**PLACER COUNTY**
**AIR POLLUTION CONTROL DISTRICT**

**BOARD OF DIRECTORS MEETING**

**AIR TOXICS OVERVIEW**

**August 14, 2014**

## INTRODUCTION

- Until about 30 years ago, air pollution control was focused almost solely on the criteria pollutants (e.g. PM, NOx, SOx, Ozone, Pb)
- As more impacts of toxic air emissions were being recognized, particularly affects upon children, methodologies are developed for assessing health risks.
- Federal and state regulations were promulgated to reduce these risks

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## TOPICS

- Our Role
- Explanation of Risk
- Toxic New Source Review (T-NSR)
- State ATCMs and Federal NESHAPs
- State Air Toxics "Hot Spots" Act
- Rule 610, Air Toxics "Hot Spots" Fees, & Our Sources
- OEHHA's new health risk assessment guidance manual
- CalEnviroScreen and AB 32 Funds

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## OUR ROLE

- We are a 'public health agency', responsible for regulating stationary sources of air emissions
- We address risk from permitted sources
- We can (and do) impose conditions on permitted sources to manage risk
- We don't serve the same roles as environmental health or OES – regarding the storage of hazardous materials and emergency releases

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## OUR ROLE

- We don't address facilities' chances of unexpected failures (upsets) – we do regulate their expected (routine) emissions
- We are not a first responder agency – we can't remedy problems nor measure toxics emission levels in real time

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## OUR ROLE

- Although not first responders, we have a standing contract for air "grab" sampling and analytical services, to identify air contaminants whenever necessary.

- We can (and do) investigate after an 'event' and take enforcement action where appropriate

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## EXPLANATION OF RISK

- "Toxics Risk" is the possibility that people will experience health problems from exposure to certain toxic substances
- Everybody has the possibility of developing cancer or other illnesses – exposure to some substances may increase that risk compared to somebody not exposed
- This increase is estimated using computer models to perform a 'health risk assessment' (HRA)

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## EXPLANATION OF RISK

- HRAs are computer models that serve as a tool to identify and reduce possible negative health effects
- HRAs factors:
  - Amount and toxicity of the substance (based on health studies)
  - Meteorological conditions
  - Distance to receptors
  - Duration of exposure
  - Age, health, and lifestyle of people exposed (receptors)

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## EXPLANATION OF RISK

- 'Increased cancer risk' describes the increased chance (odds) of getting cancer from exposure to an air toxic
- Expressed as a probability – the odds of so many additional people getting cancer if a group of one million people were exposed over a specified time period (e.g. 70-years)

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## EXPLANATION OF RISK

- Non-cancer risk can be acute or chronic
- Expressed as a Hazard Index (HI), which is a ratio of the predicted exposure to a level considered acceptable
- The Hazard Index of 1.0 means the predicted exposure is the same as the highest acceptable exposure
- The HI is not a probability value.

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## EXPLANATION OF RISK

**Hazard Index = Predicted Exposure / Acceptable Exposure**

**HI = 1.0 = Acceptable Exposure**

**HI > 1.0 = Unacceptable Exposure**

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## EXPLANATION OF RISK

- Risks from several different toxic substances that affect the same organ can be added together to determine the total risk
- The risk results can be plotted on a map of an area showing contour lines of equal risk (called isopleths)
- The next slide is an example using a risk analysis for the biomass plant proposed for Cabin Creek

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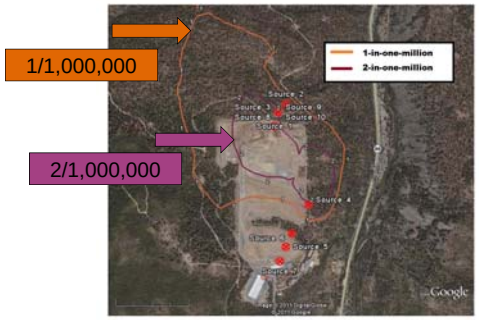
## INCREASED CANCER RISK PER MILLION PERSONS EXPOSED

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## NEW SOURCES

- During processing of initial permits we review toxic emissions, “Toxic New Source Review” or “T-NSR”.
- T-NSR is the process where toxic emissions of new and modified sources are evaluated.
- T-NSR implements the requirements of the National Emission Standards for Hazardous Air Pollutants and the state Airborne Toxic Control Measures.

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## NEW SOURCES

- The 1st step, is toxic risk screening based on mass emissions
- If screening results are above established thresholds, then perform a full HRA
- De minimis level is cancer risk of < 1 in a million & non-cancer Hazard Index (HI) < 1

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## NEW SOURCES

- In keeping with ARB guidance, the District threshold for Toxics Best Available Control Technology (T-BACT) is an increased cancer risk > 1 in a million.
- A project is not approvable if the increased cancer risk > 10 in a million.
- Permits include limits to satisfy for National Emission Standards for Hazardous Air Pollutants and the state Airborne Toxic Control Measures.

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## STATE AIRBORNE TOXIC CONTROL MEASURES (ATCMS)

- State adopts Airborne Toxic Control Measures (ATCMs) for specific types of industries and processes that release toxic compounds.
- We enforce ATCMs
- There are currently 18 ATCMs covering different types of processes.
- ATCMs currently pertain to approximately 700 permits issued by the District, out of ~1,280 total permits.

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## STATE AIRBORNE TOXIC CONTROL MEASURES (ATCMS)

- Selected State ATCMs
  - Benzene from retail gas stations (1988)
  - Hex chrome plating (1988, 2006)
  - PERC drycleaners (1993, 2007)
  - Automotive Refinishing (2001)
  - Burn barrels (2003)
  - Stationary diesel engines (2004, 2006, 2010)
  - Portable diesel engines (2004, 2007, 2008, 2010)


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## FEDERAL NESHAPS & MACT

- Federal toxic regulations are called National Emission Standards for Hazardous Air Pollutants (NESHAPs).
- There are 112 NESHAPS covering a wide range of industries, although many of these cover industries not found in Placer County (like steel mills and refineries).

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## FEDERAL NESHAPS & MACT

- Post-1990 NESHAPS are called Maximum Achievable Control Technology (MACT) standards.
- State law requires air districts to enforce area source MACTs as though they are state ATCMs.
- There are approximately 750 individual District permits subject to these standards.

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## EXISTING SOURCES

- California Legislature adopted Air Toxics "Hot Spots" Information and Assessment Act of 1987 (under AB 2588, Connelly)
  - Requires sources to report types and quantities of substances routinely emitted into the air
  - Goal - to collect emission data, identify facilities having localized impact, ascertain health risk, notify nearby residents of significant risk, and reduce those significant risk sources to acceptable levels

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## AIR TOXIC "HOT SPOTS"

- **Who** is subject
  - Emissions > 10 tpy (excluding CO)
  - Listed categories (autobody, drycleaners, gas dispensing, diesel engines, print shops)
- **What** do they have to do
  - Submit initial inventory and report
- **When**
  - Most facilities were subject in mid-1990s
  - Categories added over the years (like diesel engines in past few years)

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## AIR TOXIC "HOT SPOTS"

- We review the toxic emissions inventory report – and prioritize each facility

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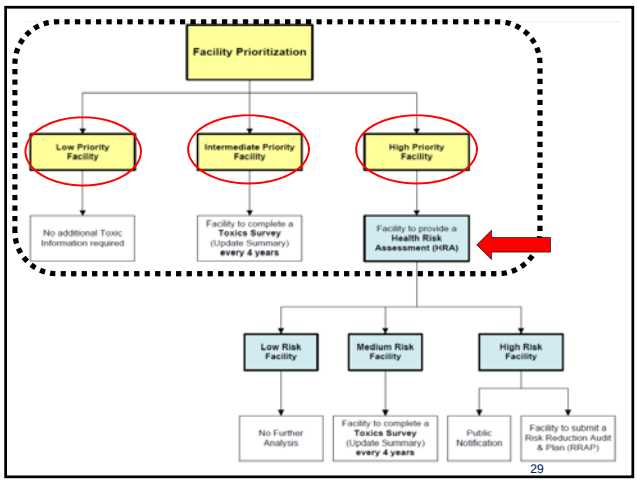
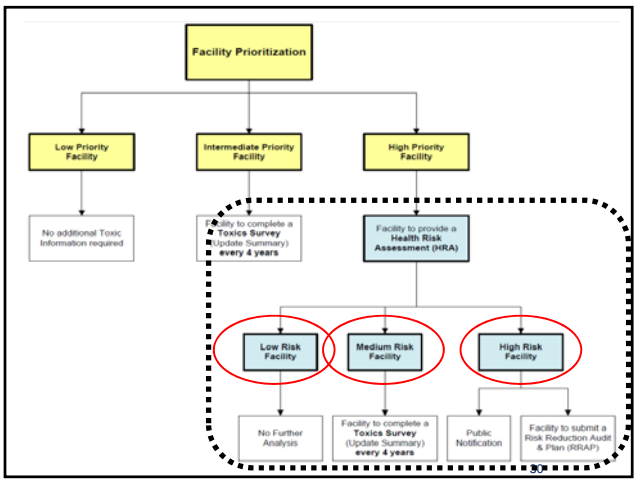

Facility Prioritization
Low Priority Facility
Intermediate Priority Facility
High Priority Facility
No additional Toxic Information required
Facility to complete a Toxics Survey (Update Summary) every 4 years
Facility to provide a Health Risk Assessment (HRA)
Low Risk Facility
Medium Risk Facility
High Risk Facility
No Further Analysis
Facility to complete a Toxics Survey (Update Summary) every 4 years
Public Notification
Facility to submit a Risk Reduction Audit & Plan (RRAP)
29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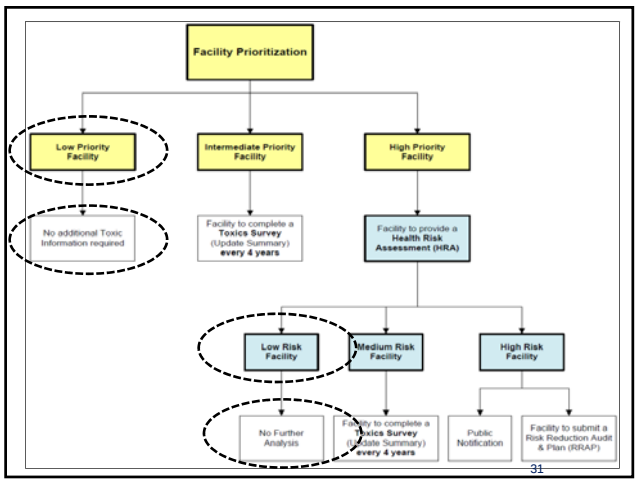
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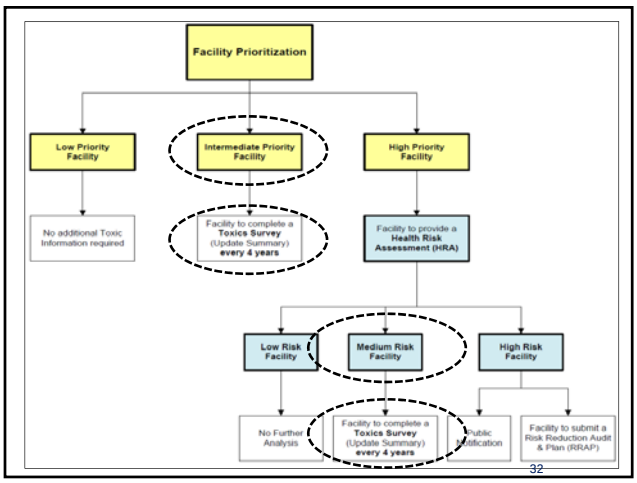
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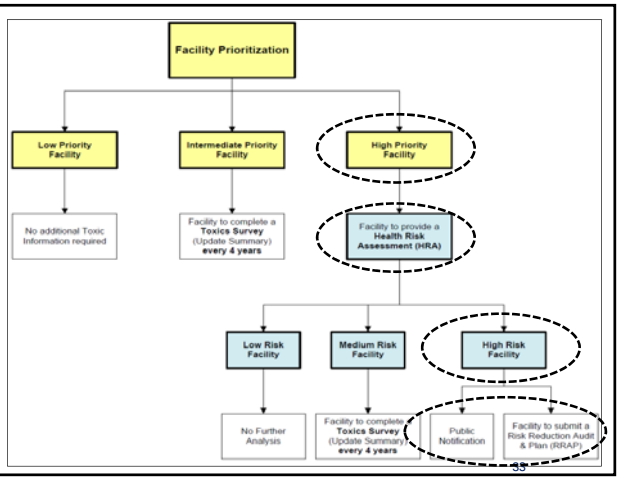


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| District | Notification Level | | Risk Reduction Audit & Plan | |
|---|---|---|---|---|
| | Cancer | Non-Cancer | Cancer | Non-Cancer |
| Placer Thresholds | 10 | 1 | 10 | 1 |
| # of Other Districts Using the Same Threshold | 26 | 25 | 9 | 9 |
| Other Thresholds (# Districts) | None (8) | None (9) | 100 (8)<br>25 (1)<br>20 (1)<br>None (15) | 10 (4)<br>5 (3)<br>3 (1)<br>None (17) |

Note: ARB webpage, 35 air districts reporting

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## A PERSPECTIVE ON RISK

Lifetime odds of death in U.S. for selected causes*:

- All cancers 1 in 4 (males)
- Motor vehicle accidents 1 in 112
- Exposure to fire, smoke 1 in 1,418
- Choking on food 1 in 3,649
- Firearms discharge 1 in 6,509
- Lightning 1 in 136,011

* American Cancer Society; National Safety Council (for United States, 2010)

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## A PERSPECTIVE ON RISK

- The lifetime odds of developing cancer (for U.S. men) is 1 in 2*

Equal to 500,000 out of every one million men developing cancer

* American Cancer Society

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## A PERSPECTIVE ON RISK

- Everyday, Californians are exposed to toxic air contaminants from autos, homes, consumer products, industry, and natural sources
- This "background" increase in cancer risk is shown for three areas:
  - South Coast 1,200 in a million
  - Bay Area 600 in a million
  - Sacramento 500 in a million

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## A PERSPECTIVE ON RISK

- The District evaluates air toxics risk from individual businesses, and these risks are generally much less than "background".
- The sum of air toxics based risks may be very small compared to the lifetime risk from all sources.
- Emissions from a particular business can cause a localized impact ('hot spot') and additively contributes to the total environmental risks – the "cumulative risk".

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## "HOT SPOTS" FEES

- District Rule 610, Air Toxics "Hot Spots" Fees, specifies the annual fees for the various classes of facilities in the program.
- We also collect the state's share of fees for them.
- Rule 610 was last amended in 1998 and specified fees are long out of date and do not cover current costs of the program.

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## "HOT SPOTS" FEES

- Staff estimate that about 600 staff hours per year required to resource the Hot Spots program.
- Current Rule 610 fees only cover the state costs plus about 50 District staff hours.
- Staff will propose an amendment to Rule 610 to fully cover District costs in the coming months.

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## OUR SOURCES

- We have 11 "core" facilities.
- 10 are update facilities which means they are of intermediate risk (1<= prioritization >10 or 1<= HRA >10). These facilities report toxic emissions every 4 years
- 1 facility has a prioritization >10, which means the next step is to perform a detailed HRA to determine if the cancer risk is >10

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## OUR SOURCES

- Industrywide Facilities included in Hot Spots:
  - 28 autobody shops
  - 208 gas dispensing facilities
  - 3 perchloroethylene drycleaners
  - 7 printing facilities
  - 283 facilities with 580 diesel engines
- We have ~ 770 facilities total, holding ~1,280 permits.

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## OEHHA CHANGES

- The State Office of Environmental Health Hazard Assessment (OEHHA) is in the process of a major overhaul of how health risk is determined.
- Studies show children are affected differently than adults because developing organs and systems are more sensitive to the effects of toxins.

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## OEHHA CHANGES

- OEHHA released draft revisions to the HRA guidance manual released on June 20, 2014
- Makes adjustments based on new science – designed to be protective of children
  - Higher breathing rates per body mass
  - Higher activity level
  - Higher sensitivity to air toxics


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## OVERVIEW OF OEHHA CHANGES

**Cancer Risk =**

Cancer Potency Factor x Age-Sensitivity Factor x Inhalation Dose* x Time at Home x Exposure Duration

*(concentration x daily breathing rate)

All components in red are affected by updates in the 2014 OEHHA Guidelines

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## OEHHA CHANGES

- Net result is expected increase in calculated risk, 1.5 to 3.0 times the current risk
- A number of Hot Spots risk assessments will need to be revisited.
- For Placer County, it is estimated that potentially 21 facilities will transition to the high risk category and 30 will be added to the intermediate risk category.

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## EXAMPLE OF IMPACTS

Example: gasoline service station with best controls installed

| District notifi-cation level | District risk reduct-ion level | State of the art controls required | Previous cancer risk | New cancer risk |
|---|---|---|---|---|
| ≥10 chances per million | 10-100 chances per million | • Reform gas<br>• Phase I/II & onboard vapor recovery | 8 chances per million | 22 chances per million |

Generic example of Risk Notification & Reduction Thresholds

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## OEHHA CHANGES

- Facilities previously assessed as having low risks may now be considered to pose a significant and unacceptable risk
- After public notice OEHHA plans to finalize the update; expected by end of 2014
- Attachment 2 to the Board item is a fact sheet "Upcoming Changes in California's Air Toxics Program" that describes the next steps.

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## IF CHANGES ARE APPROVED

- We will be communicating with local businesses and other stakeholders
- ARB will incorporate adopted revisions into the HARP computer model and the Prioritization process may also be revised
- We will be re-evaluating all existing facilities (per the new OEHHA guidelines)
- We may bring the 2002 Hot Spots Significant Risk Policy back to the Board (to incorporate new OEHHA guidelines)

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## CAL ENVIROSCREEN

- CalEnviroScreen is an environmental health screening methodology developed by OEHHA that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution

- The program uses existing environmental, health, demographic, and socioeconomic data, to create a screening score for a community – not based solely on air quality

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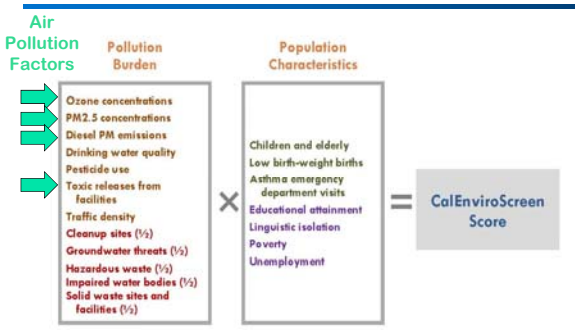
## COMPONENTS OF CAL ENVIROSCREEN SCORE

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## CAL ENVIROSCREEN

- Other environmental and socio-economic factors may have more influence on the score then air quality indicators.
- Some AB 32 Cap-and-Trade funds (25%) will be used in the most disadvantaged communities.

- CalEnviroscreen is proposed as tool to help determine where the funds should go.
- These funds are not likely to find their way to Placer County.

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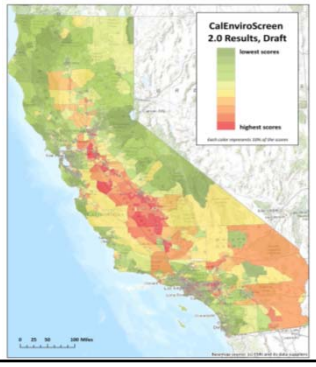
## CAL ENVIROSCREEN 2 ENTIRE STATE

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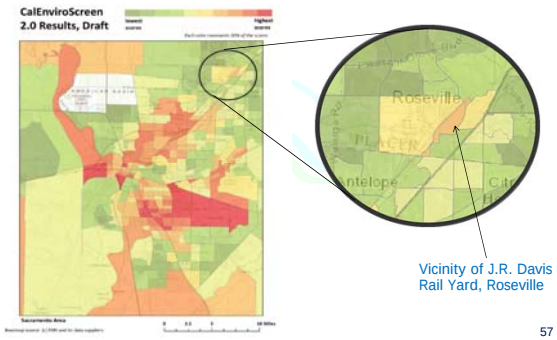
## CAL ENVIROSCREEN 2 SACRAMENTO AREA

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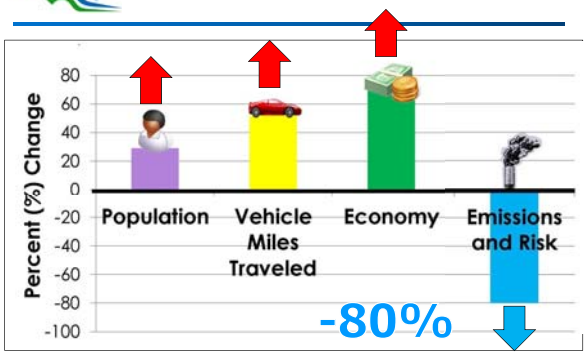
## SOME GOOD NEWS

## PROGRESS: STATEWIDE SINCE 1990

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## ACKNOWLEDGMENTS


- Assistance of Don Duffy, Contractor
- Yolo-Solano AQMD, July 9, 2014, Presentation to Board of Directors
- Sacramento Metropolitan AQMD, July 24, 2014, Report on Changes to California's Air Toxic Program
- ARB/OEHHA/CAPCOA, July 24, 2014, update on California's Air Toxic Program: Improvements to Assess Health Risk


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