



# CRG Meeting Stanford 2018 General Use Permit

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**County of Santa Clara Department of Planning and Development**

Palo Alto Arts Center

June 8, 2017

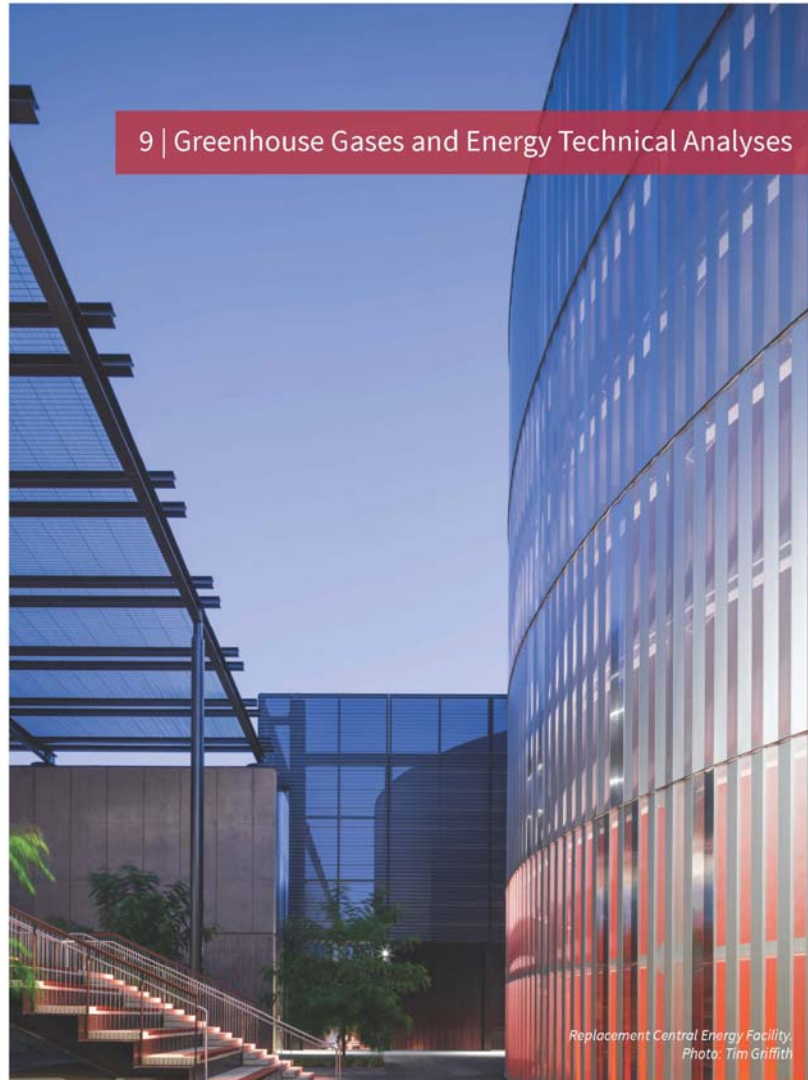
# CRG Meeting

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## *June 8, 2017 Agenda*

- Overview of Greenhouse Gases and Energy  
(Report updated May 11, 2017)
- Overview of Air Quality and Health Risk Assessment  
(Report updated May 12, 2017)
- Overview of Traffic Impact Analysis  
(Report submitted November 2016)

## 9 | Greenhouse Gases and Energy Technical Analyses



Replacement Central Energy Facility.  
Photo: Tim Griffith

# Stanford Greenhouse Gas Inventories

- Questions to answer:
  - What Are the Emissions Sources?
  - How Do Emissions Change Over Time?
  - What is the Potential Significance?
- Use Project-specific data, where available; defaults otherwise.
- Evaluate against BAAQMD thresholds with adjustments to incorporate 2030 and the trajectory toward 2050 statewide goals.

# Stanford: Total GHG Emissions Over Time



\*As described in the GHG Report, the 2030 Project inventory assumes full development of the proposed 2018 General Use Permit, applying emission factors consistent with 2030. This is conservative, as the electricity intensity factors, mobile emission factors, and other GHG sources are expected to continue to decrease after 2030 to meet California's long-term GHG reduction goals.

\*\*The 2035 Project inventory incorporates anticipated renewable portfolio standards in 2035 (57.5% RPS), which reduces the electricity intensity factors.

# Stanford: Total GHG Emissions Over Time

Year	Emissions (MT CO <sub>2</sub> e)	Notes
2014	221,611	<ul style="list-style-type: none"> <li>Cardinal Cogen heat &amp; electricity</li> </ul>
2015	166,467	<ul style="list-style-type: none"> <li>SESI + Direct Access electricity replaces Cardinal Cogen</li> </ul>
Fall 2018 (Baseline)	125,309	<ul style="list-style-type: none"> <li>Stanford Solar Generating Farm provides 50% of campus electricity</li> </ul>
Fall 2020	124,119	<ul style="list-style-type: none"> <li>Escondido Village Graduate Residences become operational</li> </ul>
Fall 2035 (Project)	125,030	<ul style="list-style-type: none"> <li>Grid electricity achieves 50% RPS</li> <li>Mobile fleet is cleaner due to regulations</li> <li>Stanford campus fleet 70% electric</li> </ul>
Fall 2035 (Project) with RPS Projection	119,493	<ul style="list-style-type: none"> <li>Incorporates anticipated renewable portfolio standards in 2035 (57.5% RPS), which reduces the electricity intensity factors</li> </ul>

# GHG Service Population Thresholds (BAAQMD Methodology)



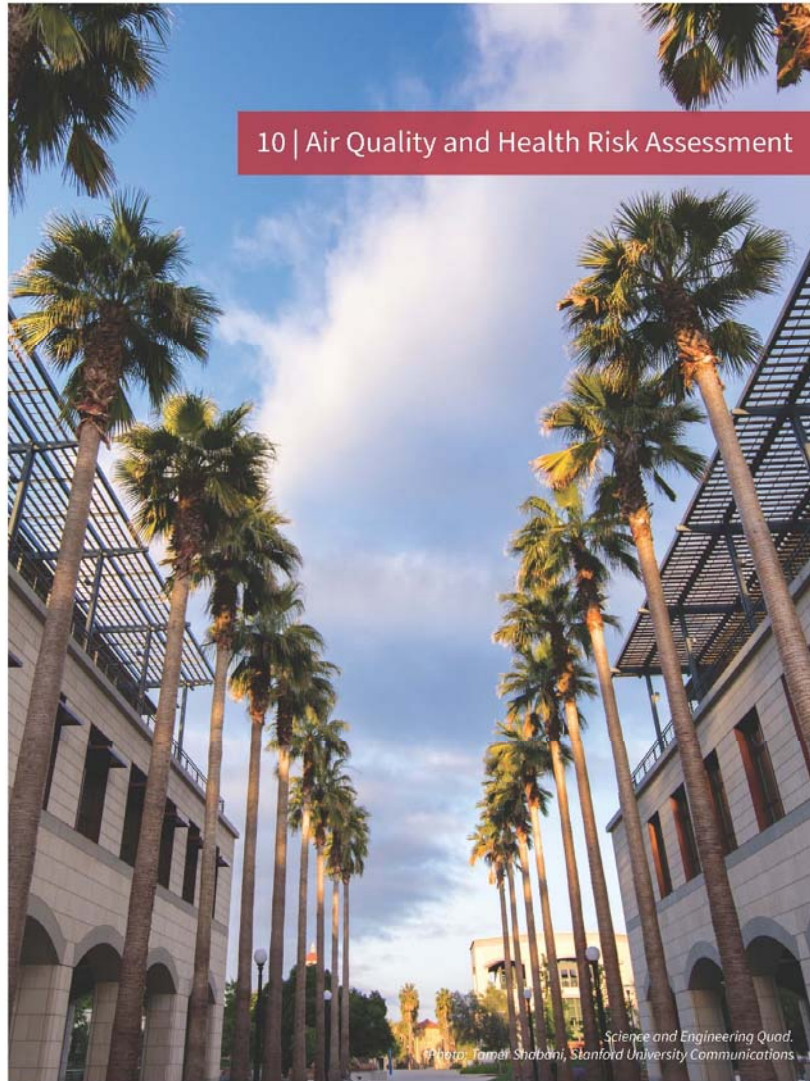
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\*\*The 2035 Project inventory incorporates anticipated renewable portfolio standards in 2035 (57.5% RPS), which reduces the electricity intensity factors.

# Energy Use Requirements, per Service Population

Inventory Year	MMBtu Equivalents	Service Population	MMBtu/ Service Population
Fall 2018 (Baseline)	2,415,530	53,268	45.3
Fall 2035 (Project)	2,631,604	68,781	38.3

## 10 | Air Quality and Health Risk Assessment



Science and Engineering Quad.  
Photo: Tamer Shobani, Stanford University Communications

# Air Quality and Health Risk Assessment

- Analysis years:
  - Existing conditions: 2014 (pre-SESI), 2015, 2018
  - Proposed Project: 2035
- Regulatory Framework
- Criteria Air Pollutants
- Toxic Air Contaminants
- Sensitive Receptors
- Stanford emissions inventories
  - Natural Gas
  - Mobile Sources
  - Emergency Generators
  - Laboratories
  - Fuel Stations
  - Construction Activities

# Air Quality and Health Risk Assessment

Construction impacts being evaluated:

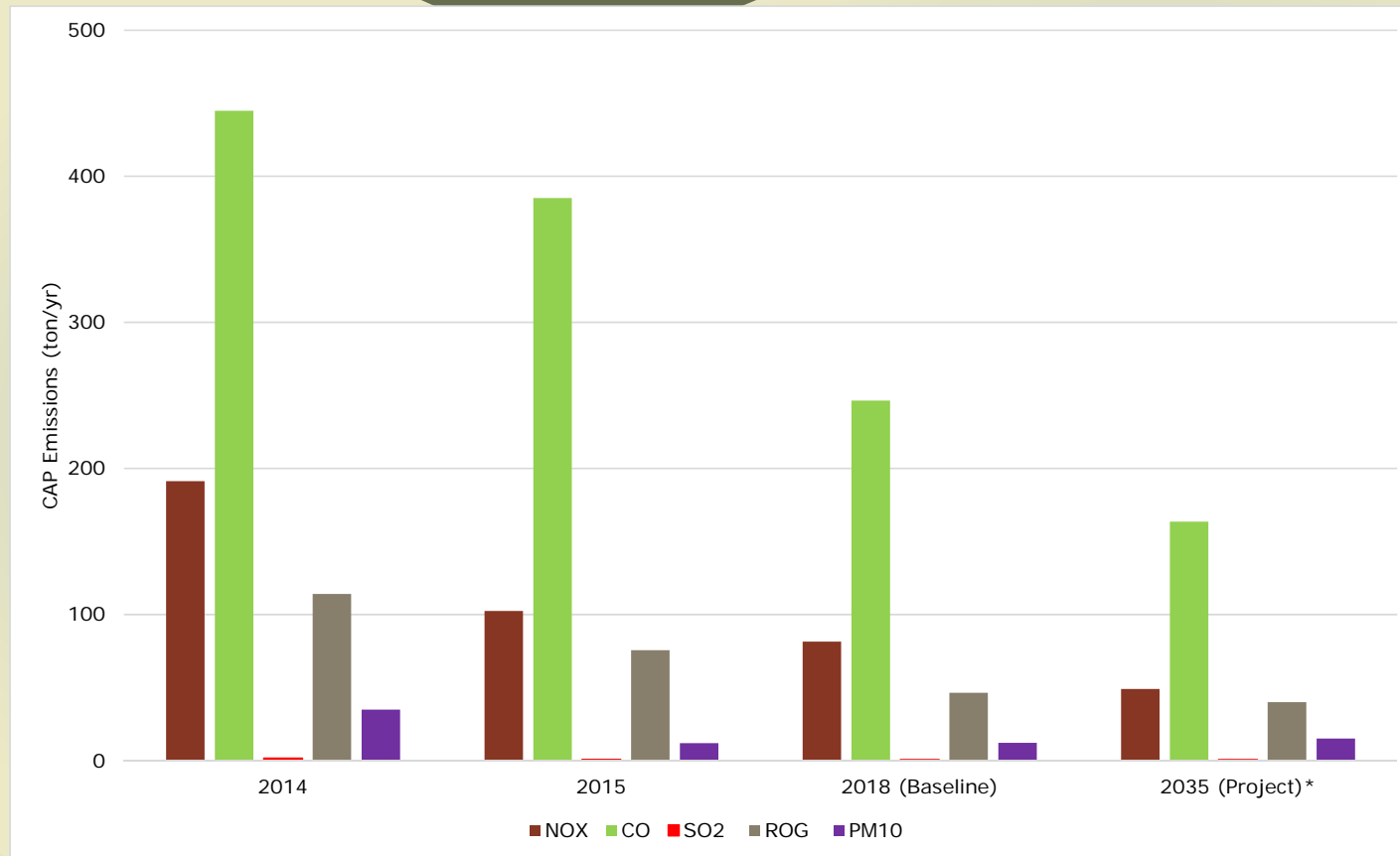
- Emissions of criteria pollutants (NO<sub>x</sub> , PM, and ROG<sub>s</sub>) compared to BAAQMD significance thresholds
- Localized dust-related air quality impacts
- Emissions of TAC and PM<sub>2.5</sub>—would they be at levels that would result in health risks above BAAQMD significance thresholds

# Air Quality and Health Risk Assessment

Operational impacts being evaluated:

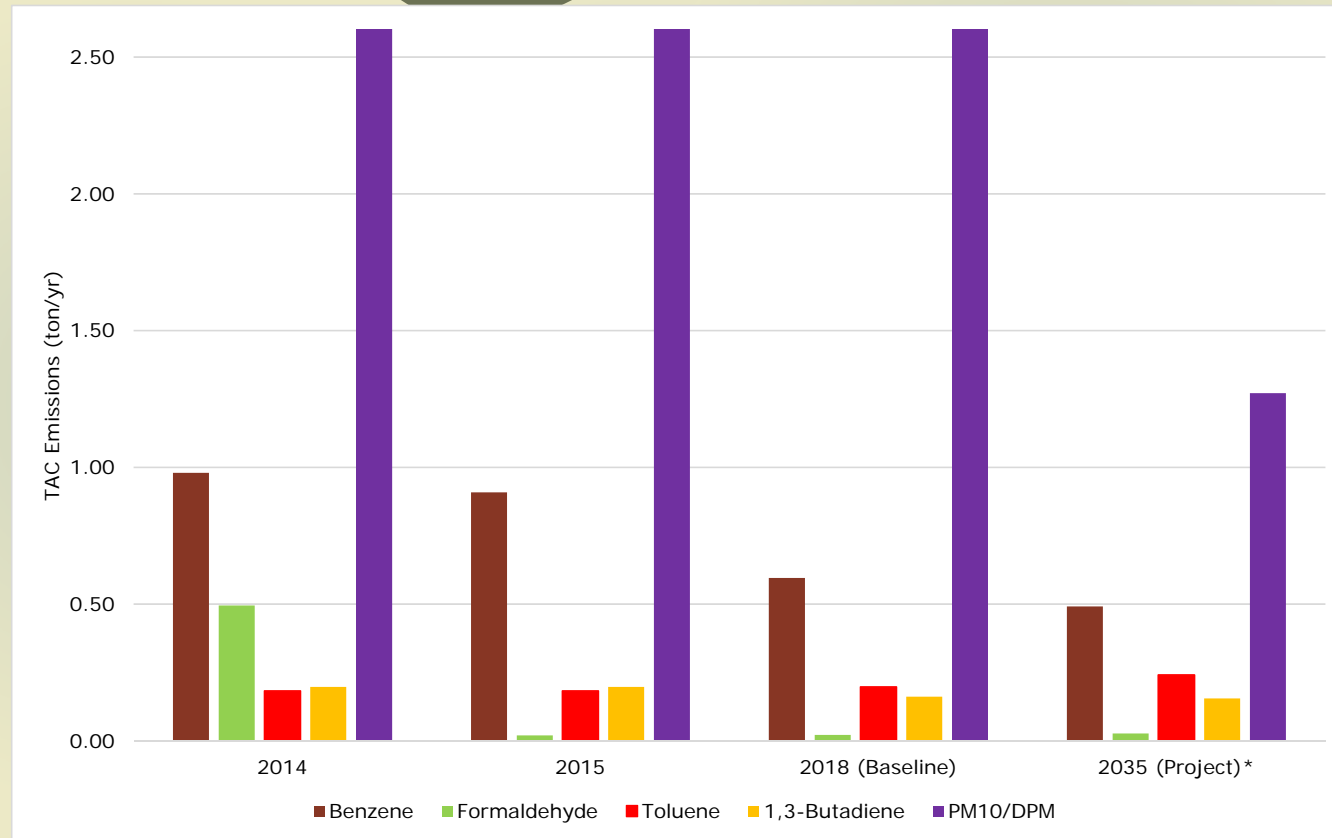
- Emissions of criteria pollutants compared to BAAQMD significance thresholds
- Emissions of TAC and PM<sub>2.5</sub> –would they be at levels that would result in health risks above BAAQMD significance thresholds?
- Local concentrations of CO compared to BAAQMD significance thresholds

# Air Quality and Health Risk Assessment



\*As described in the AQ Report, the 2035 Project inventory is based on 2030 emission factors. This is conservative, as the mobile emissions factors are expected to continue to decrease after 2030.

# Air Quality and Health Risk Assessment



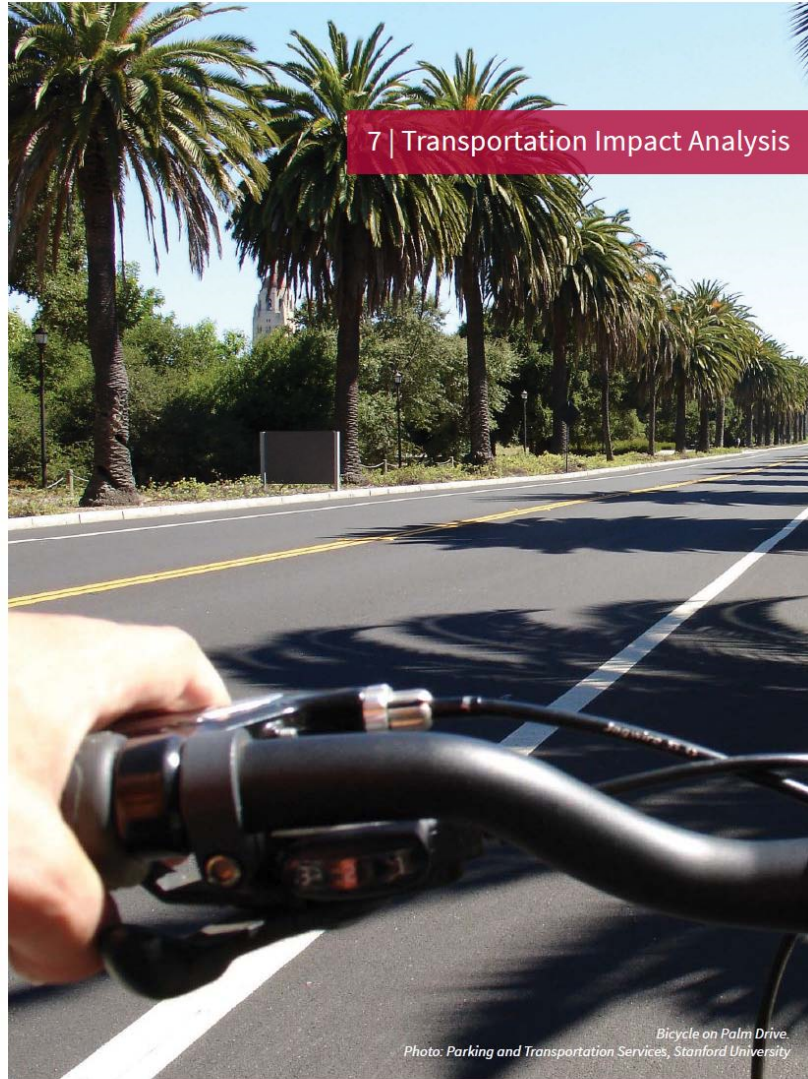
\*As described in the AQ Report, the 2035 Project inventory is based on 2030 emission factors. This is conservative, as the mobile emissions factors are expected to continue to decrease after 2030.

# Air Quality and Health Risk Assessment

Other impacts being evaluated:

- Objectionable odors
- Consistency with existing air quality plans (i.e., BAAQMD)
- Cumulative impacts associated with emissions of NO<sub>x</sub>, PM, or ROG<sub>s</sub>

## 7 | Transportation Impact Analysis



*Bicycle on Palm Drive.  
Photo: Parking and Transportation Services, Stanford University*

# Transportation Impact Analysis

Stanford plans to continue to achieve the no-net-new-commute trips (NNNCT) standard

The TIA assesses level-of-service impacts at intersections and roadways in the study area, conservatively assuming that Stanford does not meet the NNNCT standard

As long as Stanford meets the NNNCT standard, physical improvements to intersections will not be required

## 2035 Peak-Hour Trip Generation

- Trip generation rates based on cordon count data compared to total academic and academic support square footage
- Rate captures trips made by commuters, residents, outside vendors, conference and meeting attendees, and visitors
- Residential trip rates separated from total to allow unique trip distribution patterns for two types of trips (commuter/other vs. resident)

# Peak-Hour Trip Generation

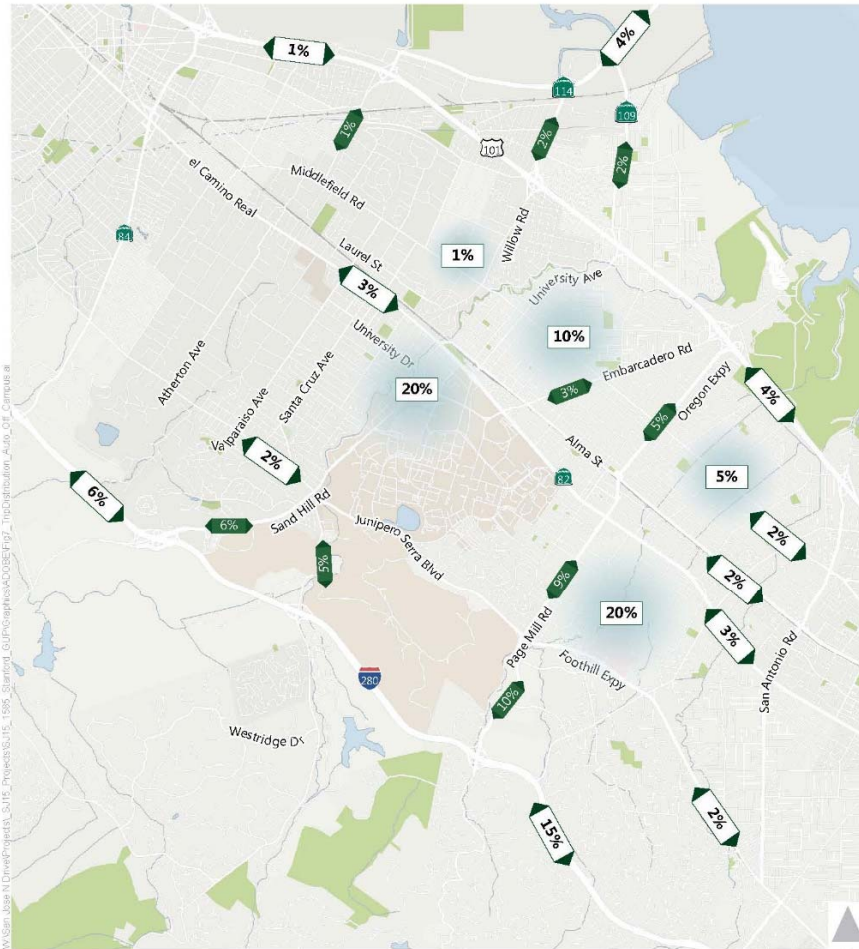
Component	Beds/Units	Academic Space (ksf)
Academic and Academic Support Space		2,275
Student (Beds)	2,600	
Faculty / Staff (Dwelling Units)	550	

Generator	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Campus Trips (based on academic and academic support space growth)	751	428	1,179	600	779	1,379
Student Residents	70	96	166	200	172	372
Faculty/Staff Residents	83	154	237	143	105	248
Total Resident Trips	153	250	403	343	276	619
Non-Residential Generators (Commuters, visitors, others)	598	178	776	257	502	759

Commuter trip  
distribution based on  
annual commuter travel  
survey and commuter  
place of residence,  
adjusted for forecasts in  
Plan Bay Area Regional  
Transportation Plan and  
Sustainable Communities  
Strategy



Figure 5-1  
Distribution of Stanford Commuters  
Using Auto Trip Place of Residence



Source: US Census, CTPP Data Stanford, CA

Legend:

- Project Trip Distribution (Equals 100%)
- Trip Distribution on Local Arterials



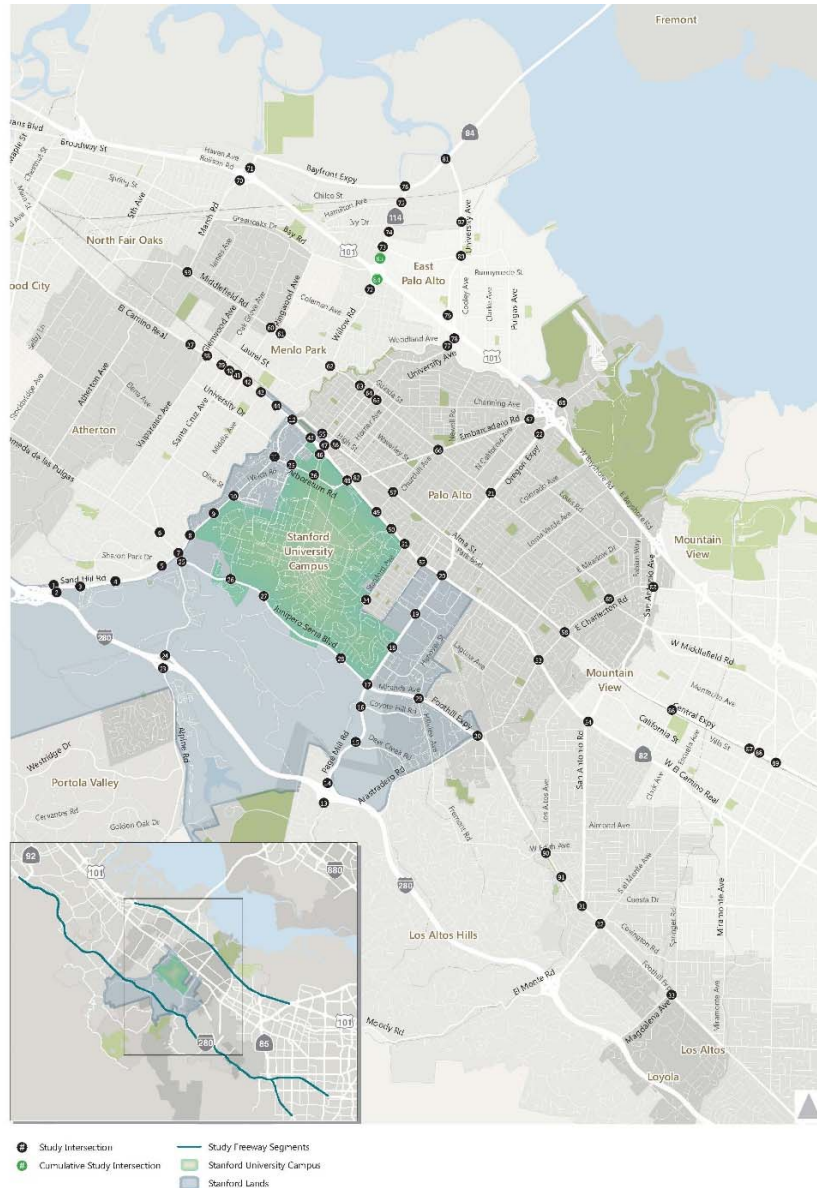
Figure 5-2  
Distribution of Stanford Residents  
Using Auto Off-Campus

# Residential Trip Distribution

Residential trip distribution  
based on Census data.

# Study Intersection Locations

- 89 study intersections
- Jurisdictions:
  - Santa Clara County
  - San Mateo County
  - Palo Alto
  - Menlo Park
  - East Palo Alto
  - Mountain View
  - Los Altos
- Rating system initial cut
- Meetings with jurisdictions



8 | Transportation: Vehicle Miles Traveled

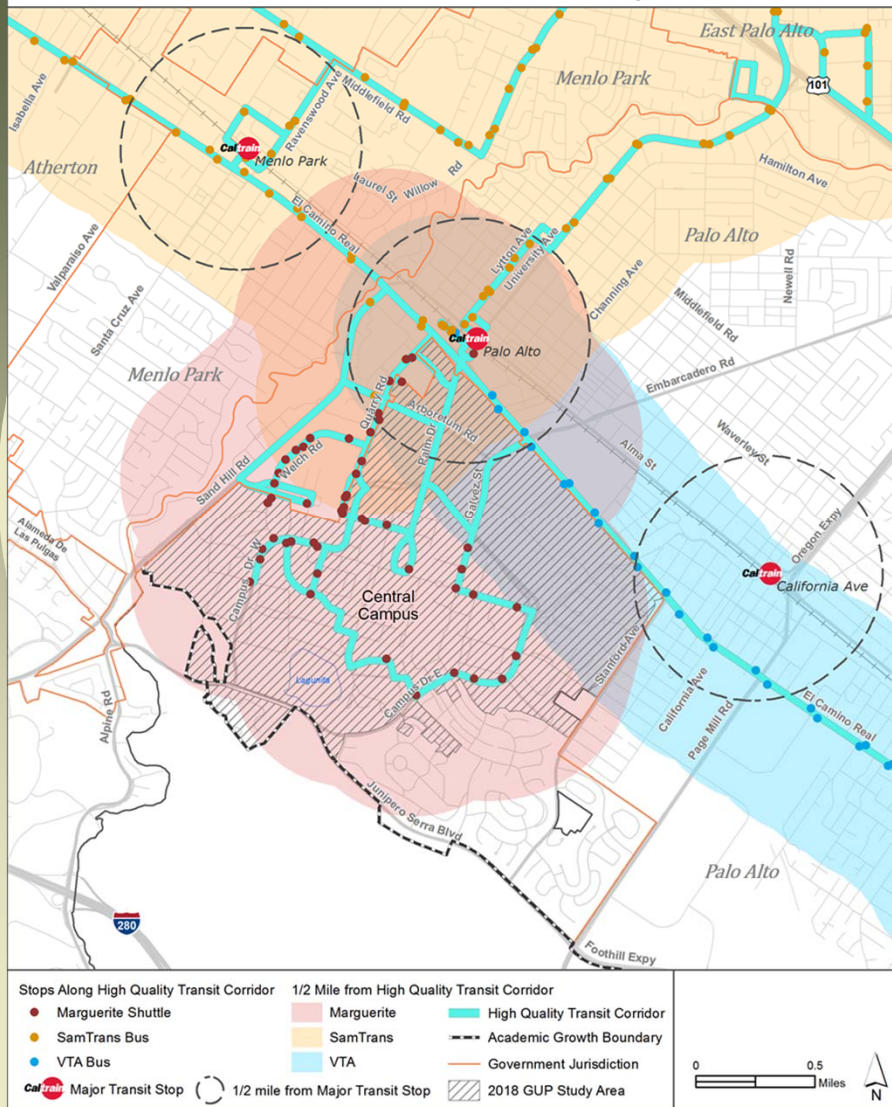


Marguerite on Palm Drive.  
Photo: Steve Castillo Photography

# SB 743 Legislative Intent

- Encourage infill development
- Promote active transportation (walking, cycling)
- Reduce greenhouse gas emissions
- Eliminate traffic level of service (LOS) as a measure of significant impact under CEQA

Major Transit Stops and High Quality Transit Corridors  
At and Near Stanford University



## Presumptive Less-Than-Significant Near Transit

- Stanford land where development is proposed under 2018 GUP is within 1/2 mile of a major transit stop or a stop along a major transit corridor, with small exception in Lathrop District (<1% of total development)
- Transit providers:
  - Marguerite
  - Caltrain
  - VTA
  - SamTrans
  - Dumbarton
- Impact presumed LTS under proposed CEQA Guidelines

# VMT Benchmarks for 2018 GUP

Traveler / Trip Type	Daily Average VMT per Capita		Threshold of Significance (15% below benchmark)
	Santa Clara County	Bay Area	
<b>Worker</b> Home-Based-Work VMT per Worker	N/A	16.18	<b>13.75</b>
<b>Resident</b> Home-Based Work plus Home-Based Other VMT per Capita	13.08	17.33	<b>14.73</b>

Source: VTA Travel Demand Forecast Model, 2015

Office (worker): > regional per worker VMT minus 15%

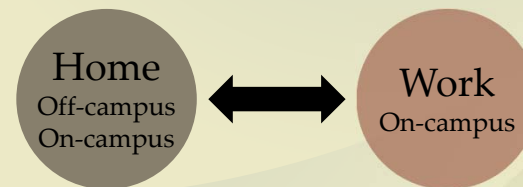
Residential: > **higher** of countywide or regional per capita VMT minus 15%

## Worker VMT for 2015, 2018, and 2035

Traveler	Trip Purpose	Population	VMT	VMT per Capita	Threshold of Significance (85% of Regional Average)
<b>2015</b>					
Workers	HBW	38,850	181,205	4.66	13.75
<b>2018</b>					
Workers	HBW	40,240	186,750	4.64	13.75
<b>2035</b>					
Workers	HBW	49,430	224,000	4.53	13.75

Source: Fehr & Peers, 2017

- Stanford VMT consistently well below threshold due to housing & TDM
- Drop in worker VMT due to increases in on- and near-campus housing

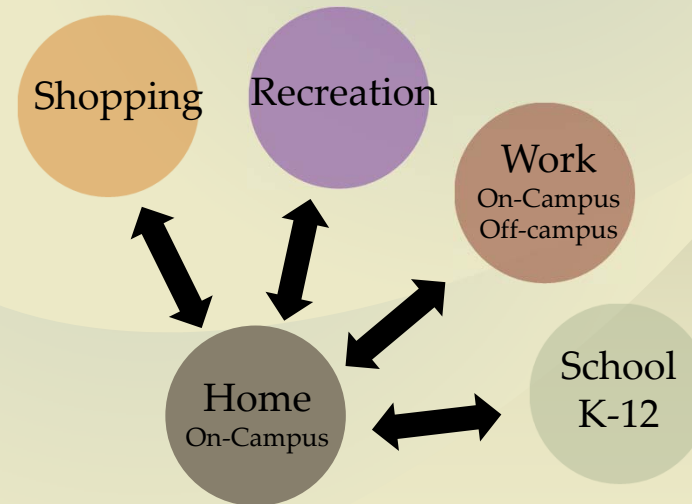


## Residential VMT for 2015, 2018, and 2035

Traveler	Trip Purpose	Population	VMT	VMT per Capita	Threshold of Significance (85% of Regional Average)
<b>2015</b>					
Residents	HBW + HBO	12,590	116,590	9.22	14.73
<b>2018</b>					
Residents	HBW + HBO	13,030	121,670	9.31	14.73
<b>2035</b>					
Residents	HBW + HBO	19,355	199,645	10.62	14.73

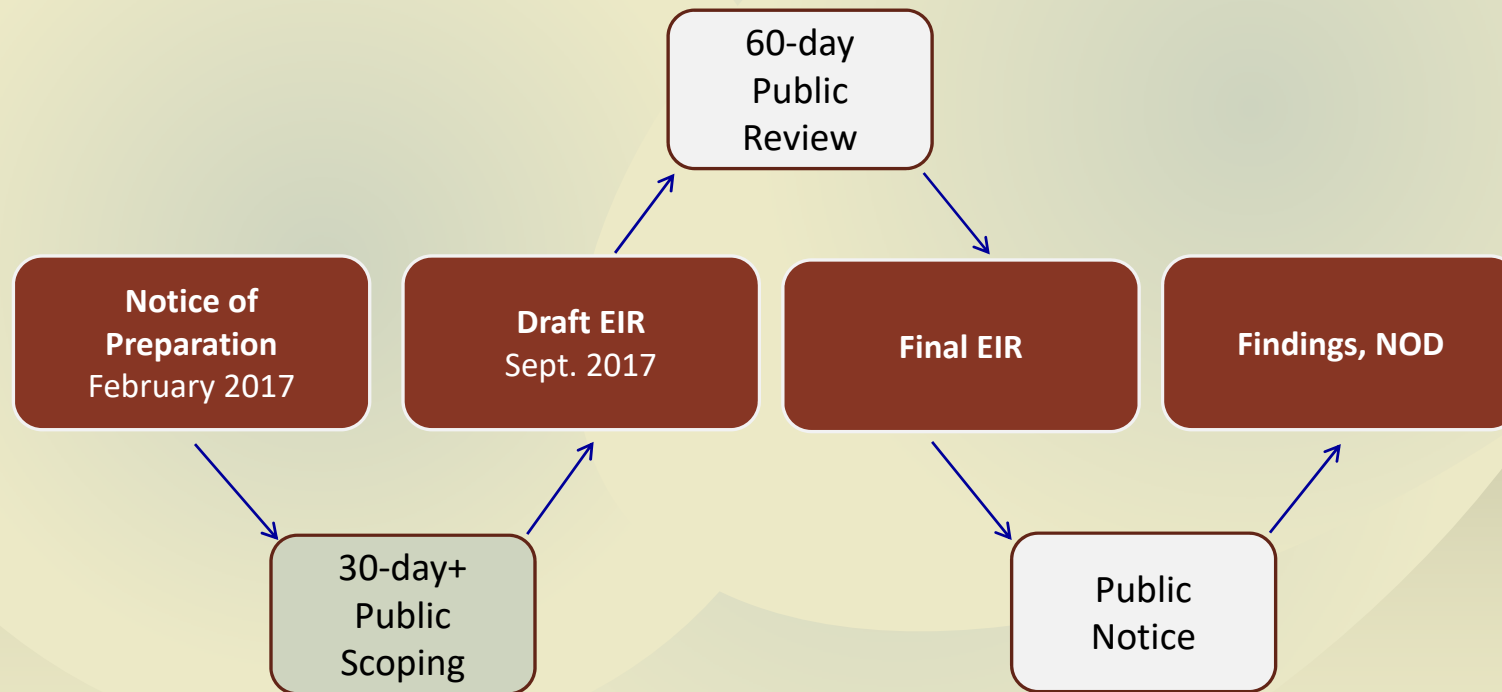
Source: Fehr & Peers, 2017

- Increase reflects proportional increase in housing types that have higher “other” trips
- Resident VMT closer to regional averages because more default assumptions used for resident VMT
- Substantially below regional average of 17.33 VMT per person



# EIR Process Overview

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# Upcoming 2017 CRG Meeting Schedule

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*Tentative schedule of Agenda items:*

*September 14 – Draft EIR Presentation*

*December 14 – Review Draft EIR and Preliminary Conditions of Approval*

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