

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

APRIL 27, 2018



Outline

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

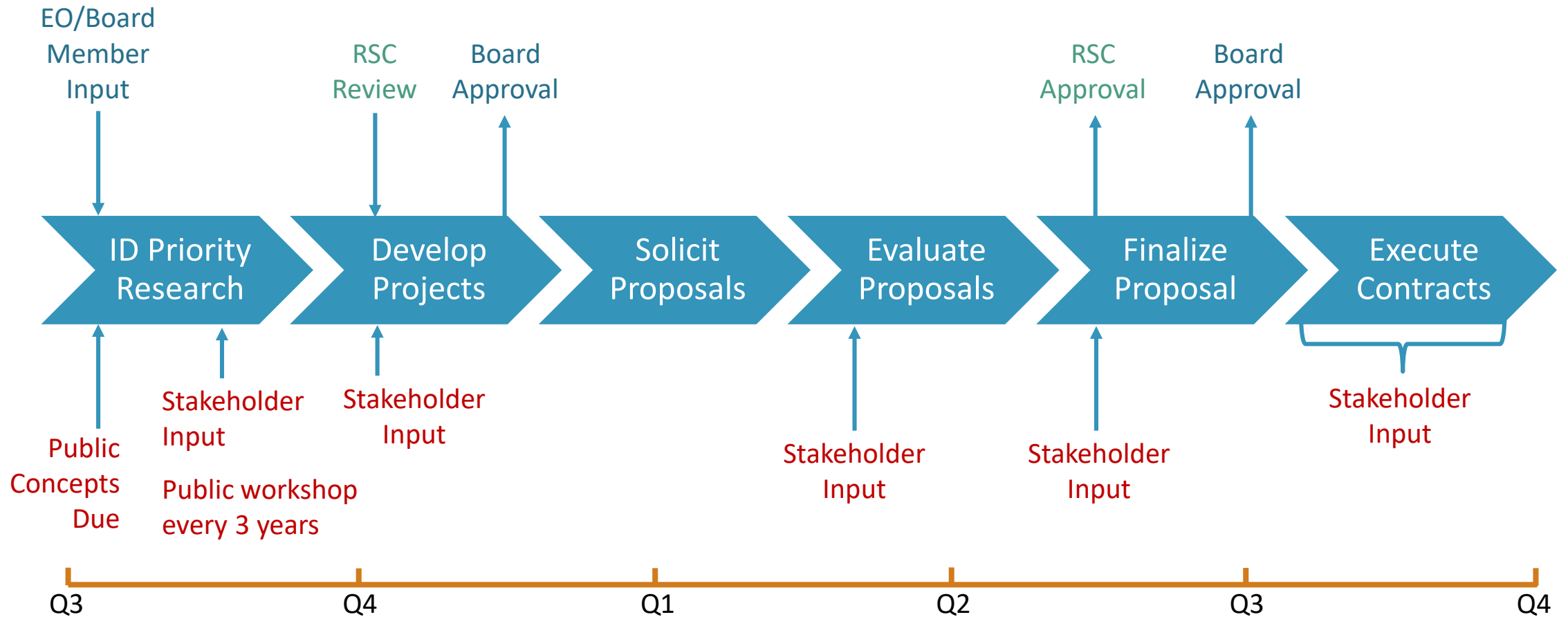
Triennial Strategic Planning

- 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

- 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

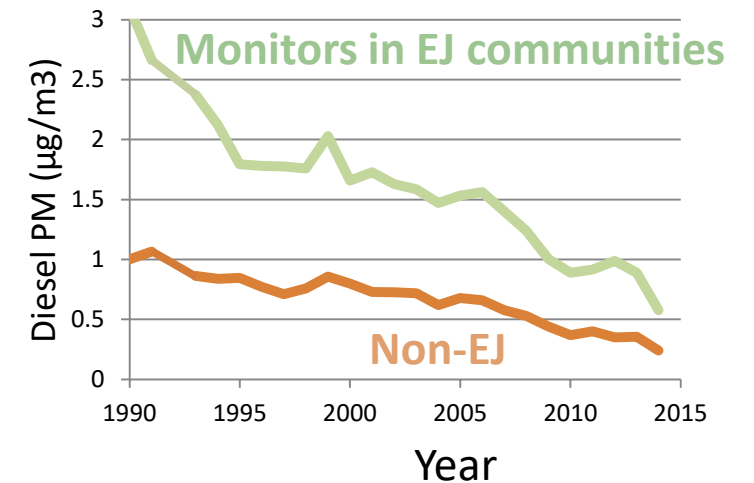
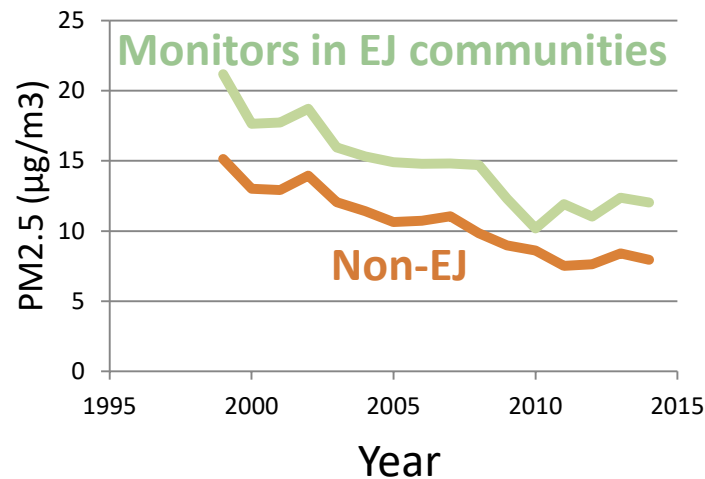
Annual Funding Selection Process



Environmental Justice

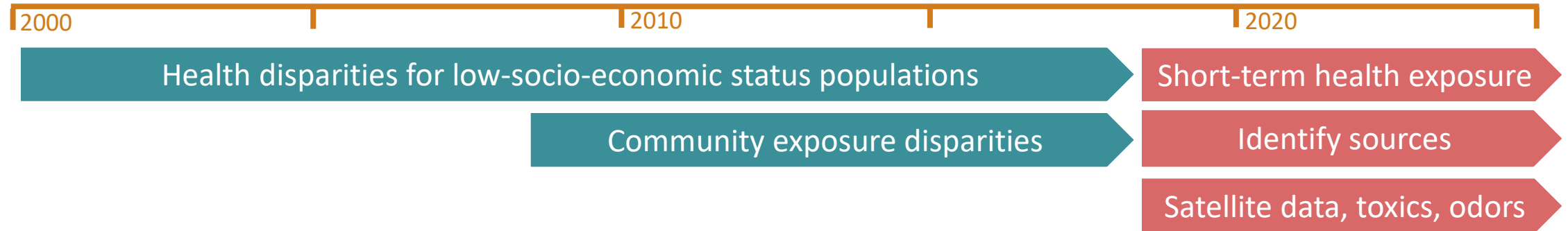
Challenges

- 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



- 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)

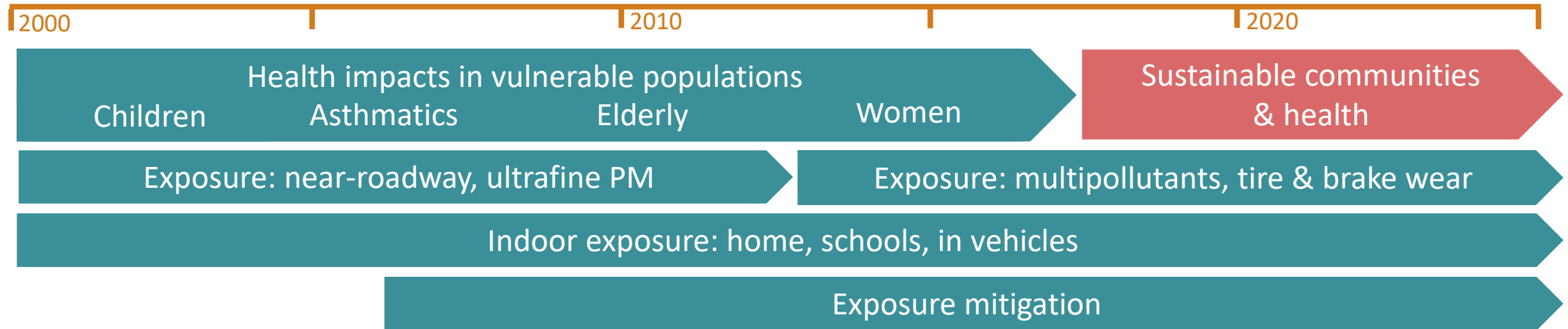
Research initiatives & FY 2018-19 Projects



- 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



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

Air Quality – SIP

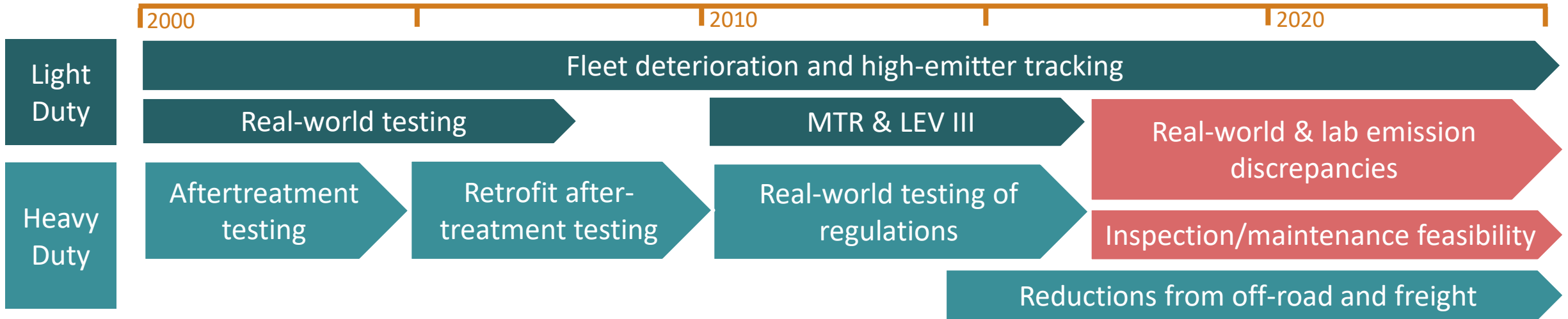
Research initiatives & FY 2018-19 Projects



- 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

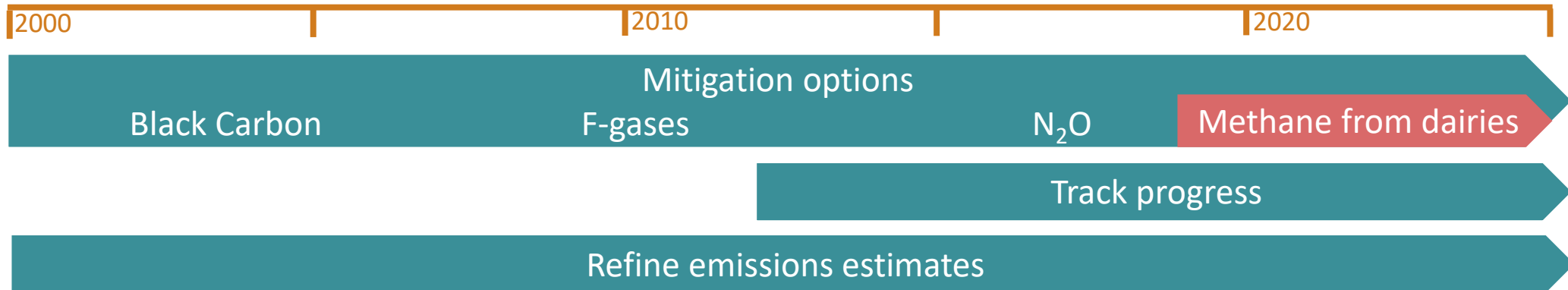
Research initiatives & FY 2018-19 Projects



- 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

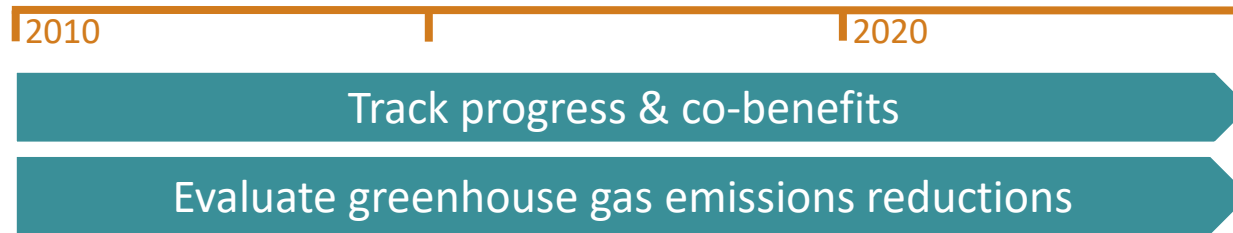
Research initiatives & FY 2018-19 Projects



- 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

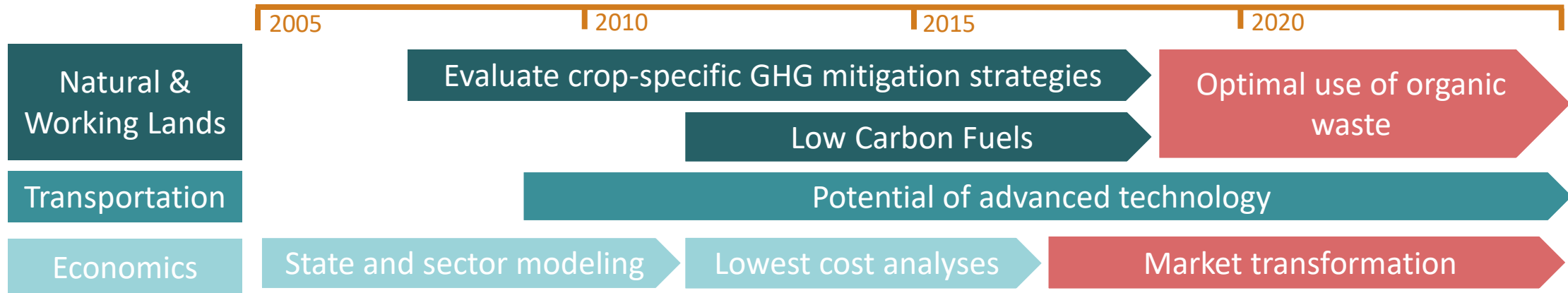
Research initiatives & FY 2018-19 Projects



- 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

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