FEBRUARY 6, 2024

WORKING GROUP MEETING

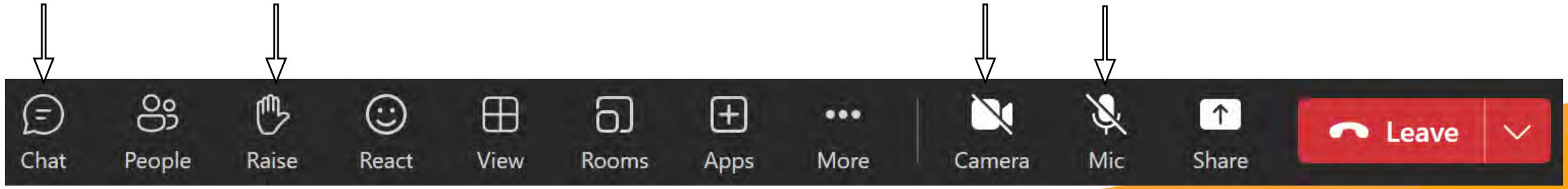
AGENDA

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

BUILDING BETTER ROADS San Diego County

TEAMS MEETING ETIQUETTE/ SIGN IN

- Mute Microphone unless presenting
- Turn Camera off unless presenting
- Use Chat window or Raise Hand for questions
- Please enter your Name, Company/Agency, E-mail in Chat



BUILDING BETTER ROADS San Diego County

AGENDA

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

BUILDING BETTER ROADS San Diego County

AGENDA

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

BUILDING BETTER ROADS San Diego County

GROUP POLL

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

BUILDING BETTER ROADS San Diego County

QR CODE AND LINK FOR POLL

https://forms.office.com/g/UytXzgp9aH

BUILDING BETTER ROADS San Diego County

AGENDA

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

BUILDING BETTER ROADS San Diego County

CALAPA UPDATE

The California Asphalt Pavement Association

Asphalt Industry Update

February 6, 2024
Building Better Roads Working Group Meeting

CalAPA®

BUILDING BETTER ROADS
San Diego County

CalAPA: Caltrans – Emerging Initiatives

- Evaluation of recycled materials in asphalt mixes:
  - 40% RAP
  - RAS
  - 10% RAP in RHMA
- Post-Plant Gradation
  - Target: Caltrans Standard Specification (publication October 2024)
- Fog seals re-introduced into Caltrans specifications
- 100% RAP in slurry seals and chip seals

CalAPA®

CalAPA: Performance & Sustainability

BALANCED MIX DESIGN (BMD)

- Design mixes based on rutting and cracking performance
- Testing of mixture
  - IDEAL CT (new)
  - Hamburg Wheel Tracking Test

ENV PRODUCT DECLARATIONS (EPDS)

- Published information on the Global Warming Potential (GWP) of asphalt mixtures
- Current evaluation of mixture production to the "gate"
- Future: evaluation includes construction and during service life of pavement

CalAPA®

3

CalAPA: Local Agency – Caltrans Standard Specs

- 2023 Caltrans Standards Available Online
  - https://dot.ca.gov/programs/design/july-2023-ccs-standard-plans-and-standard-specifications
- City and County Pavement Improvement Center (CCPIC)
  - http://www.ucprc.ucdavis.edu/ccpic/
  - Local Agency specification based on Caltrans Standard Specifications Section 39 (Superpave)
    - Revised acceptance protocol
    - HMA mixes for local agency needs

CalAPA: Networking and Education Events

- Asphalt 101 (in-person)
  - Wednesday March 6, 2024
  - Ontario, CA
- Asphalt Forensics (online only)
  - Tuesday April 23, 2024
  - Online only
- Asphalt 101 (online & in-person)
  - Wednesday April 24, 2024
  - Online & Sacramento, CA
- Quality Asphalt Paving (online & in-person)
  - Thursday April 24, 2024
  - Online & Sacramento, CA

- CalAPA Spring Conference
  - Thursday/Friday March 7-8 , 2024
  - Doubletree Ontario Airport Hotel
  - Ontario, CA
  - Special Agency Representative Pricing

- Topics:
  - Environmental Product Declarations (EPD)
  - RAP usage and evaluation
  - Performance additives
  - Recycling of pavements
  - Construction best practices

www.calapa.net

AGC UPDATE

AGC
THE CONSTRUCTION ASSOCIATION

February 2024

US—CA—San Diego Construction Update:

CONSTRUCTION HIRING AND BUSINESS OUTLOOOK 2024

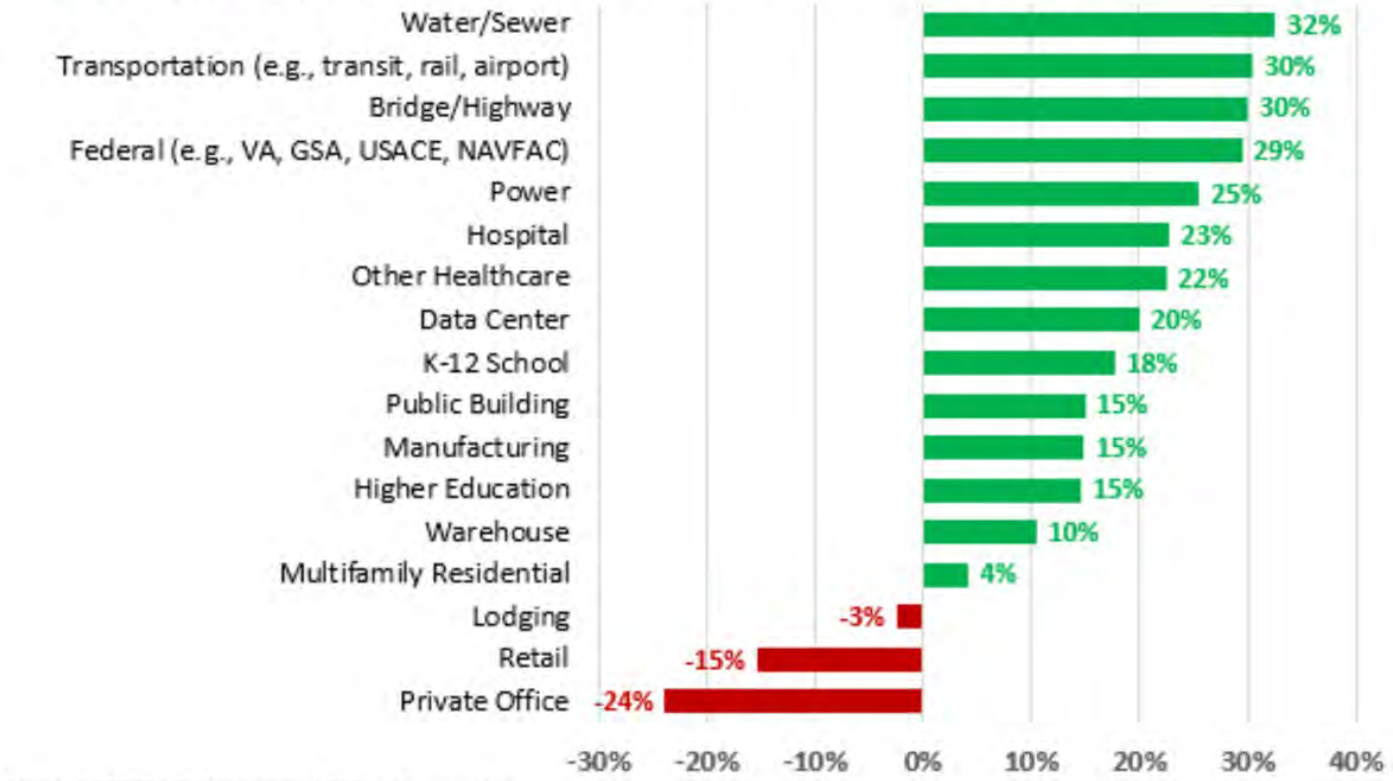
Mike McManus—AGC San Diego

BUILDING BETTER ROADS
San Diego County

AGC UPDATE

AGC Outlook Survey: Net* % who expect 2024 value of projects to be higher/lower than 2023

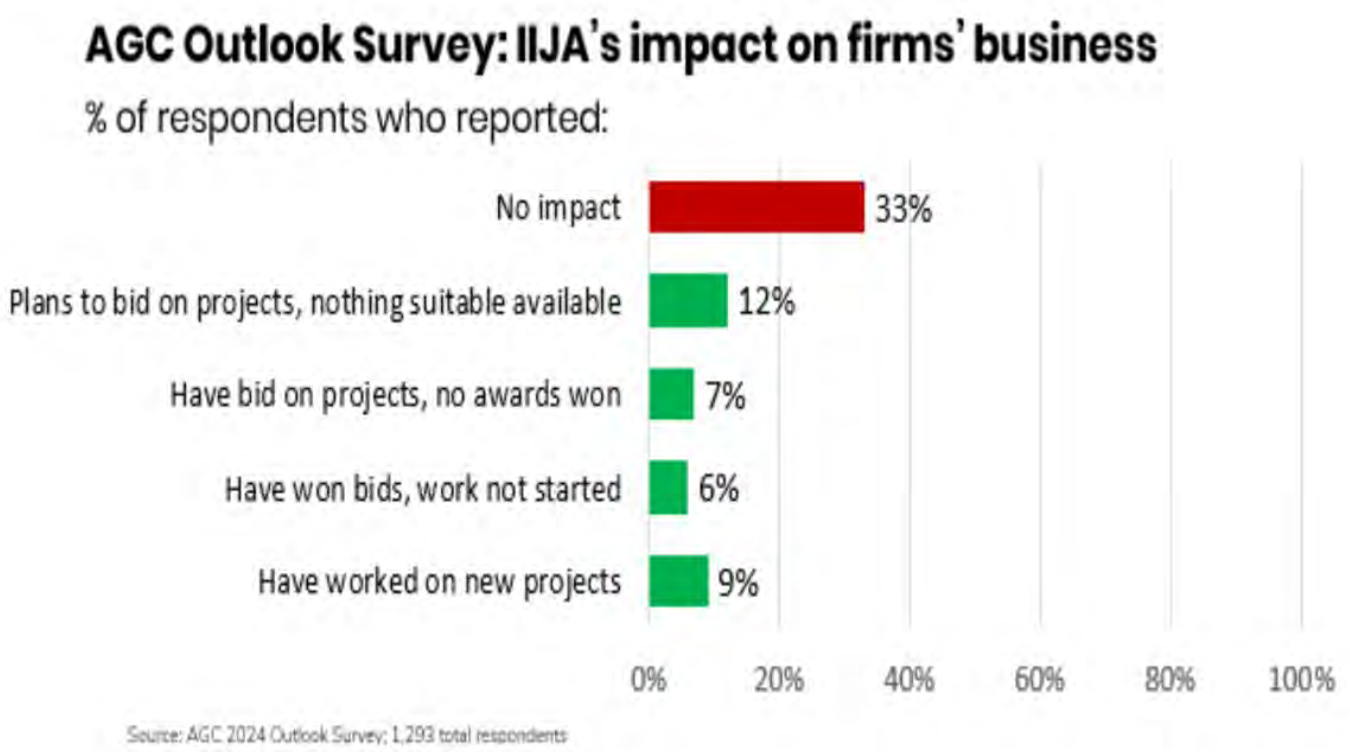
* Net = % expecting higher value - % expecting lower value than in 2023



Source: AGC 2024 Outlook Survey; 1,293 total respondents

San Diego County BUILDING BETTER ROADS

AGC UPDATE

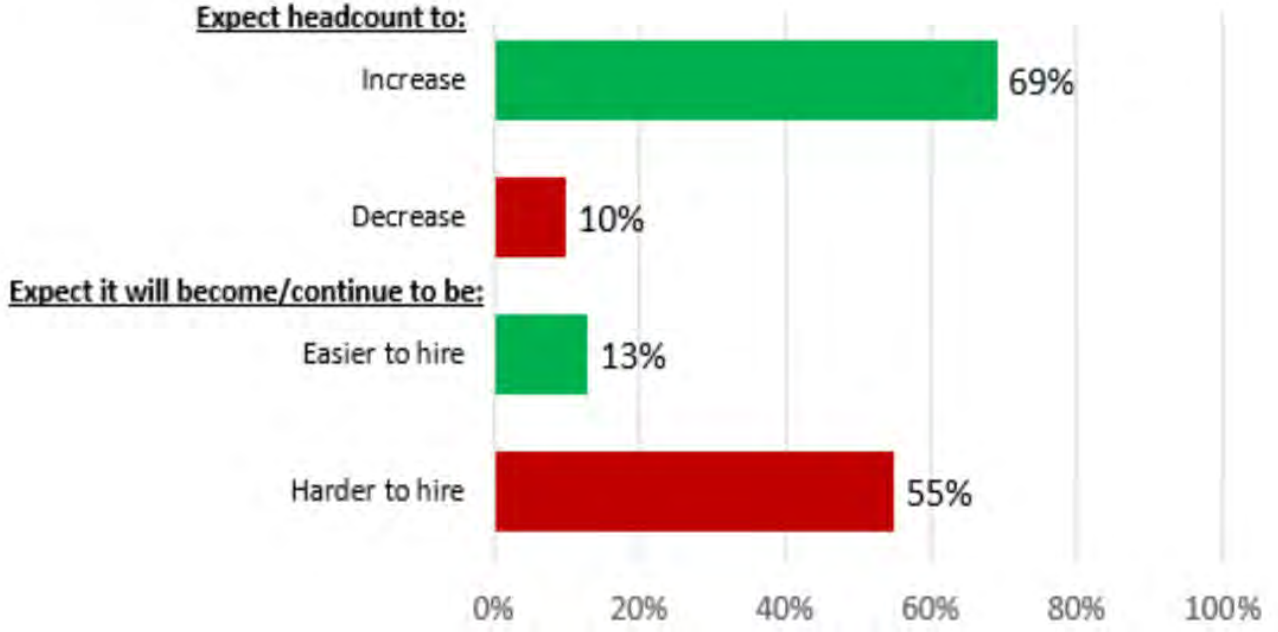


BUILDING BETTER ROADS San Diego County

AGC UPDATE

AGC Outlook Survey: Firms' expectations regarding their headcount and hiring over next 12 months

% of respondents who:



Source: AGC 2024 Outlook Survey; 1,293 total respondents

BUILDING BETTER ROADS San Diego County

AGC UPDATE

Percentage of firms that made compensation changes 2023:

BUILDING BETTER ROADS San Diego County

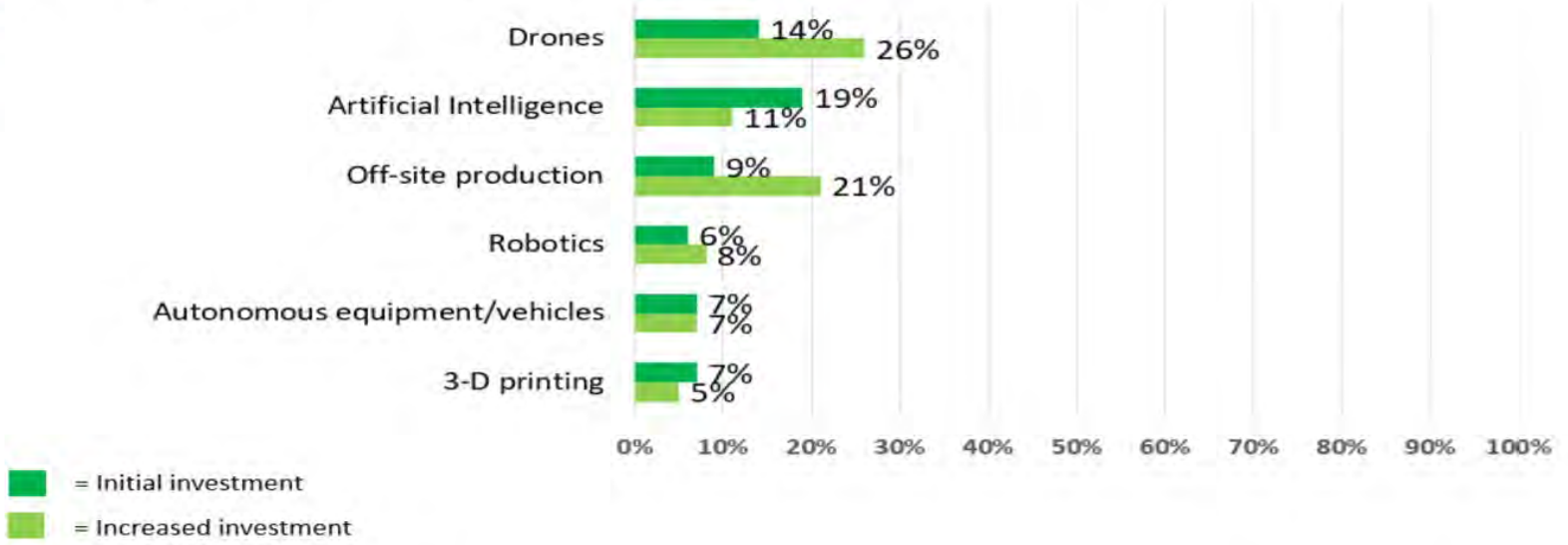
AGC UPDATE

BUILDING BETTER ROADS
San Diego County

AGC UPDATE

AGC Outlook Survey: Firms' adoption of technology

% of respondents who expect changed investment in:

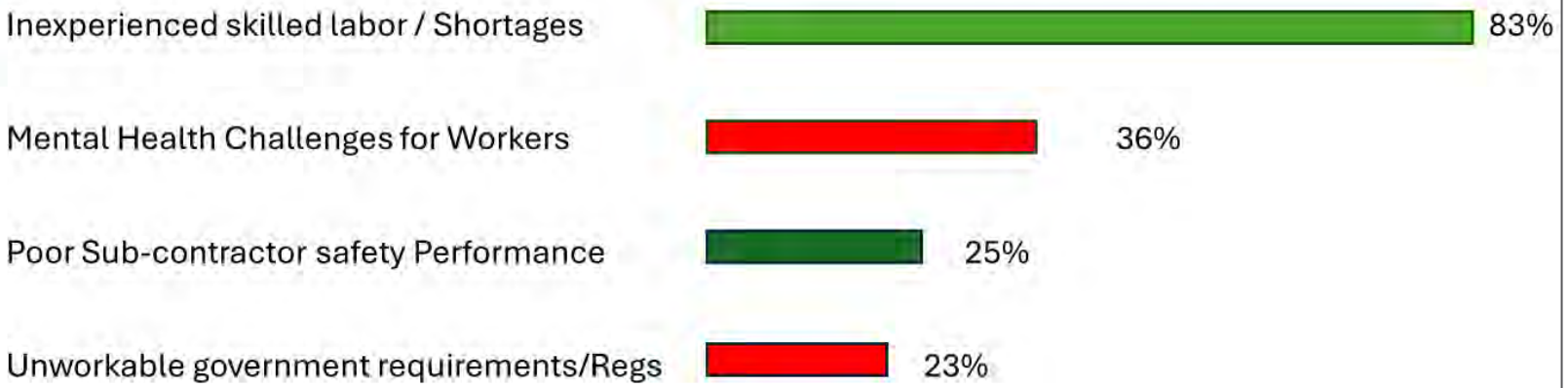


Source: AGC 2024 Outlook Survey. 1,293 total respondents

San Diego County BUILDING BETTER ROADS

AGC UPDATE

What Challenges do you see regarding safety and health of your firm's workers?



BUILDING BETTER ROADS San Diego County

AGC UPDATE

SAN DIEGO UNEMPLOYMENT AND JOBS

Unemployment Rates

- National 3.5%
- California 5.1%
- County 4.3%

Month of November in San Diego

- Construction Industry Added 1,800 Jobs

Total Construction Workforce in San Diego

- 90,900
- Highest Level in 15 years

Construction is Booming—for now

BUILDING BETTER ROADS San Diego County

AGC UPDATE

SAN DIEGO REGION 2024 EXPECTATIONS

Tight Labor Market

- Fewer Bidders
- Possible Project Delays
- Overbooking of some Sub-Contractors and workers
- Government mandated PLA's –out of town workers

Upward Price Pressures

- Increasing Compensation for Worker Retention
- Materials Costs Still Rising
- Equipment—CARB Regulations

AC, Aggregates and Concrete Supply—Delays small batches

BUILDING BETTER ROADS San Diego County

RSA UPDATE

Recycling & Stabilizing Association of California (RSA)

Marco A. Estrada - Board Member

Caltrans PMPC Recycling Sub Task Group (RSTG) - Recycling Industry Lead

Greenbook Committee - Recycling Industry Lead

RSA
Recycling and Stabilizing Association of California

#urbanquarry

San Diego County BUILDING BETTER ROADS

RSA UPDATE

Greenbook: Cement Stabilized Pulverized Base (CSPB)

CSPB 301-3.4: will be recommended for update 2024

Lime-Treated Soil 301-5: will be recommended for update 2024

Caltrans Full- Depth Recycling (FDR)

Section 30-3 FDR-FA: Scoping document complete and working group in-progress

Section 30-4 FDR-C: Specification in review with minor changes on test methods

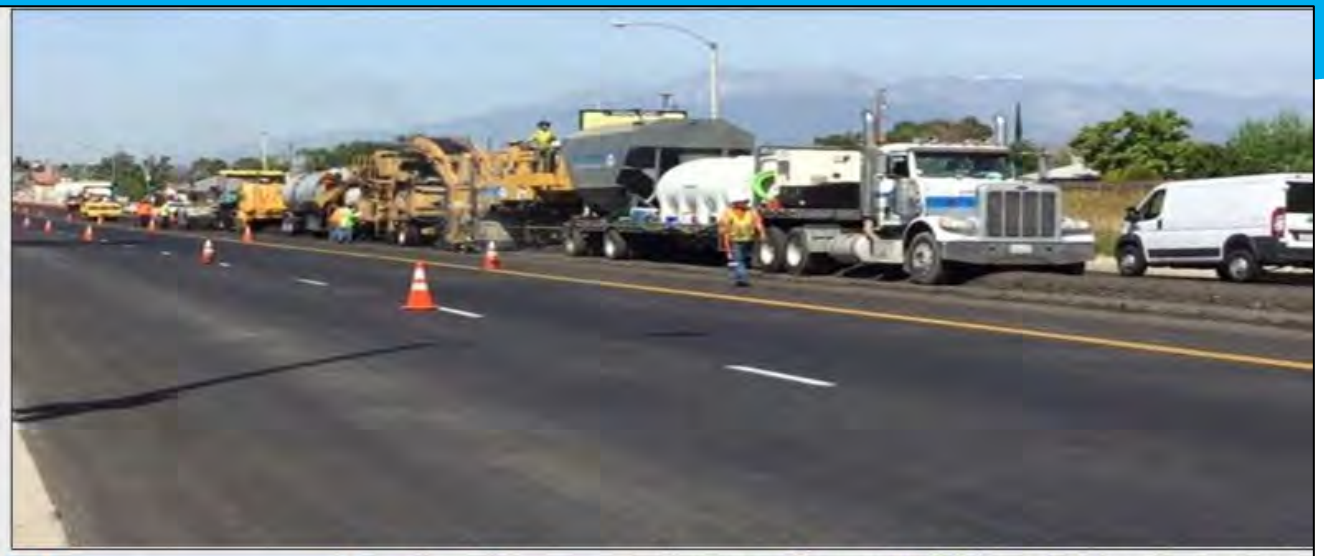
FDR-PLC: Scoping document complete…working group being assembled.

San Diego County BUILDING BETTER ROADS

RSA UPDATE

Greenbook Cold In-place Recycling (CIR)

CIR & CCPR 313 SM: Adopted and will be included in the 2024 Greenbook



Caltrans Partial Depth Recycling (PDR)

Section 30-5 PDR: NSSP completed, includes single and multi-units, as well as emulsion and foamed asphalt. Recommended for SSP in 2024

San Diego County BUILDING BETTER ROADS

RSA UPDATE

Cold Central Plant Recycling (CCPR)

Caltrans

CCPR 30-7: NSSP complete and 2 pilot projects completed in Districts 6 and 8. Field data collected and being evaluated

Greenbook

CIR & CCPR 313 SM: Adopted and will be included in the 2024 Greenbook

San Diego County
BUILDING BETTER ROADS

RSA UPDATE

RSA PARTNERS WITH CALTRANS ON OVER

100 PARTIAL DEPTH RECYCLING (PDR) PROJECTS

2023
- CT - 02-3J7504 - Rte 139 near Susanville
- CT - 03-267504 - Rte 45 near Hamilton

2022
- CT 03-263704 - Rte 16 near Rumsey
- CT 05-1N7004 - Rte 166 near San Luis Obispo
- CT 08-1K0504 - Rte 62 near Vidal Junction
- CT 11-2M1144 - Rte 78 near Glamis

2021
- CT 02-1J1504 - Rte 139 near Adin
- CT 03-261104 - Rte 162 near Willows
- CT 04-0C9304 - Rte 1 near Pescadero
- CT 05-1N1704 - Rte 135 near Los Alamos
- CT 06-0U1004 - Rte 43 near Bakersfield
- CT 08-1L6804 - Rte 2 near Wrightwood

2020
- CT 02-0J1304 - Rte 139 near Susanville
- CT 03-166604 - Rte 162 near Oroville
- CT 05-1K7904 - Rte 166 near New Cuyama
- CT 06-0W7104 - Rte 33 near Firebaugh
- CT 08-1F1304 - Rte 62/95 through Vidal Junction
- CT 09-380604 - Rte 136 near Keeler
- CT 11-430524 - Rte 98 near Calexico

2019
- CT 02-3H1704 - Rte 299 near Alturas
- CT 03-069904 - Rte 84 near Central
- CT 05-1J2504 - Rte 166 near New Cuyama
- CT 08-1J1904 - Rte 178 near Ridgecrest

2018
- CT 03-064204 - Rte 45 near Colusa
- CT 04-3J4904 - Rte 116 near Sebastopol
- CT 06-069804 - Rte 65 near Exeter
- CT 08-1H1004 - Rte 247 near Lucerne Valley
- CT 09-373504 - Rte 395 near Walker

2017
- CT 02-1H0304 - Rte 161 near Tulelake
- CT 02-2H4804 - Rte 36 near Mad River
- CT 03-066104 - Route 84 in Yolo County
- CT 03-4F7404 - Rte 40 in Nevada County
- CT 05-1G1504 - Rte 41 near Atascadero
- CT 09-364304 - Rte 395 near Coleville

2016
- CT 03-064704 - Rte 45 near Colusa
- CT 05-1C8304 - Rte 154 near Santa Ynez
- CT 05-1G6304 - Rte 166 near Santa Maria
- CT 07-2W9304 - Rte 33 near Ojai
- CT 09-355304 - Rte 127 near Shoshone
- CT 09-359904 - Inyo County (IC for CIR & HMA)
- CT 09-361604 - Rte 190 near Olancha
- CT 10-1E4204 - Rte 12 near Lodi (IC for CIR)

2015
- CT 02-4G1204 - Route 3 & 36 near Peanut
- CT 02-4G3404 - Route 299 Near Canby
- CT 03-062604 - Route 162 near Butte City
- CT 03-3F6504 - Rte 89 near Truckee
- CT 03-3F6704 - Route 49 near Coloma
- CT 05-1F8504 - Route 25 near Tres Pines
- CT 06-002404 - Route 41 near Fresno
- CT 06-002504 - Route 198 near Lemoore
- CT 08-007204 - Route 33 near Derby Acres
- CT 08-0S1704 - Route 33 near Coalinga
- CT 08-0S2904 - Route 43 near Shafter (IC)
- CT 08-0T1704 - Route 58 near Buttonwillow (IC)
- CT 08-0T1904 - Route 145 near Five Points
- CT 07-1W0904 - Route 23 near Moorpark
- CT 08-1E2204 - Route 127 near Baker
- CT 08-1F4704 - Route 178 near Ridgecrest (IC)
- CT 09-359904 - Route 120 in Mono County (IC CIR)
- CT 10-1C0904 - Route 124 near Ione (IC)

2014
- CT 06-0P1604 - Route 198 near Hanford
- CT 07-1W0804 - Route 23 near Fillmore
- CT 09-351604 - Route 395 near Lone Pine
- CT 09-353104 - Route 395 near Tom's Place
- CT 09-354104 - Route 395 near Lee Vining
- CT 09-359004 - Route 190 in Inyo County
- CT 10-0Y1204 - Route 59 near Merced
- CT 11-2M6304 - Route 76 near Pala
- GC- Caltrans - SR 29 Upper Lake
- GC-Caltrans-SR 33 Coalinga
- KR-Caltrans- SR 33 Ward Ave
- Papichi-Caltrans- SR 137
- SNC-Caltrans-SR 193 Sliger Mine

2013
- CT 01-0C7304 - Route 96 near Hoopa
- CT 02-4F1404 - Rte 299
- CT 02-4F1404 - Rte 299 Total
- CT 02-4G1304 - Route 299 near Canby
- CT 02-5E2104 - Route 36 near Chester
- CT 03-4M1604 - Route 32 near Chico
- CT 05-1F0104 - Route 166 near Santa Maria
- CT 06-0P7304 - Route 58/269 near McKittrick/Avenal
- CT 06-0Q0704 - Route 33 near Taft
- CT 06-0Q3604 - Route 119 near Bakersfield
- CT 06-337414 - Route 190 near Porterville
- CT 08-1C8304 - Route 111 near Desert Beach
- CT 10-0X8504 - Route 59 near El Nido
- CT 10-0X9004 - Route 33 near Gustine

2012
- CT 03-2F5804 - Route 89 near Sierraville
- CT 06-0M4404 - Route 33 near McKittrick
- CT 06-0N2204 - Route 223 near Arvin

2011
- Caltrans Route 46
- CT 01-0A0604 - Route 20 near Clearlake Oaks
- CT 01-1E0804 - Route 97 near Macdoel
- CT 03-4M1504 - Route 89 near Sierraville
- CT 05-0T3004 - Route 25 near Hollister
- CT 06-0H0004 - Route 41 near Lemoore
- CT 06-0M4504 - Route 33 near Blackwells Corner
- CT 06-415904 - Route 41 near Kettleman City
- CT 06-459104 - Route 119 near Taft
- CT 06-459904 - Route 43 near Selma
- CT 08-0P3604 - Route 62 near Vidal Junction
- CT 09-343404 - Route 395 near Lee Vining
- CT 09-347304 - Route 136/168 near Lone Pine/Big Pine

San Diego County
BUILDING BETTER ROADS

RSA UPDATE

ENERGY USAGE, GREENHOUSE GAS EMISSIONS, LANDFILL REDUCTION, AND COST SAVINGS FOR SUSTAINABLE PAVEMENT TREATMENTS [1]						
SINCE 2009	COLD IN-PLACE RECYCLING	COLD CENTRAL PLANT RECYCLING	SUBGRADE STABILIZATION	PAVEMENT PRESERVATION	TOTAL	TOTAL QUANTITY
NUMBER OF PROJECTS COMPLETED	26 Projects	14 Projects	20 Projects	106 Projects	166 Projects	
REDUCTION IN ENERGY CONSUMPTION (% or kWh) [2]	77%	77%	73%	79%	78%	179,319,000 kwh
REDUCTION IN GHG EMISSIONS (% or metric tons) [2]	79%	79%	65%	84%	82%	51,000 metric tons
LANDFILL REDUCTION (CY)	75,000	38,000	271,000	384,000	768,000	
COST SAVINGS (%)	35%	19%	77%	42%	46%	
COST SAVINGS ($)	$10,484,000	$2,296,000	$31,875,000	$52,299,000	$96,954,000	

[1] Chehovits, J. & Galehouse, L. (2010). Energy Usage and Greenhouse Gas Emissions of Pavement Preservation Processes for Asphalt Concrete Pavements. National Center for Pavement Preservation, Okemos, Michigan, United States (2010) https://www.pavementpreservation.org/icpp/paper/65_2010.pdf

[1] Chappat, M. & Bilal, J. (2003). The Environmental Road of the Future: Life Cycle Analysis, Energy Consumption and Greenhouse Gas Emissions. Colas Group. 2003. http://www.colas.com/sites/default/files/publica

[2] *See notes below for the assumptions made to determine reduction in energy consumption and GHG emissions:*

Conversion factors: 1 megajoule (MJ) = 0.277778 kilowatt hour (kWh), 1 metric ton (t) = 1.1 US ton (ton), 1 kilogram (kg) = 2.2 pound (lb.), 1 square meter (sq. m.) = 10.7639 square feet (sq. ft)

Untreated Granular Material (Aggregate Base) is adjusted by the gravel factor to equivalent to cement stabilized pulverized base (CSPB).

Under pavement preservation projects: 1 SLURRY SEAL = 0.5 CM/HMA, 1 CHIP SEAL = 0.6 CM/HMA, 1 CAPE SEAL = 0.28 RECON

All listed treatment's unit costs are weighted average by the project size using their average bid prices (NOT low bid prices)

51,000 metric tons of CO_2E reduced = 10,800 passenger vehicles removed from roads*

** Based on latest updated of the average fuel economy and the emissions factor for the combustion of gasoline as of 2019. The emissions factor for passenger vehicles is 4.71 metric tons/vehicle/year. (www.epa.gov)*

Public Works
LOS ANGELES COUNTY

San Diego County
BUILDING BETTER ROADS

RSA UPDATE

Marco A. Estrada

Cell: 951-205-6000

mestrada@pavementrecycling.com

rsa-california.com

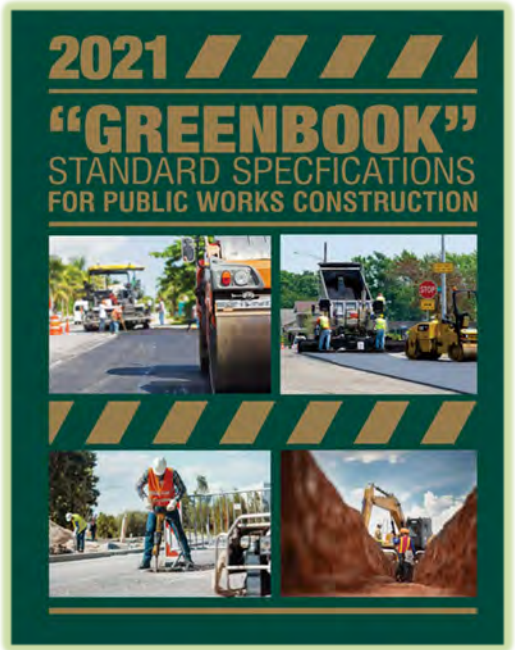
#urbanquarry

BUILDING BETTER ROADS
San Diego County

GREENBOOK UPDATE

Greenbook Update February 2024
Sarah Chavez

1. Website: "Greenbook" Committee of Public Works Standards, Inc. (greenbookspecs.org)
2. Printing 2024 GB end of Feb contact Barb Castelli - 760-734-1113 ext. 109, barbcastelli@bnibooks.com
3. City of San Diego sponsor w/ Surface Tech ARCA - GB language for fiber provided draft January goal in supplement by Sept.
4. Main Committee meets monthly last meeting 1/18, next meeting 2/15 @ 930 AM
5. Subcommittees related to roads:
   1. AC task force Chair Corina Wong -corina.wong@gcinc.com
   2. PCC task force Chair Nathan Forest -nathan.forrest@cncement.org
6. Local members-
   1. Voting- City of San Diego, County of San Diego, APWA, and AGC
   2. Attending- Vulcan and Martin Murrieta
7. Want to become Voting member or attend (agency or contractor)- http://www.greenbookspecs.org/documents/OPP20190315.pdf



BUILDING BETTER ROADS San Diego County

GREENBOOK UPDATE

AB 2953 GB Language changes

1. AB 2953 language incorporated in 2024 Greenbook for AC see changes in RED 203.6.1, updated TABLE 203-6.2.6 and 203-6.3.1.

203-6 ASPHALT CONCRETE.

203-6.1 General. Asphalt concrete shall be the product of mixing mineral aggregate and up to ~~20~~ 25 percent reclaimed asphalt pavement (RAP) with asphalt binder at a central mixing plant.

When so specified in the Special Provisions, asphalt concrete may contain greater than ~~20~~ 25 percent RAP and/or be produced using a warm mix asphalt (WMA) technology.

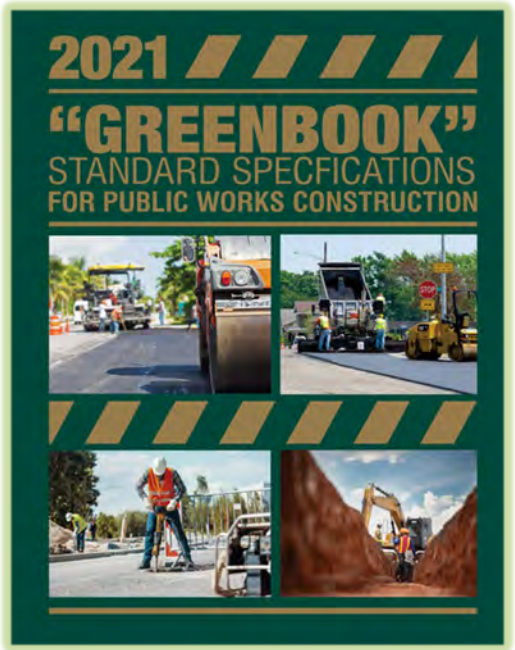
Unless otherwise specified in the Special Provisions or shown on the Plans, asphalt concrete mixtures shall conform to 203-6.4.

203-6.2.6 Recycling Agents. Recycling agents shall conform to the requirements shown in Table 203-6.2.6.

TABLE 203-6.2.6[1] (UPDATED IN 326SM)

TEST	ASTM Test Method (s)	RA5	RA25	RA 75	RA 250	RA500
Kinematic Viscosity at 140°F,	D2170 or					
cSt (60°C, mm²/s), Min./Max.	D2171	200/800	1000/4000	5000/10000	15000/35000	40000/80000
Flash Point, COC °F (°C), Min.	D92	400 (205)	425 (215)	450 (230)	450 (230)	450 (232)
Saturated Wt. %, Max.	D2007	25	25	25	25	25
Residue from RTFO Oven Test at 325°F (163°C)	D2872					
Viscosity Ratio[2] Max.	-	3	3	3	3	3
RTFO Oven Weight Change, ±, %	D2872	4	4	2	2	3
Specific Gravity	D70 or D1298	Report	Report	Report		

1. The acceptance of any recycling agent is subject to its ability to develop a RAC binder which will comply with the paving asphalt grade specified.
2. Viscosity Ratio = RTFO Viscosity at 140°F, cst (60°C, mm²/s) / Original Viscosity at 140°F, cSt (60°C, mm²/s)



BUILDING BETTER ROADS San Diego County

GREENBOOK UPDATE

AB 2953 GB Language changes

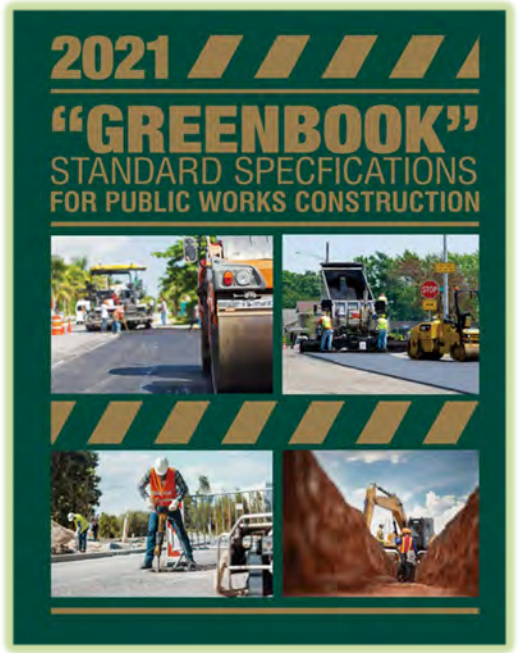
203-6.3 Job Mix Formula (JMF) and Mix Designs.

203-6.3.1 General. The Contractor shall submit in accordance with 3-8.4 a JMF that summarizes each asphalt concrete mix design for each class and grade of asphalt concrete required to construct the Work. Supporting information for the warm mix asphalt (WMA) technology and/or recycling agent, if included in a mixture, shall also be submitted.

The JMF shall identify the source and the individual grading of each material used to produce the mix design (including the percentage and individual gradation of any manufactured or natural sands), the combined gradation, the optimum binder content (OBC), void content, reclaimed asphalt pavement (RAP) percentage, RAP gradation, RAP binder content, stability value, plant identification, mix number, WMA technology, and the source and performance grade of the paving asphalt. Upon request, the mix design test data represented by the JMF shall be immediately made available to the Engineer.

For asphalt concrete with 20 to 25 percent reclaimed asphalt, the grade of the virgin binder must be the specified grade of asphalt binder for the asphalt concrete with the upper and lower temperature classification reduced by 6 degrees C.

When greater than 25 percent RAP is to be included in a mixture, a mix design shall be submitted. The submittal shall include supporting information showing the viscosity of the individual binders (both the virgin paving asphalt grade and that of the binder recovered from the RAP); and the amount of recycling agent, if any, and the blended final viscosity in accordance with AASHTO M323.



BUILDING BETTER ROADS San Diego County

AGENDA

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

San Diego County BUILDING BETTER ROADS

AGENDA

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

BUILDING BETTER ROADS San Diego County

BBR SUBCOMMITTEES

SUSTAINABILITY

- AB 2953 Compliance
- High RAP HMA
- Waste Plastic Use in HMA

INNOVATION

- Non-Destructive Testing of HMA
- Regional Mix Designs

https://www.sandiegocounty.gov/BBR

BUILDING BETTER ROADS San Diego County

AGENDA

- 1) Sign-In /Meeting Overview
- 2) Public Comments
- 3) Welcome Message
- 4) Interactive Poll
- 5) Industry/Organization Updates
- 6) Key Presentation: Geosynthetics use in Road Construction, Garrett Fountain, Tensar
- 7) Subcommittee Update
- 8) Next Working Group Meeting / Close

BUILDING BETTER ROADS San Diego County

San Diego County

BUILDING

BETTER ROADS

Meeting Adjourned