

# **Municipal Government & Recycling A Contractors Perspective**

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# COUNCIL VS ADMINISTRATION

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- Councilors have 2 main jobs
  - Represent their constituents
  - Ensure public funds are spent wisely
  
- Desire to get re-elected
  - Public appearances
  - On top of main issues



# COUNCIL VS ADMINISTRATION

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- Council directs initiatives and gets administration to work out the details
  - Requires short turn around (election cycle)
  - Needs to serve the loudest constituents
  - Can't have negative budget requirements
- What does administration do with these directives?
  - Complex issues
- As contractors, who do we push ?



# COUNCIL VS ADMINISTRATION

- What happens when Council changes its mind?





# COUNCIL VS ADMINISTRATION

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- Example - Shingles



# RFP vs LOW BID

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- Often Recycling Technology is
  - Unproven
  - Unspecified
  - Niche Industry driven
- Therefore RFP's seem the way to go.
- Do contractors invest in equipment hoping to get the work?
- Do contractors invest in training civic staff and then hope to win the award?
- Maybe the answer is to halt things right away and include the training in the RFP?



# RFP vs LOW BID

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- With proven technologies low bid is feasible
  - Need clear specifications and deliverables
  - Clear understanding of value
    - What materials are wanted?
    - What are the alternatives?
    - Who is going to benefit?
- Not always as open to innovation
  - What benefits are there to recycling other than lower cost?



# SUPPLY AND DEMAND

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- Supply
  - Is there enough of the recyclable to justify the entrance into the market?
  - Are there competitors in the market already?
  - Is the municipality a competitor?
  - Is there a cheaper way to get the product?





# SUPPLY AND DEMAND

- Demand
  - Are there people willing to buy the product?
  - Is the local municipality willing to allow the product?



# SUPPLY AND DEMAND

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- Demand – What can Municipalities do?
  - Specifications need to be rewritten to allow recycle content.
    - Understand the effects of recycled material
  - Meet with stakeholders to see what is feasible
    - What can be done?
    - Who is already in the game and what are they doing?
  - Determine how to partner with local businesses already doing the work



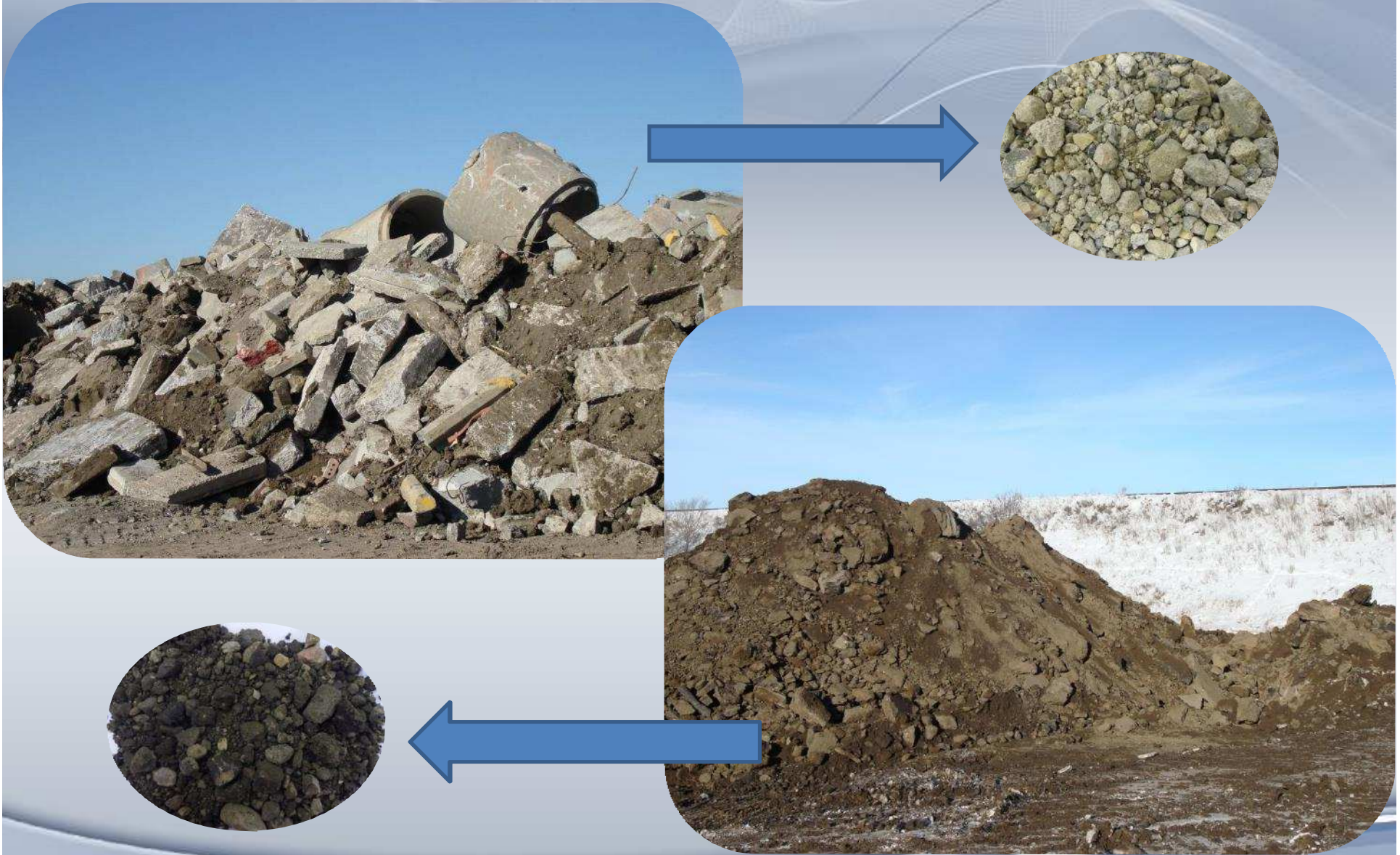
# SUPPLY AND DEMAND

- Example – Green Street Program





# BACKGROUND – RAP & PCC MATERIALS IN COS





# OBJECTIVE

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- The objective of this study was:
  - To investigate the effects of cement stabilization for base materials including PCC and RAP using a three dimensional road computational mechanics model; and
  - To determine the primary deflection response and strain behaviour of the pavement structure.
- This study also examined the edge effects of a concentrated load on an urban pavement structure.

# SCOPE & METHODOLOGY

- Laboratory Testing Program
  - ✓ Gradation analysis
  - ✓ Particle angularity
  - ✓ Gyratory Compaction
  - ✓ Triaxial frequency sweep testing
  - Standard Proctor compaction
  - California Bearing Ratio (CBR)
- Base type & cement stabilization amount:

Granular Base

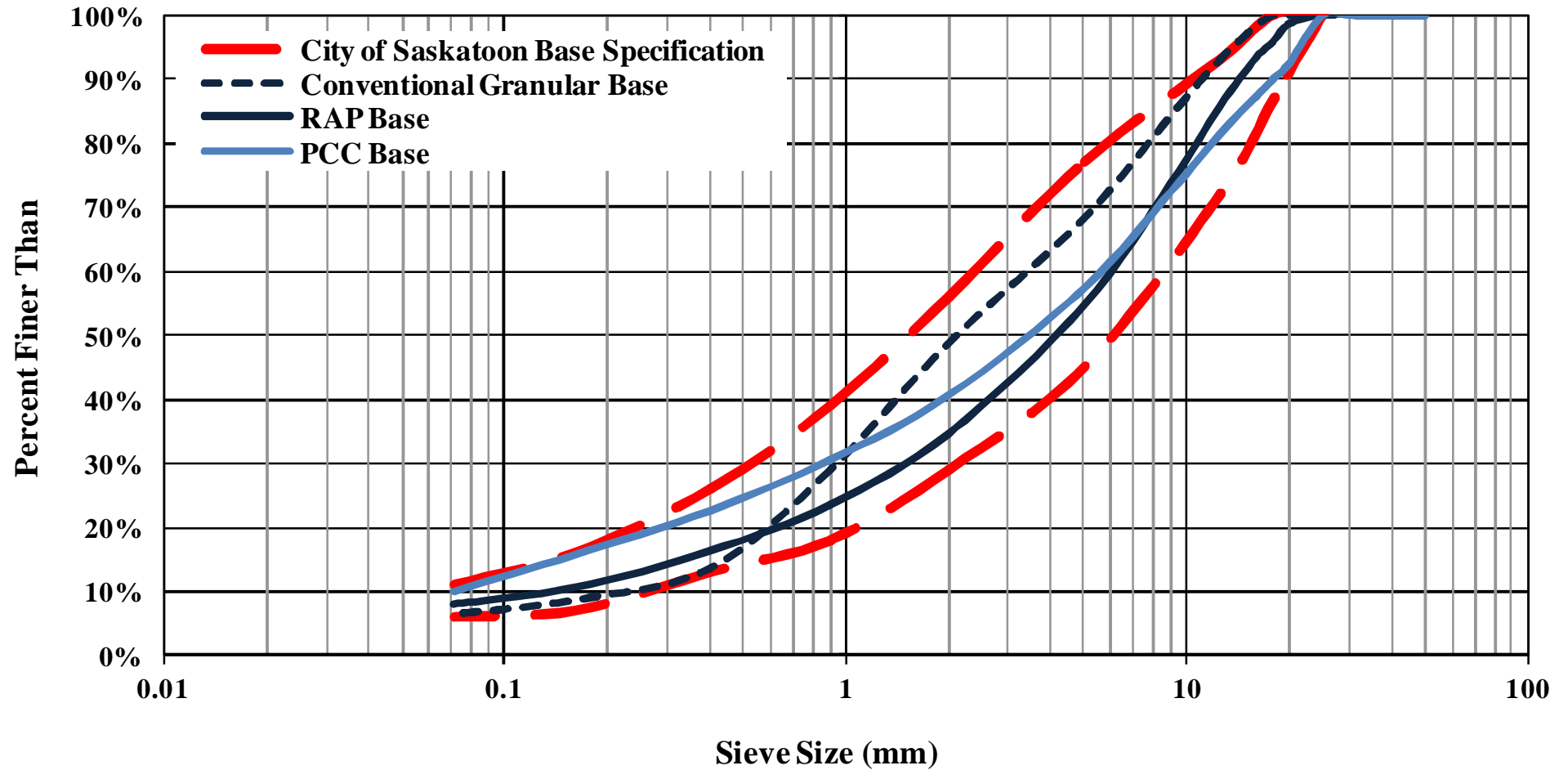
RAP, 0 % cement

PCC, 0 % cement

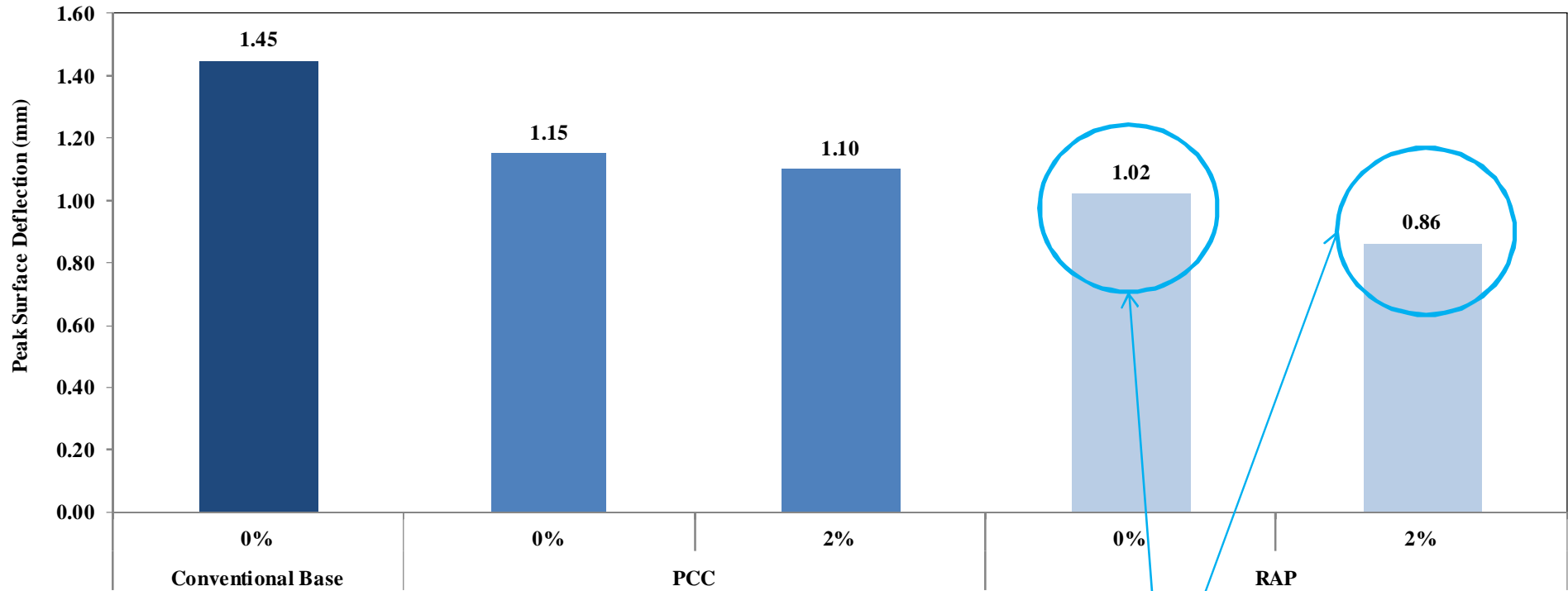
RAP, 2 % cement

PCC, 2 % cement

# SCOPE & METHODOLOGY



# STUDY RESULTS – PEAK SURFACE DEFLECTIONS

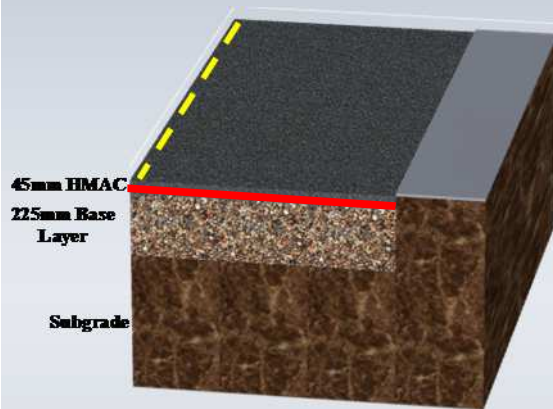


Cement stabilization improved the structural capacity of RAP more than the PCC.

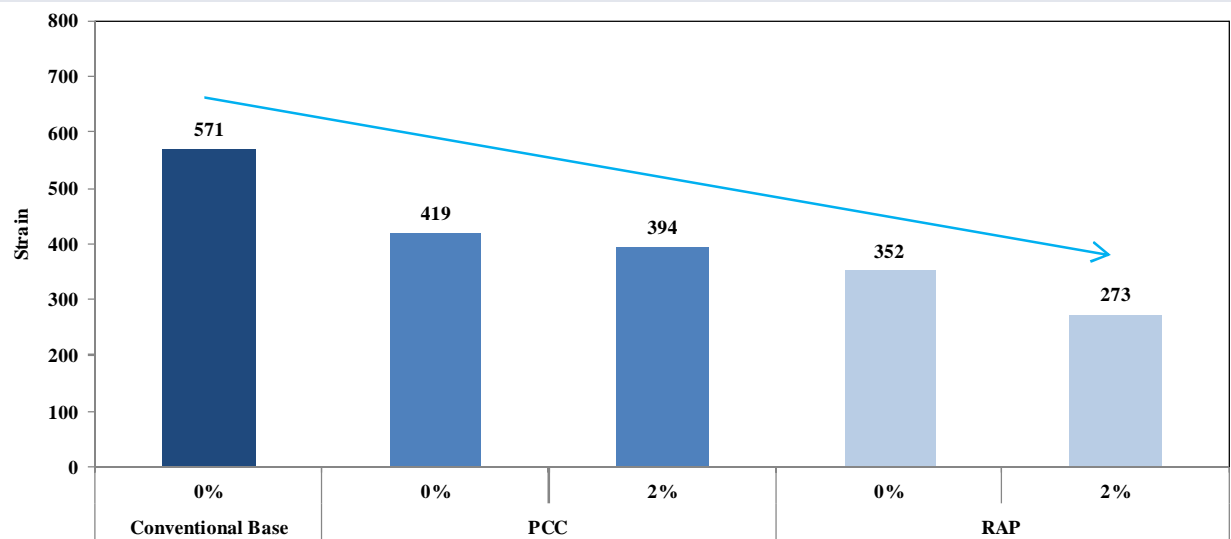
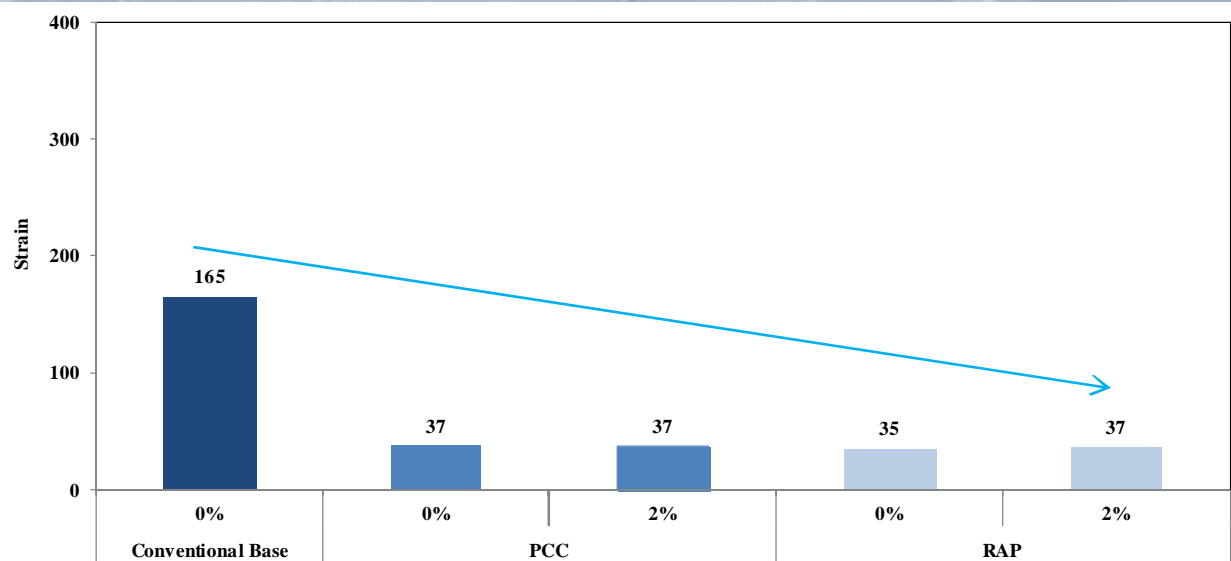


# STUDY RESULTS – STRAIN AT PRIMARY WEIGHT LIMITS

Horizontal Tensile Strain at the Bottom of HMAC

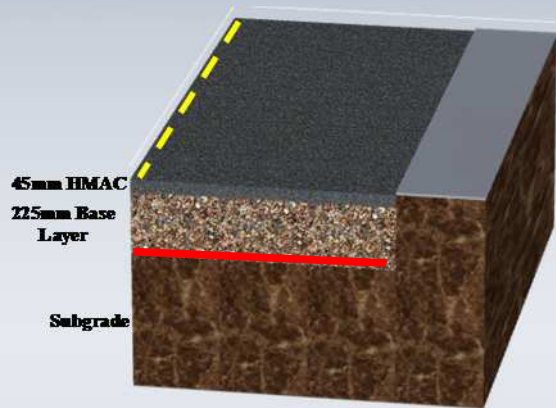


Shear Strain at the Bottom of HMAC

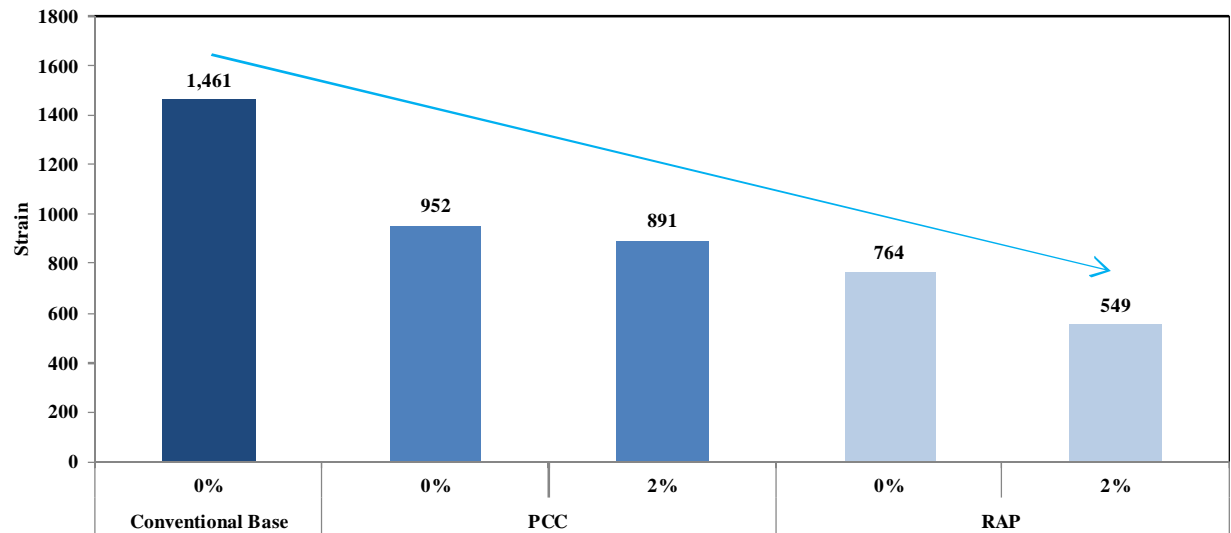
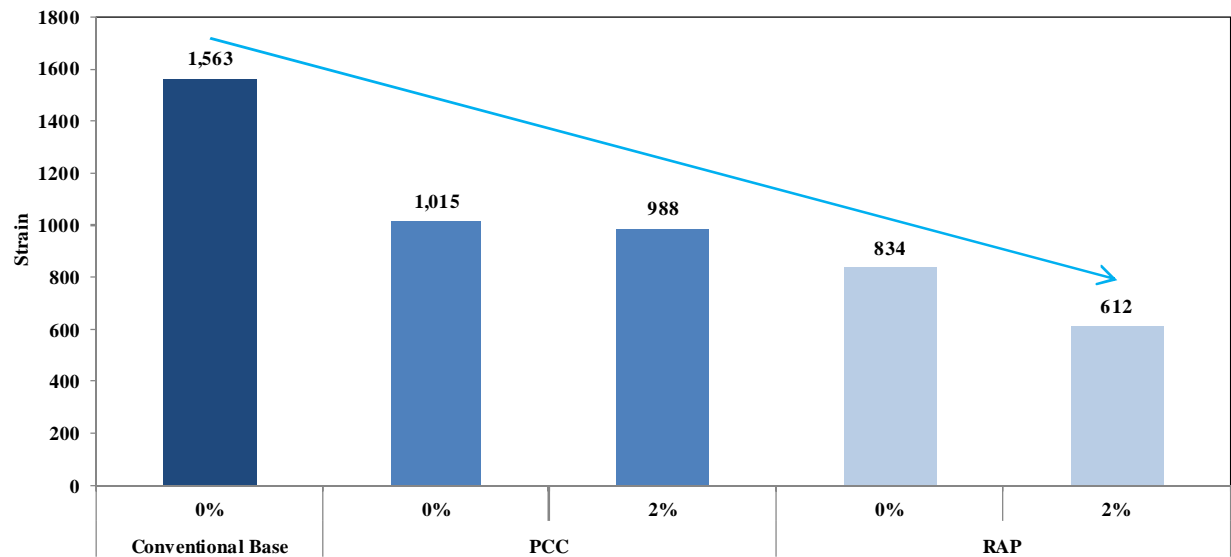


# STUDY RESULTS – STRAIN AT PRIMARY WEIGHT LIMITS

Vertical Compressive Strain at the Base and Subgrade Interface



Shear Strain at the Base and Subgrade Interface



## STUDY RESULTS – MODELING URBAN ROAD EDGE EFFECTS

- Shear strain analysis
  - Urban roads constructed in a “clay box”
  - Not free draining
  - Greater shear strains predicted at edge of the road structure

# STUDY RESULTS – EDGE EFFECT SHEAR STRAIN BASE LAYER

## Maximum Shear Strain at the Edge ( $\mu\epsilon$ )

Conventional Granular Base

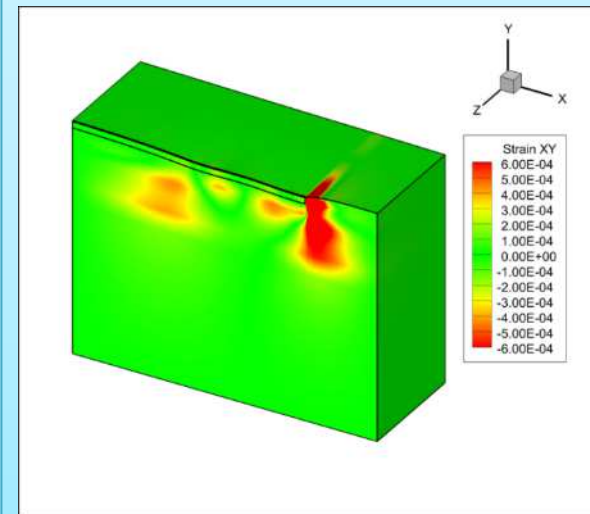
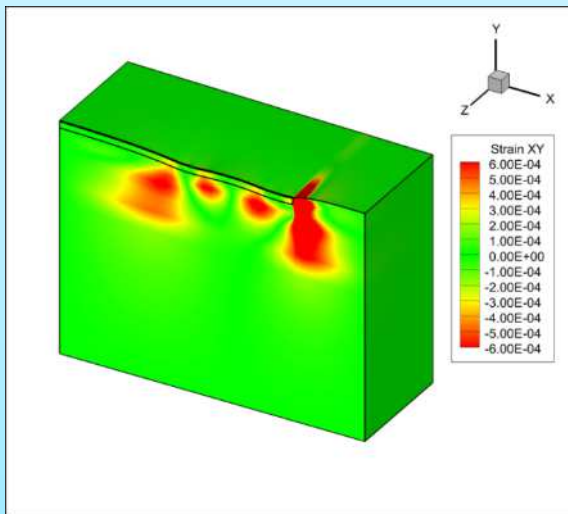
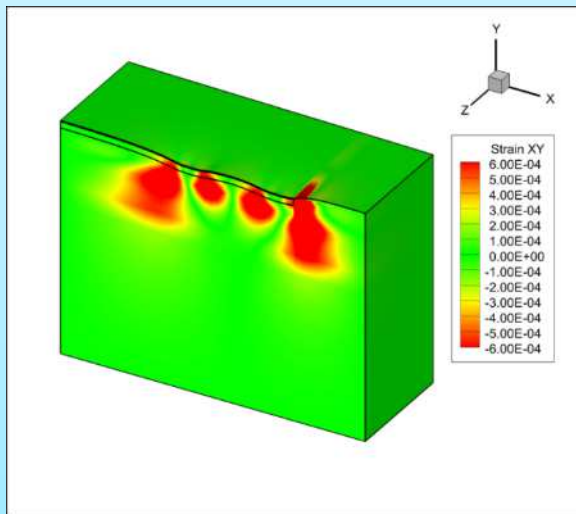
PCC Base with 2% Cement

RAP Base with 2% Cement

3426

3017

2569





# WHAT CAN MUNICIPALITIES DO?

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- Consult with all Local Companies in that Field
  - They may or may not have an opinion before it starts
  - Will definitely have an opinion after if not consulted
- Embrace what local companies are doing and advertise it.
  - Ensure that new companies are welcome to be advertised as well after they are checked out
- Be part of the success – companies have no problem sharing the glory (as long as they can keep the profits)

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Questions?