Items to consider if moving to post plant gradations (Industry meeting April 6, 2015)

- Where would QC and Acceptance samples be obtained? Plant or field?
    - Is there an Industry preference?
        - Samples taken at the plant per CT 125
        - Concern: Sampling into underlying material or leaving material on the grade, Producer has no control of sampling on the grade, Concern that samples will not be random, ability to obtain sample without picking up tack with OGFC, RHMA-G, sample size are very large with superpave
        - Where are other states obtaining samples?
            - Need to survey states
            - Agency independent acceptance samples (this entire process needs to be reviewed and or revised; there will be major sample variability between contractor plant samples and agency field samples.) Would Caltrans agree to sample at location selected by the contractor?
- In ASTM, for ¾" nominal maximum size the minimum sample size for a full gradation is 5000 grams. An ignition oven burn is 2000 grams before being burned (including the binder). This is 38-40% of recommended sample size for gradation. This will make it more difficult to get a truly representative sample and leads to higher variability in the testing procedure (especially from lab to lab).
- We recommend that the #8 and #30 sieves not have target bands for acceptance or pay due to the high variability created from the high temperature of the ignition oven. The #8 and #30 target bands were created to keep the mix out of the "restricted zone". However, due to the variability of these sizes when placed in a high temperature ignition oven, it is recommended that these sizes still be used for mix design criteria but not for acceptance or pay due to the high variability caused by breakdown from the high heat of the ignition oven.

1. The gradation band and tolerance during production for post plant is widened significantly to account for higher sampling and testing variation associated with smaller sample, potentially more difficult splitting, and changes in mineralogy affected by high temperature from ignition oven.
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- Would aggregate breakdown correction factor(s) be allowed for ignition oven?
    - Is there an Industry preference?
- Mix design concerns
    - Batching to target values in lab versus post plant gradation. How is this going to be handled – which target values will we use? Same question for ignition oven correction factors.
        - Need to check with other states?
- Would there be a consideration for an adjustment to the target value grading band?
    - Is there an Industry preference?
        - Yes we may need to coarsen/fine up mix to hit the volumetrics
            - Look at AASHTO M 323 or ASTM D 3515 Grading bands

    - Acceptance Gradation Tolerances
    - Which sieves should be considered?
    - Look at FHWA Peer review team comments
    - See proposed adjustments
- Would there be a consideration for moving to gradation based on action and suspension limits similar to FAA, moving towards end result and performance specifications?

Aggregate Gradations
(Percentage Passing)

1-inch

Sieve size	Target value limit	Allowable tolerance
1"	100	--
3/4"	88–93	TV ± 5
1/2"	72–85	TV ± 6
3/8"	55–70	TV ± 6
No. 4	35–52	TV ± 7
No. 8	22–40	TV ± 5 7
No. 30	8–24	TV ± 4 6
No. 50	5–18	TV ± 4 6
No. 200	3–7	TV ± 2 3

3/4-inch

Sieve size	Target value limit	Allowable tolerance
1"	100	--
3/4"	90–98	TV ± 5
1/2"	70–90	TV ± 6
No. 4	42–58	TV ± 5 7
No. 8	29–43	TV ± 5 7
No. 30	10–23	TV ± 4 6
No. 200	2–7	TV ± 2 3

1/2-inch

Sieve sizes	Target value limit	Allowable tolerance
3/4"	100	--
1/2"	95–98	TV ± 5
3/8"	72–95	TV ± 5
No. 4	52–69	TV ± 5 7
No. 8	35–55	TV ± 5 7
No. 30	15–30	TV ± 4 6
No. 200	2–8	TV ± 2 3

3/8-inch

Sieve sizes	Target value limits	Allowable tolerance
1/2"	100	--
3/8"	95–98	TV ± 5
No. 4	55–75	TV ± 5 7
No. 8	30–50	TV ± 5 7
No. 30	15–35	TV ± 5 6
No. 200	2–9	TV ± 2 3

No. 4

Sieve sizes	Target value limits	Allowable tolerance
3/8"	100	--
No. 4	95–98	TV ± 5 7
No. 8	70–80	TV ± 6 7
No. 30	34–45	TV ± 5 6
No. 200	2–12	TV ± 4 5

- Would the DP be based on post plant # 200?
  - Would there be consideration for an adjustment to the DP range?
  - What about for lime mixes