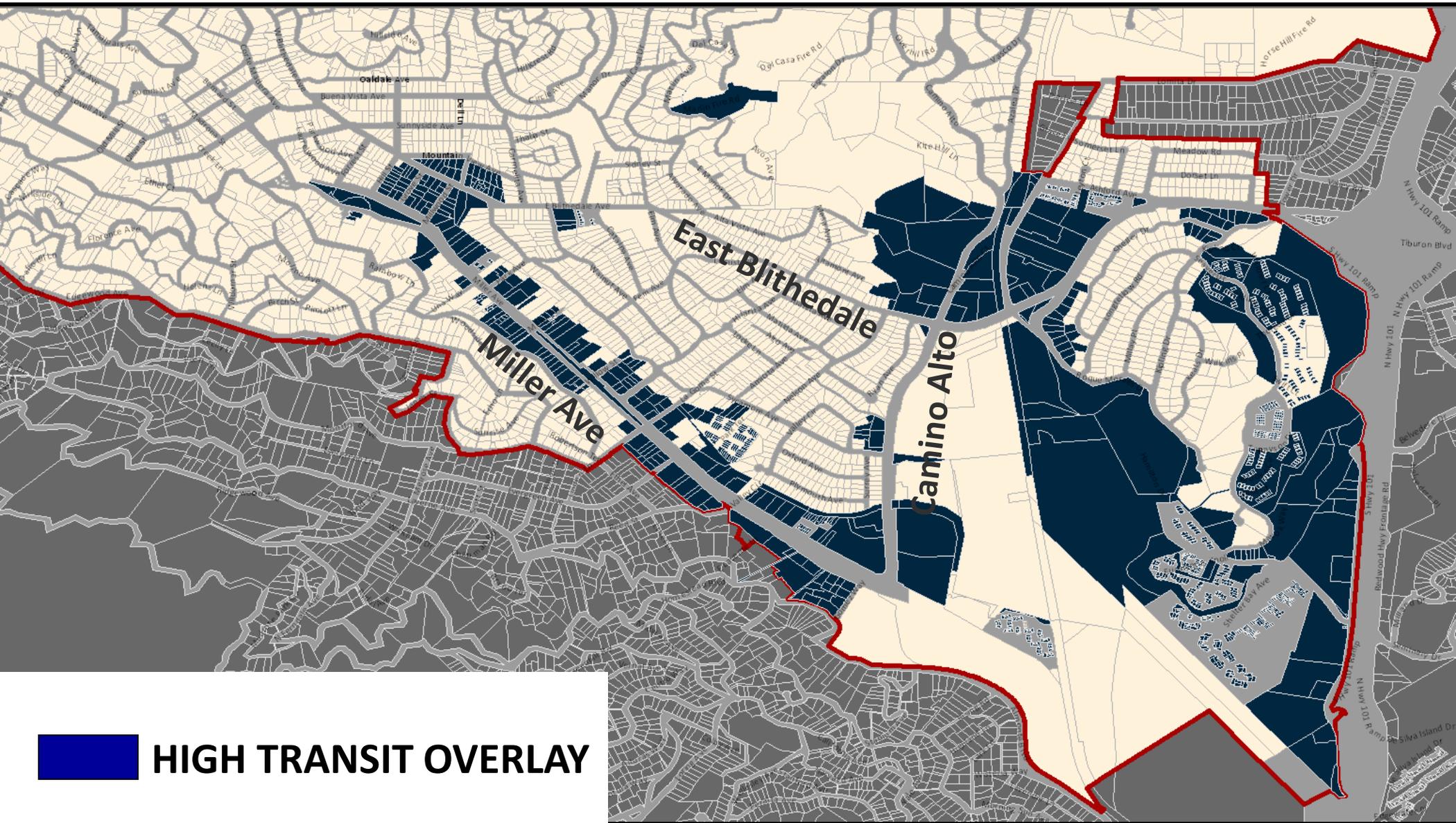
INTERSECTION

Candidate Development Parcel are intersected with High TRANSIT Parcels ...



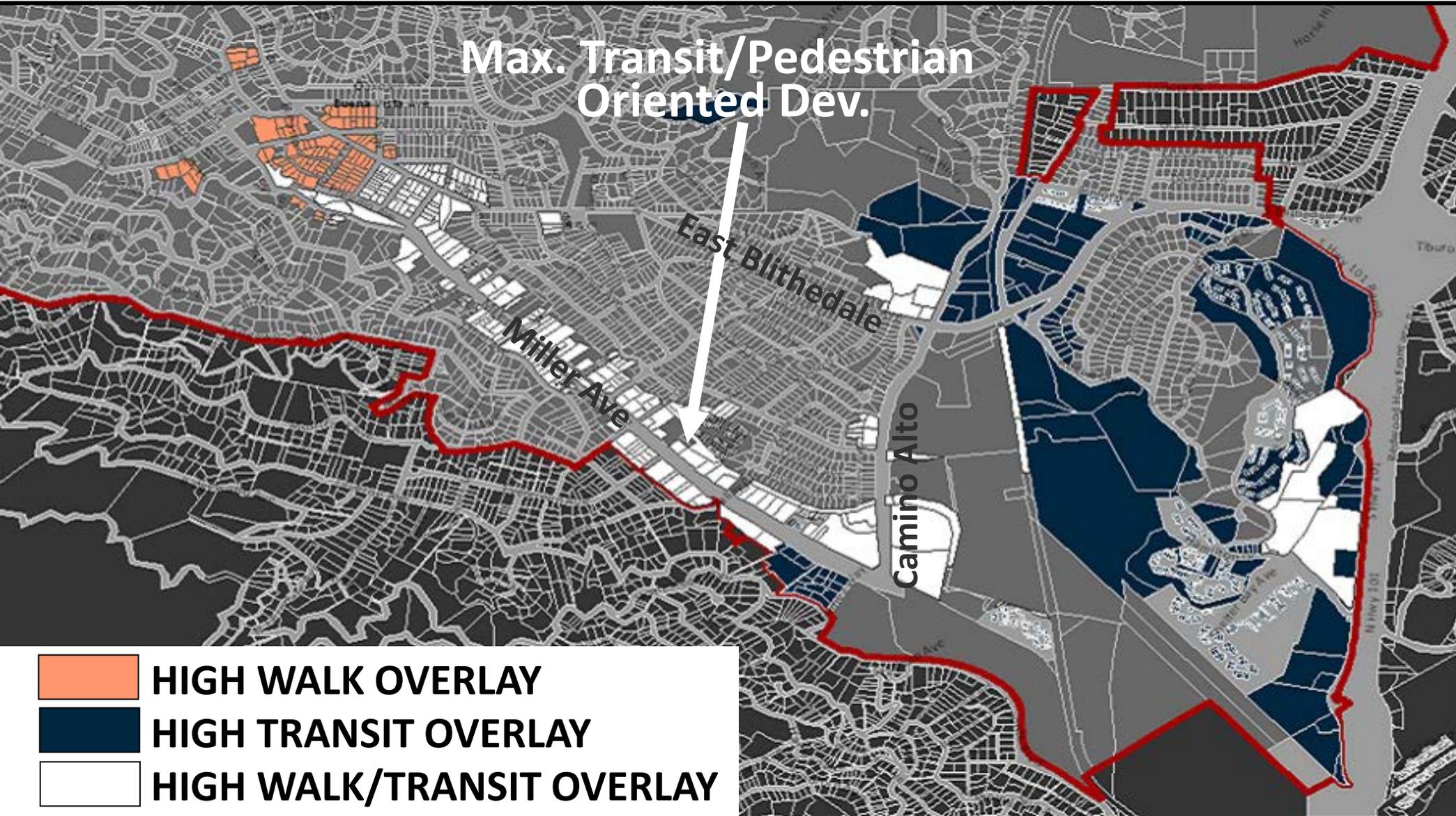
HIGH TRANSIT POTENTIAL CANDIDATE PARCELS

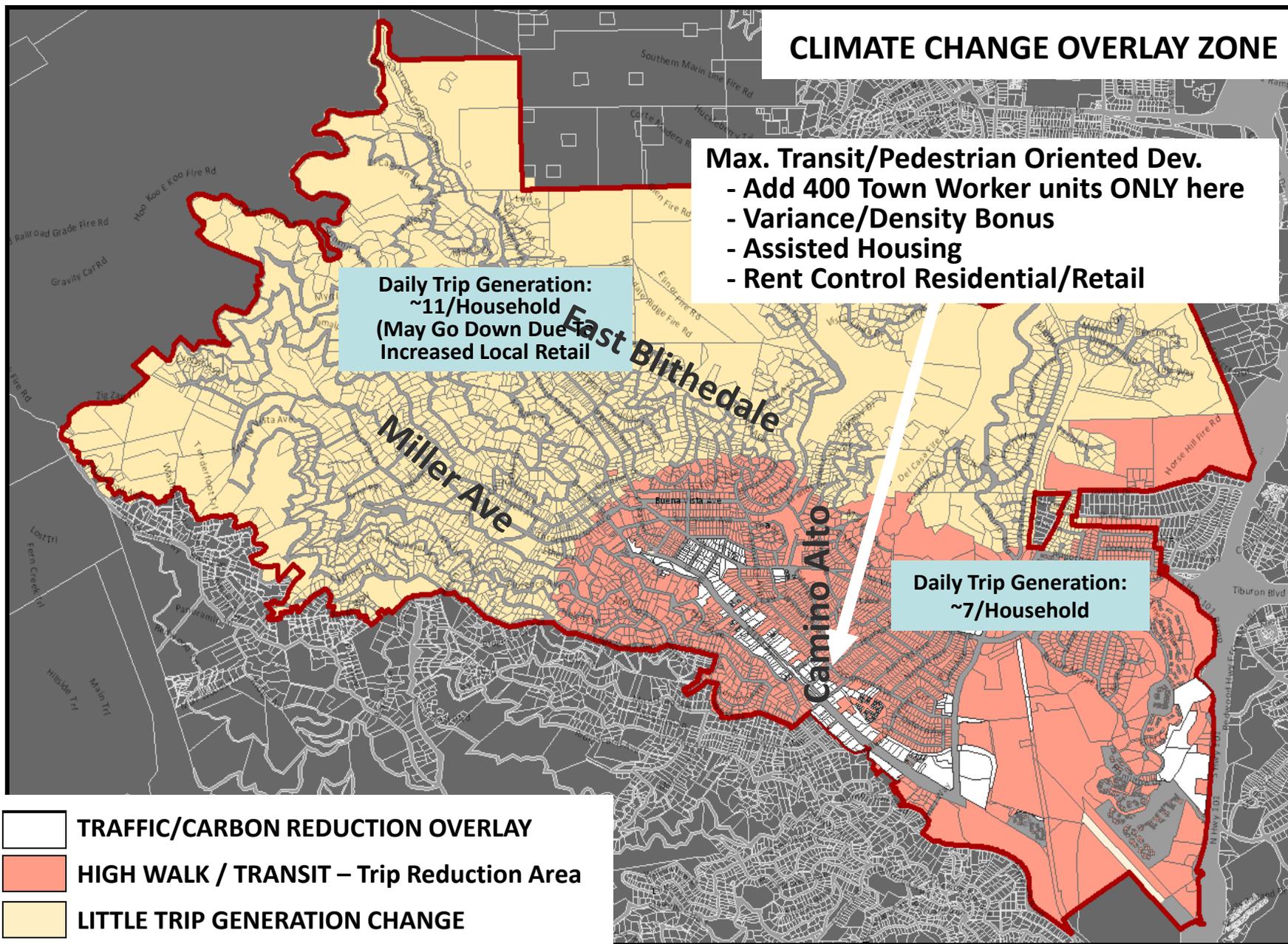
To Identify all HIGH TRANSIT Potential Overlays



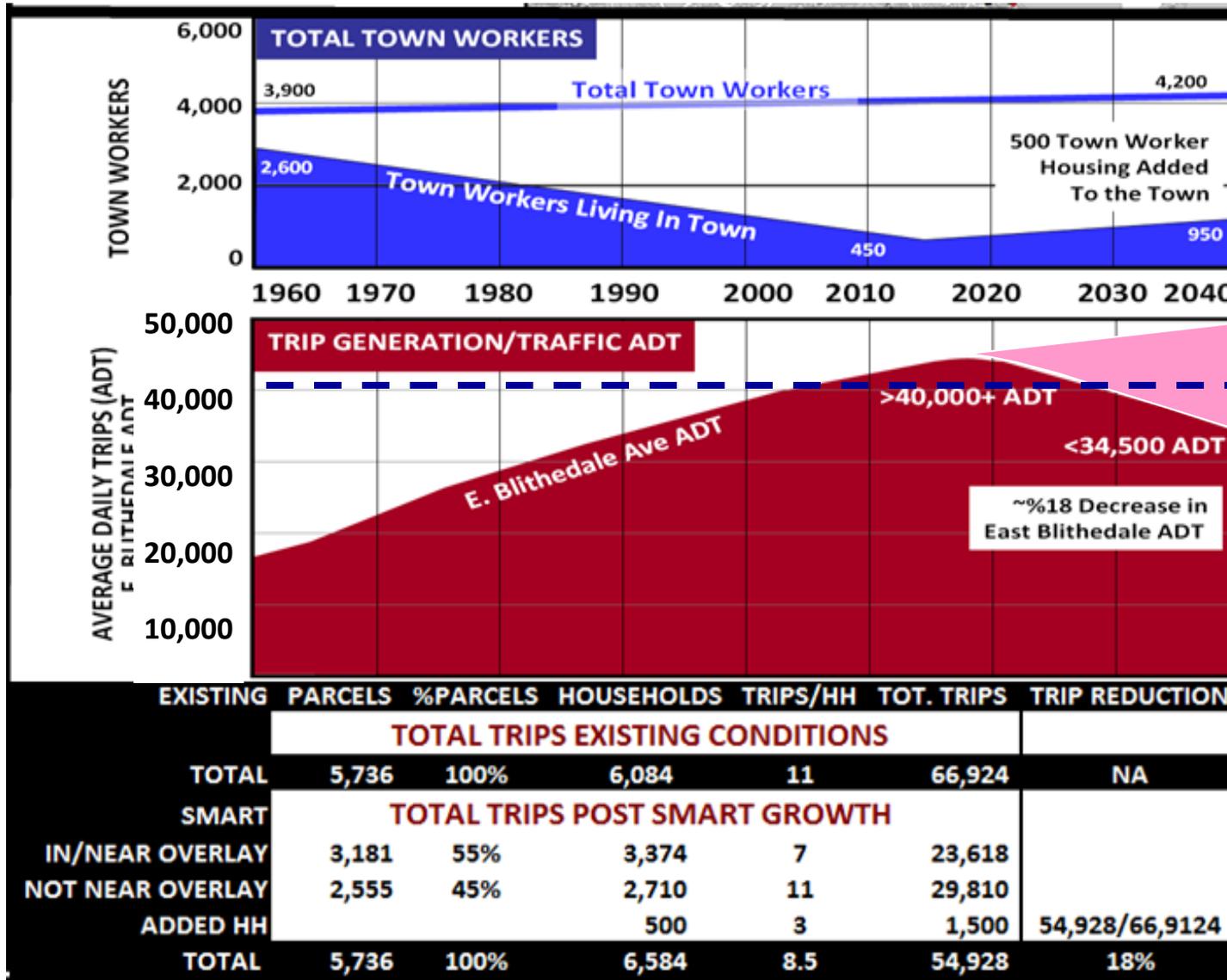
CLIMATE CHANGE OVERLAY ZONE

All CANDIDATE Parcels that are also HIGH WALK and HIGH TRANSIT Parcels





THE PAYOFF – PERMANENT END OF GRIDLOCK

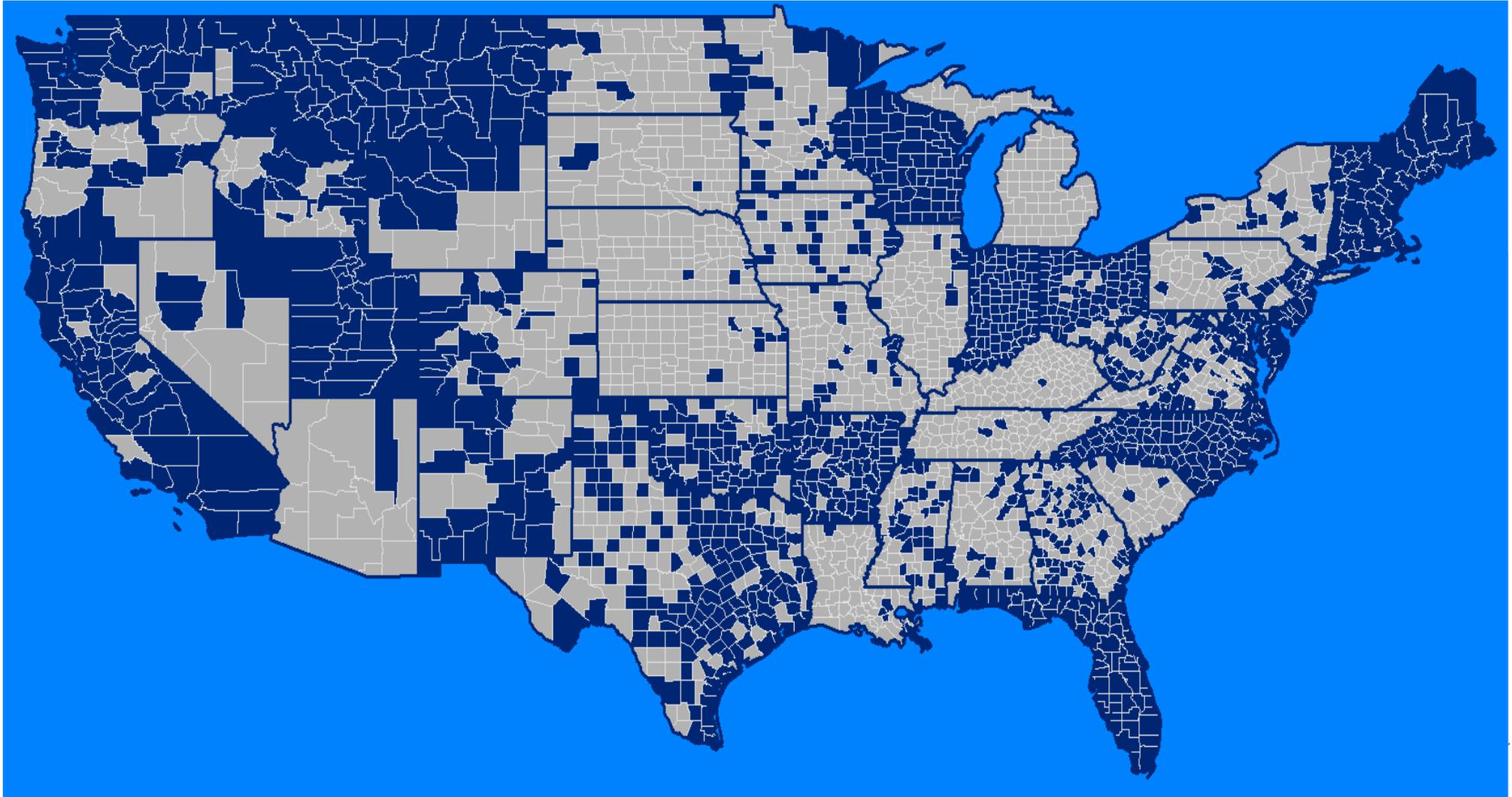


Gridlock Threshold

2MAPS

Reversing Climate Change by Enabling Town Workers to live where they Work

COVERAGE - - Open Record Counties <\$200

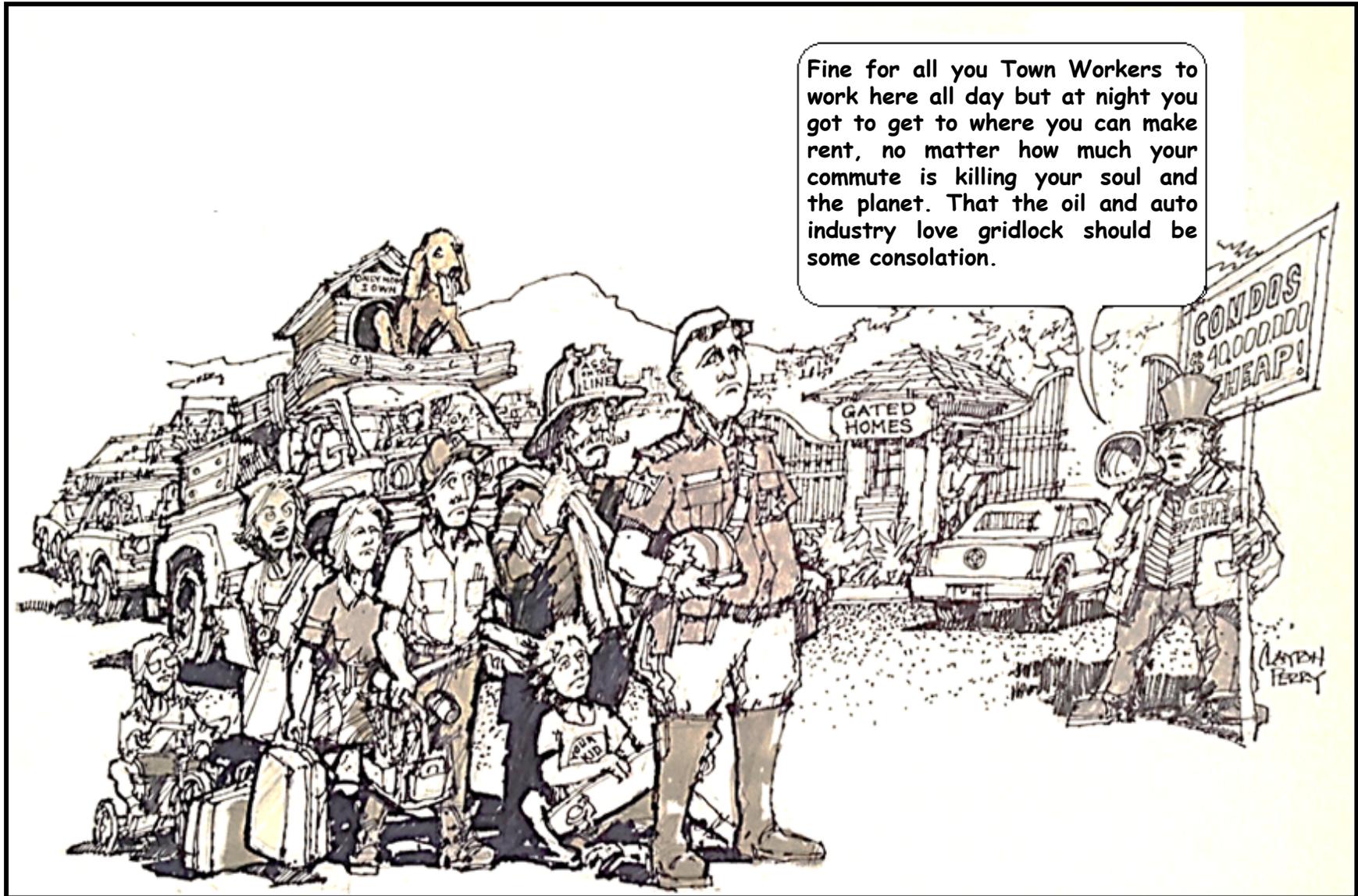


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Reversing Climate Change by Enabling Town Workers to live where they Work

**Now that we Know Where to Develop
Next Question is How to Overcome Opposition**

SOURCE: <http://www.hud.gov/offices/cpd/about/conplan/foreclosure/pdf/austincommtrust.pdf>



**Town Workers - Police, Fire, Teachers, Retail Clerks and Managers, Restaurant Workers, Bar Tenders, Nurses, Local Government Staff, Bookkeepers, Domestic Workers, Gardeners, Mechanics and all others who perform a service for local town residents that has to be done.

2MAPS

Reversing Climate Change by Enabling Town Workers to live where they Work

Community Land Trust (CTL) Creating Profitable Real Estate Investments

A Community Land Trust (CLT) functions to increase and protect affordable housing. The CLT is typically a non-profit organization that acquires and retains ownership of the real property and, in effect, sells the improvements via a 99-year ground lease to a homeowner, another non-profit, a cooperative housing corporation, or for-profit entity. CLTs protect housing affordability in perpetuity by ensuring that the housing is made affordable to low- to moderate-income persons upon the sale of a single-family, multi-family, and/or commercial property.

SOURCE: <http://www.hud.gov/offices/cpd/about/conplan/foreclosure/pdf/austincommtrust.pdf>

2MAPS

Reversing Climate Change by Enabling Town Workers to live where they Work

Community Land Trust (CTL) Creating Profitable Real Estate Investments

Real Estate Professionals Doing WELL

Buy overlooked properties low and sell high when added to CLT

By Doing GOOD

**Being an agent of change so the traffic /carbon footprint
goes away once historic Town Worker / Town Resident Ratio is restored**

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Reversing Climate Change by Enabling Town Workers to live where they Work

Remedy: Recruit the local Real Estate Community

CLT CHARACTERISTICS

Perpetual Affordability. The CLT retains an option to repurchase the housing unit(s) located on its land should the owner/lessee choose to sell. The resale price is set by a formula designed to give present low-income homeowners a fair return on their investment

Perpetual Responsibility. The CLT, as owner of the land underlying the housing unit(s) and as owner of an option to repurchase the housing unit(s), has a continuing interest in what happens to the buildings and to those who occupy them.

Community Control. The CLT is typically a community-based organization, drawing members from its own leaseholders and from residents of its community.

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Reversing Climate Change by Enabling Town Workers to live where they Work

Remedy: Recruit the local Real Estate Community

CLT CHARACTERISTICS

Balanced Governance. The board of directors of the CLT model is traditionally composed of three parts,

- 1) One-third leaseholder representation;
- 2) One-third community representation;
- 3) One-third public officials, local funders, nonprofit housing providers or social services Representing the public interest.

Flexible Development. The CLT is a community development tool that accommodates a variety of land uses and a diversity of building tenures and types. CLTs construct, acquire, rehabilitate, and resell housing of many kinds, e.g., single-family homes, duplexes, condominiums, cooperatives and single-room occupancies (SROs), apartment buildings.

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Remedy: Recruit the local Real Estate Community

CLT BENEFITS

Stewardship: Preserving Scarce Resources

Through the 99-year ground lease, the CLT preserves affordability for future homeowners. The initial investment in affordable housing units is recycled by the resale restriction contained in 99-year the ground lease.

Mobility: Enhancing the Housing Continuum

The CLT model provides an additional rung on the housing continuum ladder for low-income households interested in homeownership opportunities.

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Reversing Climate Change by Enabling Town Workers to live where they Work

Remedy: Recruit the local Real Estate Community CLT BENEFITS

Stability: Supporting Development without Displacement

The CLT can direct investments in neighborhoods undergoing gentrification with a minimum negative impact. Public funding invested in a CLT benefits low-income households in rapidly appreciating neighborhoods by providing long-term resident renters and homeowners an opportunity to secure affordable home ownership.

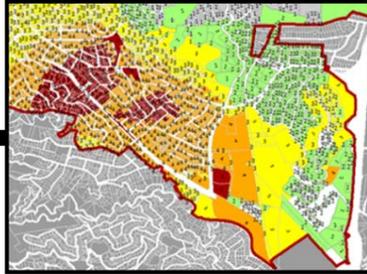
Flexibility: Adapting to Sites, Funds, & Constituencies

The CLT abandons a one-size-fits all approach to community development and allows for mixed-use land development and a mix of types of housing in scattered-site projects.

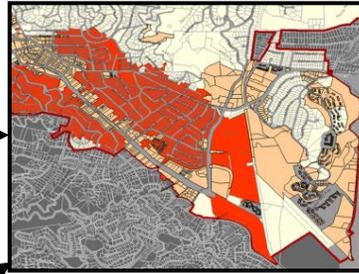
**BUFFERED
DESTINATION PARCELS**



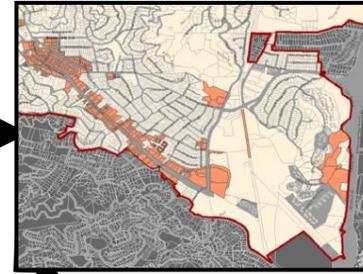
**RELATIVE
WALK POTENTIAL**



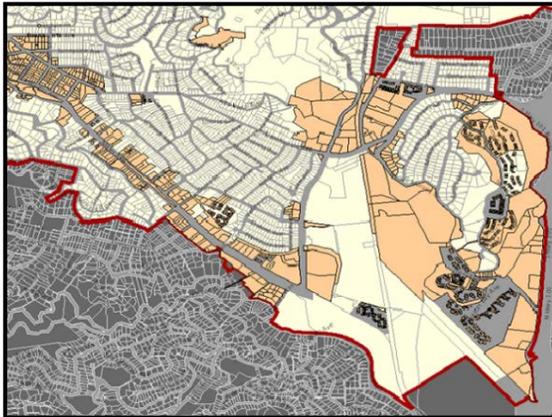
**CANDIDATE PARCELS
IN HIGH WALK AREA**



HIGH WALK ZONE



**CANDIDATE DEVELOPMENT PARCELS
LAND OKAY TO DEVELOP**



2MAPS

**Living Back Together Again or
How More People Means Less Gridlock**

2MAPS is a spatial algorithm for rating every parcel regarding its

**Relative WALK Potential AND
Relative TRANSIT Potential Score**

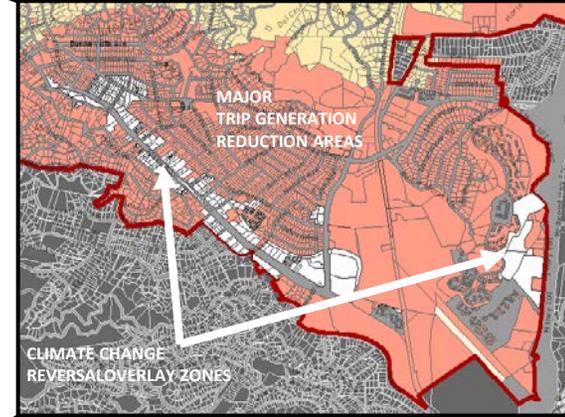
Find all HIGH WALK&TRANSIT parcels that are ALSO
Developable to pin point

CLIMATE CHANGE OVERLAY ZONES

where locating Town Worker housing, retail and rent control
THERE will decimate Traffic/Carbon Footprint enough to

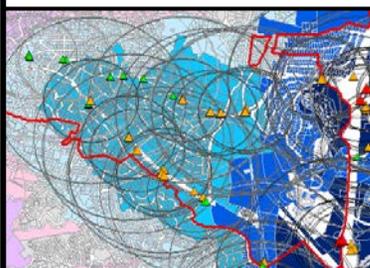
REVERSE CLIMATE CHANGE

**CLIMATE CHANGE
REVERSAL OVERLAY**

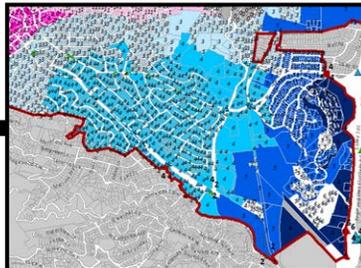


**HIGH WALK/TRANSIT
Developable Parcels**

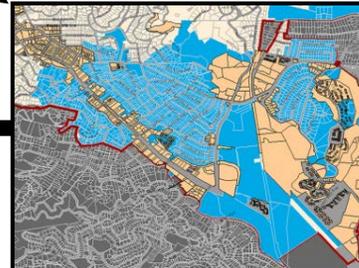
**BUFFERED BUS STOPS
WITH JOB ACCESS RATINGS**



**RELATIVE
TRANSIT POTENTIAL**



**CANDIDATE PARCELS
IN HIGH TRANSIT AREA**



HIGH TRANSIT ZONE



2MAPS

Parcel-Level Climate Change Reversal Geospatial Model Enabling Town Workers to live where they Work



**U.S. Department of Housing and Urban Development
Office of Policy Development and Research
Affordable Housing Research and Technology Division
April 6, 2016**



**Boundary Solutions, Inc.
Mill Valley, California**