

# Proposed Fiscal Years 2018-2021 Triennial Strategic Research Plan & Proposed Research for Fiscal Year 2018-2019

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APRIL 27, 2018



# Outline

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- Planning process changes
- Triennial Strategic Research Plan objectives
- Funding selection process
- Proposed Projects for FY 2018-2019
  - \$4 million
  - 16 projects

# Triennial Strategic Planning

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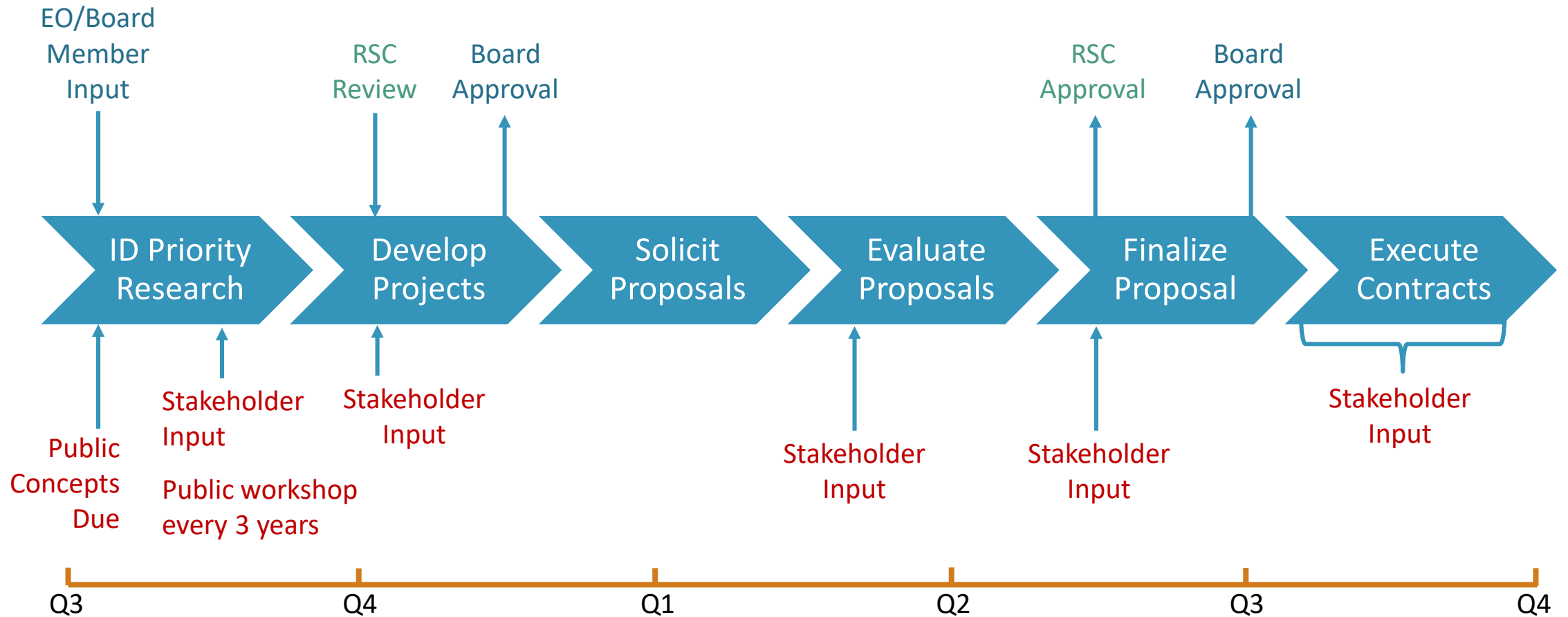
- Research initiatives represent CARB's priorities
- Guides annual project selection
- In-house and contracted projects
- Annual lists of projects for Board approval

# Triennial Plan Objectives

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- Inform key decisions needed to meet air quality, climate, environmental justice, and public health goals
- Improve coordination with other funding organizations
- Greater transparency and stakeholder involvement
- Increase clarity for public research proposals
- Increase flexibility for budget changes

# Annual Funding Selection Process

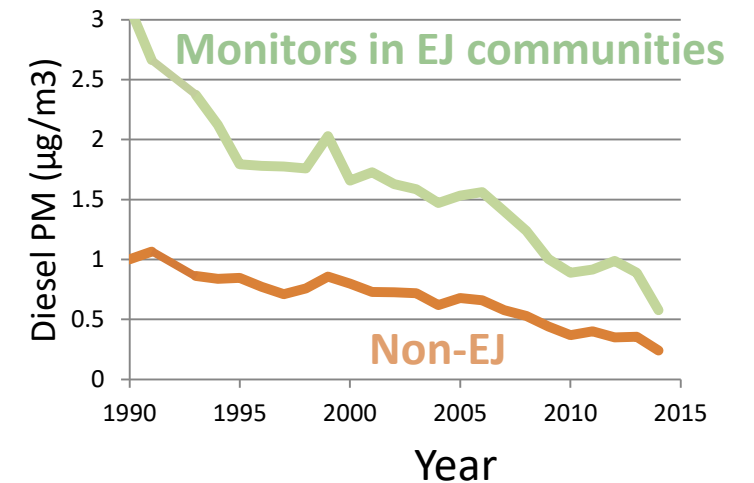
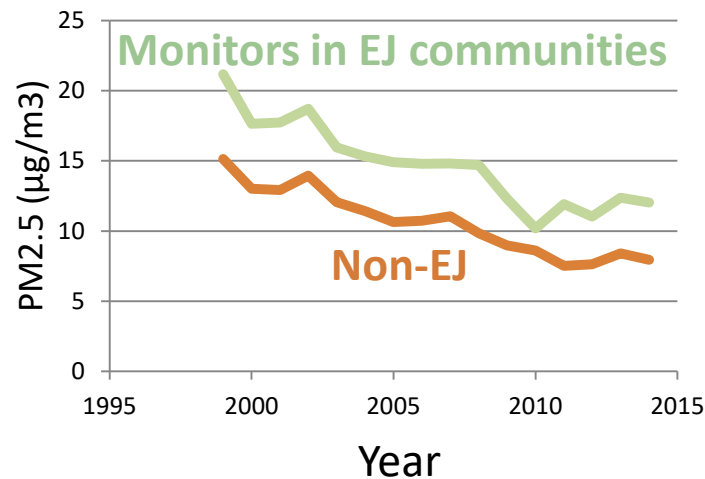


# Environmental Justice

## Challenges

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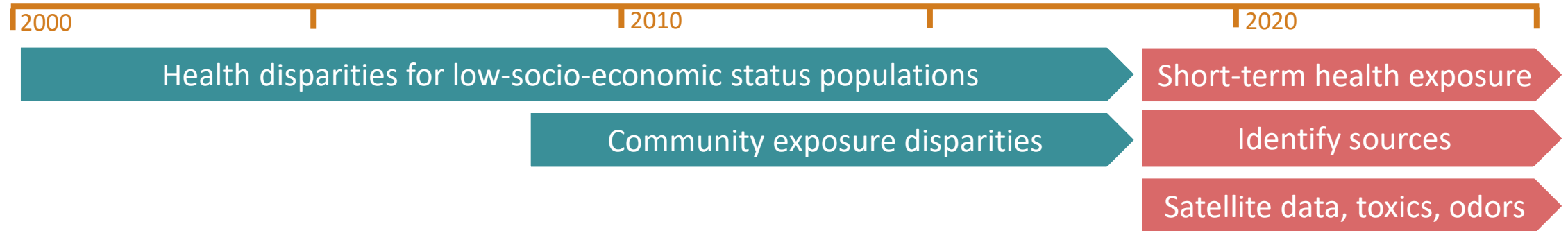
- Diesel PM and PM2.5 levels at monitors in EJ communities are higher than those in non-EJ
- Research needs:
  - Identify air pollution hotspots
  - Determine sources
  - Measure progress
  - Monitors for toxics and odors



# Environmental Justice

## *Research initiatives & FY 2018-19 Projects*

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- Short-term health exposure
  - White paper and symposium: Development of a 1-hour PM2.5 standard
- Satellite data, toxics, odors
  - White Paper: Odor complaints; Health impacts and monitoring methods
  - White Paper: Improve the toxic emissions inventory
  - In-house project: High resolution satellite PM2.5 data

# Environmental Justice (cont'd)

## *Research initiatives & FY 2018-19 Projects*

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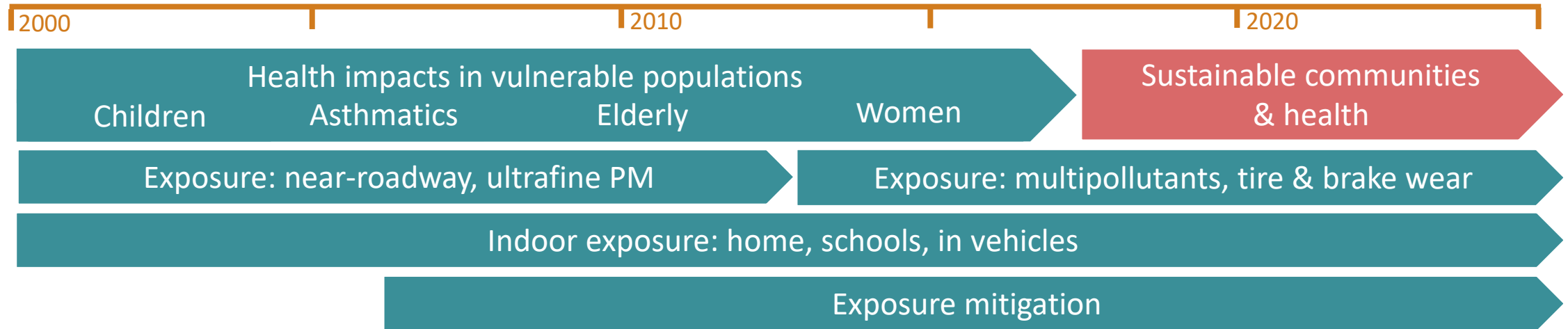
- Cumulative impacts
  - Cumulative exposure and socio-economic status impacts on health
  - Cumulative impacts framework for the implementation of AB 617 and SB 673
  - In-house project: Total exposures to air pollutants and noise in EJ communities



# Health

## *Research initiatives & FY 2018-19 Projects*

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- Sustainable communities & health
  - Health impacts of exposure to particulate matter

# Air Quality – SIP

## *Research initiatives & FY 2018-19 Projects*

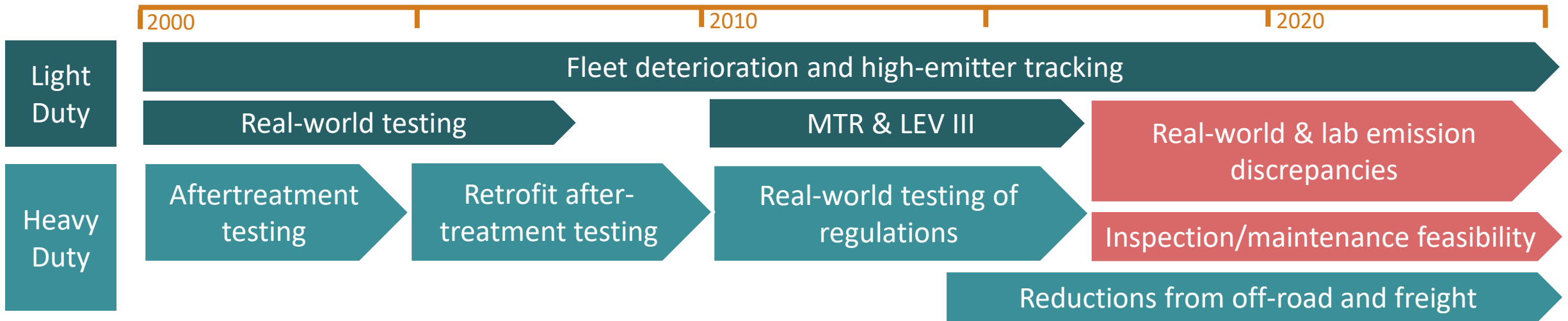
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- San Joaquin Valley PM2.5
  - Chamber experiments to improve secondary organic aerosol models
  - In-house project: Ammonia emissions from agricultural sources

# Air Quality - Mobile Sources

## *Research initiatives & FY 2018-19 Projects*

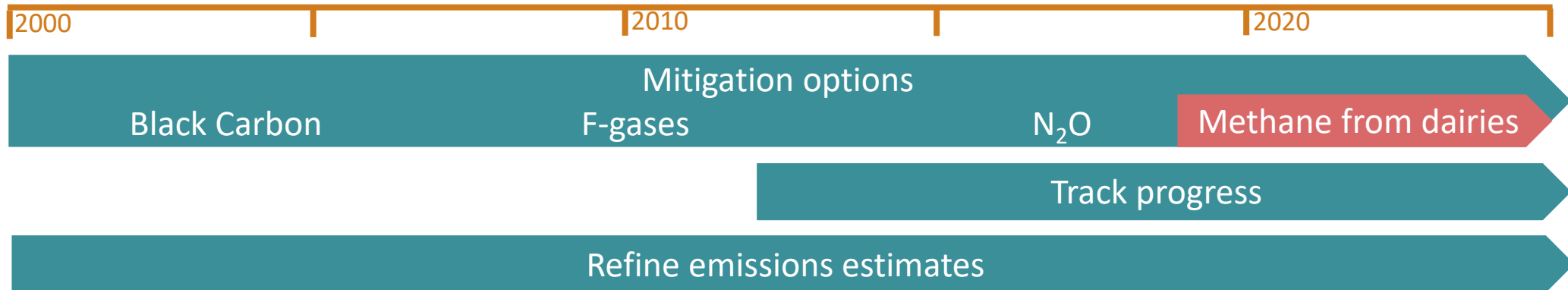


- Real-world & lab emission discrepancies
  - Real-world tire and brake wear emissions
  - In-house project: Real-world light-duty vehicle fuel economy
- Reductions from off-road and freight
  - Tier 4 off-road diesel engines with and without aftertreatment

# Climate - Greenhouse Gases

## *Research initiatives & FY 2018-19 Projects*

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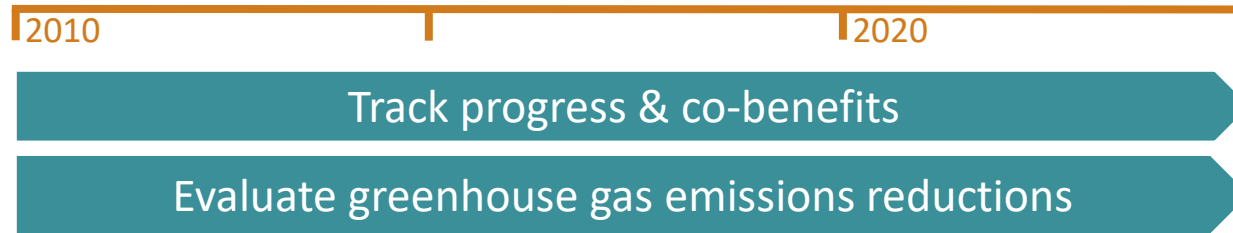


- Refine emission estimates
  - F-Gas Inventory update for smaller refrigeration and air conditioning systems
  - In-house project: Continued methane emission monitoring and modeling

# Climate – SB 375

## *Research initiatives & FY 2018-19 Projects*

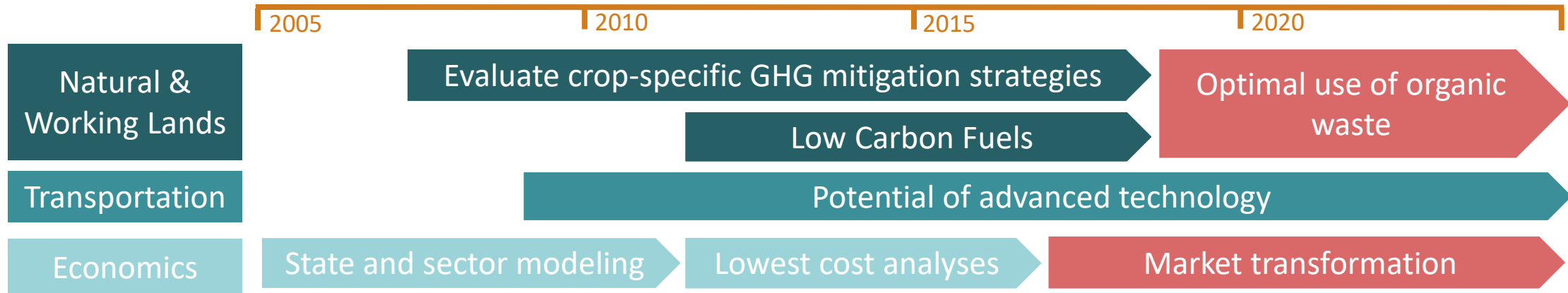
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- Tracking progress & co-benefits
  - Built environment social determinants of health screening tool and monitoring map
  - Induced travel for congested corridors of non-general purpose lanes
- Evaluate greenhouse gas emissions reductions
  - Environmental and equity impacts of congestion management strategies

# Cross-Cutting Topics

## *Research initiatives & FY 2018-19 Projects*



- Optimal use of organic waste
  - White Paper: Best use of biomass to meet air quality and climate goals
- Potential of advanced technology
  - Hybridization and full electrification potentials of off-road applications
- Market transformation
  - Factors influencing medium- and heavy-duty truck fleet turnover

# Staff Recommendation

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- Approve: Research projects for FY 2018-2019
- Next Steps
  - Develop full proposals
  - Return to Board for approval