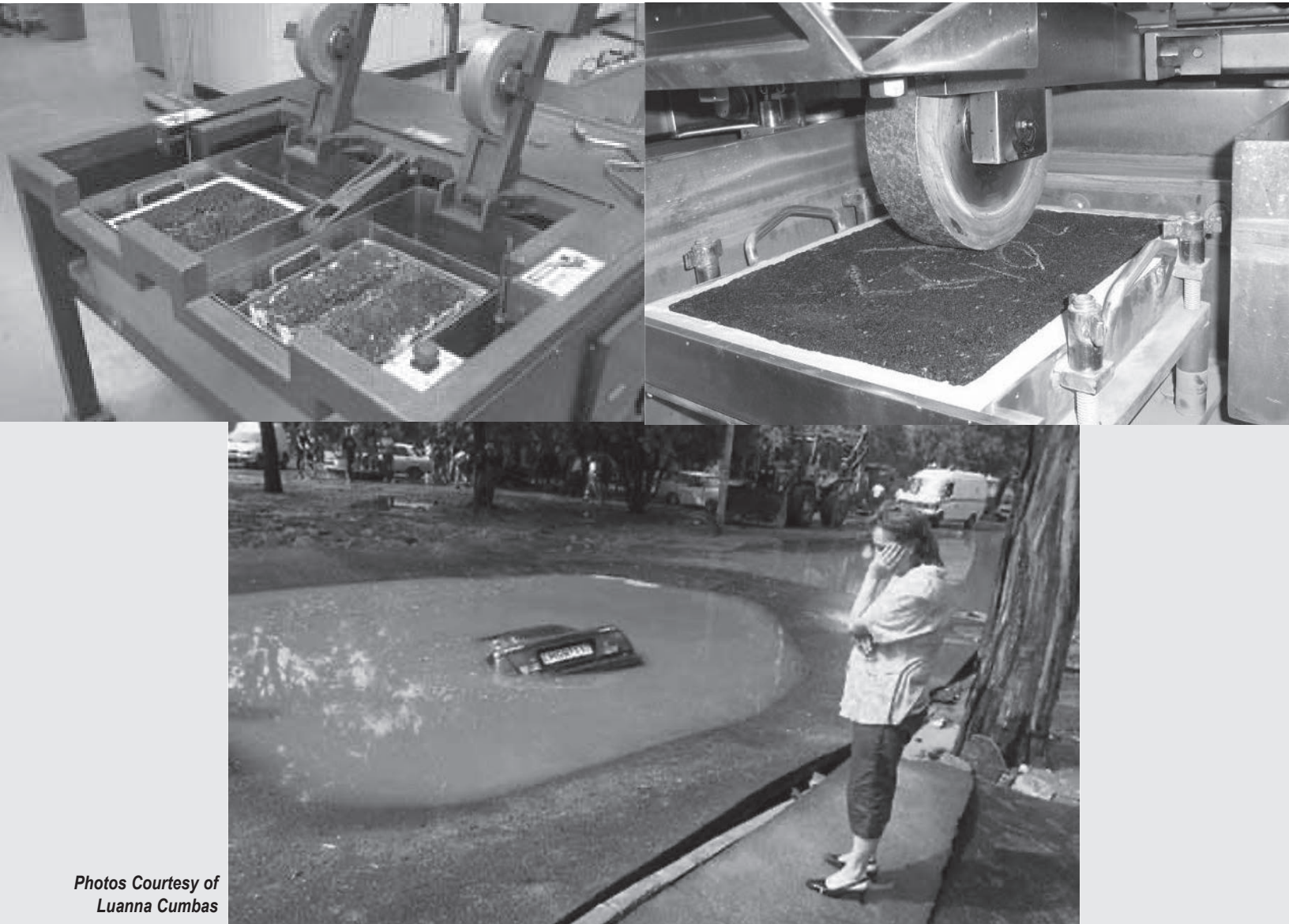


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Journal of the Louisiana Section

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Managing Asphalt Mixture Stripping and Potholes Formation

FEATURES:

Overcoming the Risk of Moisture Damage in Flexible Pavements: Evaluation of Loaded Wheel Tracking Testing and Conditioning Protocols

Spring Conference 2022, Shreveport



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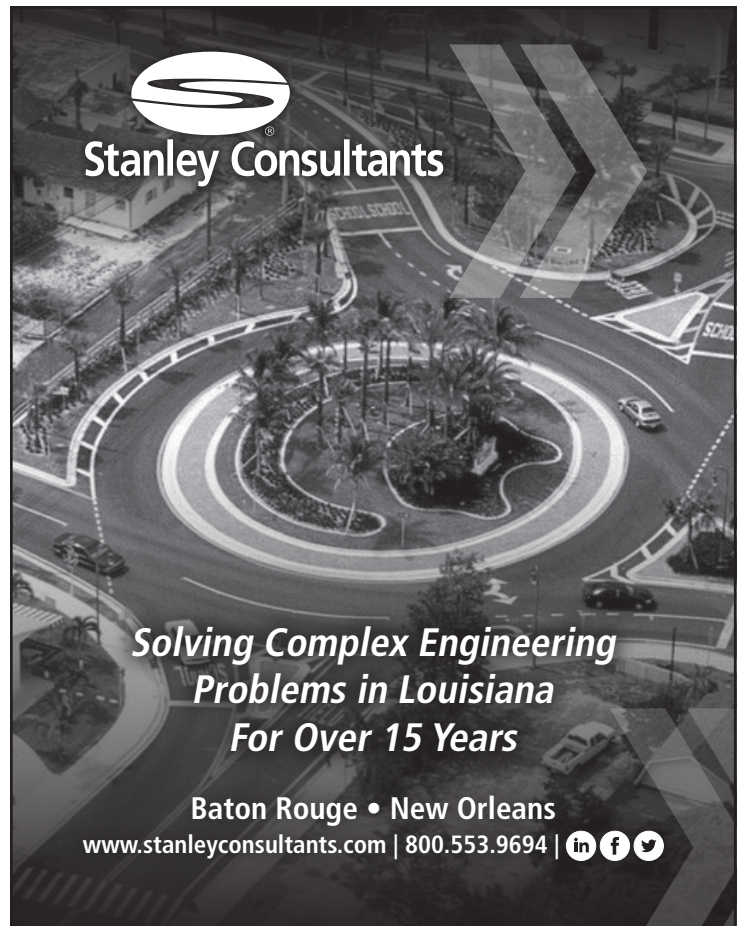
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President's Message

By Tonja Koob Marking, PhD, PE, D.WRE, DFE, MBA, PMP, CFM

I will start this message with a thank you to our membership for their participation in multiple ASCE activities over the last three months. The Louisiana Section has had a busy spring and that trend will continue through this summer.

Jan Evans and her team have been steadily working on the Louisiana Infrastructure Report Card. Our report card will include assessments of:

- Aviation
- Bridges
- Dams
- Drinking Water
- Wastewater
- Road
- Inland Waterways
- Levees
- Ports
- Solid Waste and
- Coastal areas.

The nation's infrastructure is presently a C-. Louisiana was a D+ in 2017. We have a long way to go which means many opportunities for our membership.

The Shreveport Branch hosted a 2-day in-person Spring Conference the first week of May with more than 50 attendees. During that conference we held our General Membership meeting and elected the Section Board for 2022-2023. Thank you to each board member for stepping in these leadership positions. The upcoming board will be:

Kirk Lowrey, President

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Tonja Koob Marking, Past President

The History and Heritage Committee is planning the dedication ceremony for the Section's sixth ASCE National Historic Civil Engineering Landmark, the New Orleans Drainage System. The ceremony will be held this summer, with a date to be determined. As part of the celebration, commemorative coins have been cast to honor the landmark, similar to those produced for the Huey P Long Bridge, Causeway, and Bonnet Carre Spillway landmark designations. The committee is also commissioning commemorative coins for the two previously dedicated landmarks, McNeill Pump Station and Eads Navigation Works, so that all Section landmarks will have a coin as part of the landmark series. We will distribute

the coins during the dedication ceremony, so please attend if you would like coins to add to your collection!

And how about our student chapters?! Louisiana Tech University will host the National Concrete Canoe Competition the first week of June.

Louisiana Tech's canoe the Chew-Chew Canoe was one of two qualifiers from Region 5, giving it a home-field advantage in the national competition. Louisiana Tech also qualified for the Sustainable Solutions Competition, competing as the Sustainable Bulldogs, and in the UESI Surveying Competition. Let's see them pull a hat trick at the national competition!

Louisiana State University qualified for the National Steel Bridge Competition by taking first place at the regional competition at Auburn University. LSU took second place at the national competition in the video category. Congratulations, Tigers!

Your membership dues enabled Louisiana Section to financially support Tech and LSU at these national competitions, just one of the many ways the Board utilizes Section funds for education, outreach, and student chapter support.

Our Branches and Institutes have continued to provide educational and PDH opportunities for our members. After 2+ years of virtual meetings, it has been wonderful to attend in-person luncheons, conferences, and workshops sponsored by our local Branches. Please continue to support your Branch through attendance at these events.

ASCE is again hosting the annual convention in person, with the 2022 convention to be held in Anaheim, California October 23-26, 2022. This is the first in-person convention since 2019! Registration is now open with the early-bird discount.

This is an exciting time to be a civil engineer, and the Louisiana Section is here to support you with programmatic opportunities. Please do not hesitate to contact me with questions or suggestions on how we can support your society interests.



Tonja Koob Marking, PhD, PE, D.WRE, DFE, MBA, PMP, CFM

Have a wonderful summer!

Overcoming the Risk of Moisture Damage in Flexible Pavements: Evaluation of Loaded Wheel Tracking Testing and Conditioning Protocols

By: Louay N. Mohammad, PhD, PE, F. ASCE & Moses Akentuna, PhD, PE

Moisture-induced damage of asphalt mixtures is a significant distress that affects the durability and structural integrity of asphalt pavements. Moisture damage in asphalt pavements can be characterized by loss of cohesion in asphalt binder mastic or adhesive failure (stripping) between asphalt binder and aggregates (Kim et al., 2008). Moisture induced cohesive failure in asphalt mixtures results in reduced stiffness and loss of strength thereby affecting the ability of the pavement to support traffic. Further, adhesive failure results in reduced stiffness and strength, loss of material, and hence total disintegration of the pavement (Camacho-Garita et al., 2020). Moisture damage in asphalt pavement may be exacerbated by freeze-thaw cycles or traffic induced pore pressure (Hicks et al., 2003). Factors influencing moisture induced distresses in pavements include mixture design, mixture production, construction, climatic, and other related factors. Asphalt mixture design factors that affect moisture damage include asphalt binder and aggregate chemistry, aggregate absorption and texture, air void content, addition of mixture additives, aggregate particle distribution and many others (Hicks et al., 2003).

Researchers in the asphalt industry started developing tools for evaluating moisture induced damage in asphalt pavements in the 1930s (Terrel and Shute, 1989). Test methods that have been used over the years for characterizing moisture induced distress include Immersion Compression Test, Asphalt Film Retention Test, Retained Stability Test, Modified Lottman Test, Loaded Wheel Tracking (LWT) test (LWT) (Hamburg type), and many others (Cooley et al., 2000). Among test methods used for evaluating moisture damage of asphalt mixtures, the modified Lottman test is the most widely used (72% of States in US use modified Lottman) (West et al., 2018). Despite the widespread use of the modified Lottman test, researchers (Apeagyei et al., 2006) have demonstrated that the TSR is not a consistent and reliable indicator of moisture sensitivity of asphalt mixtures. Further, it has been reported that the freeze-thaw conditioning utilized in the modified Lottman test is not practical and capable of simulating moisture damage observed in the field (Azaril and Mohseni, 2013).

Background

The Hamburg type LWT is the second most widely used test method for evaluating moisture sensitivity in asphalt mixtures (16% of States in US use LWT for moisture sensitivity evaluation) (West et al., 2018). The LWT device (Hamburg type) was developed by Helmut-Wind Incorporated of Hamburg in the 1970s to evaluate rutting performance of asphalt mixtures by rolling a steel wheel across asphalt mixture specimens submerged in hot water (Solaimanian et al., 2003). The LWT device was later introduced into the United States in the 1990s (Aschenbrener, 1995). Currently states that use the LWT for moisture sensitivity evaluation include Louisiana, Iowa, Maine, Massachusetts, Texas, Utah, Washington, and California. Figure 1 shows a typical LWT test result. Parameters obtained from LWT results include post compaction consolidation,

creep slope, stripping slope, maximum rut depth (i.e., 12.5 mm), passes at maximum rut depth, and stripping inflection point (SIP) (Mohammad et al., 2015), Figure 1. Post compaction consolidation is the rut depth at 1000 passes. Creep slope characterizes the inverse of deformation rate in the creep phase of rut depth versus number of wheel passes plot, Figure 1. The creep phase starts after post compaction consolidation phase and ends before stripping occurs. There is a steady increase in deformation in the creep phase due to viscous flow. Stripping slope is the inverse of the deformation rate at points where rut depth increases rapidly as moisture damage occurs.

A mixture with a larger stripping slope value is more susceptible to moisture damage. The ratio of the creep slope to the stripping slope has been used to characterize moisture sensitivity of asphalt mixtures in some states (Mohammad et al., 2015). The SIP, a point where stripping initiates in a mixture and an indication of moisture damage, is the number of passes at the intersection of creep slope and stripping slope (Solaimanian et al., 2003). Table 1 presents a summary of LWT moisture sensitivity specifications (West et al., 2018) for different states in the US.

Despite the ability of the LWT to relate laboratory results to field moisture-sensitivity performance, researchers have questioned the capability of the LWT to simulate field exposure conditions and reliably predict moisture sensitivity of a wide range of asphalt mixtures (West et al., 2018; Walubita et al., 2020). Among State DOTs that currently specify LWT test for mix design and/or quality assurance testing, none of them considers moisture conditioning protocols aside from testing under submerged conditions as specified in AASHTO T 324. Therefore, there is a need to evaluate the LWT test by considering different moisture-conditioning protocols in order to screen a wide range of moisture sensitive asphalt mixtures.

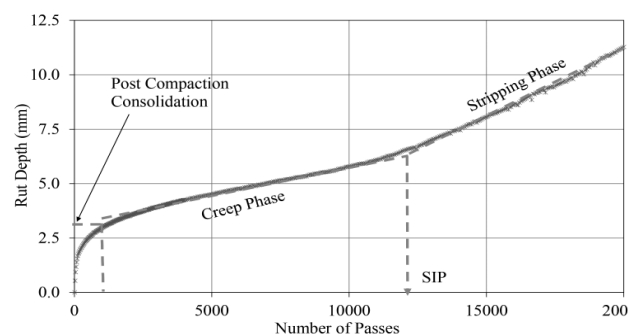
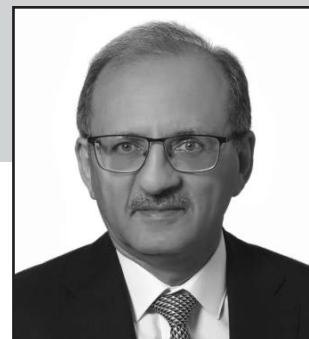


Figure 1. Typical LWT Results



Louay N. Mohammad, PhD, PE, F. ASCE



Moses Akentuna, PhD, PE

Table 1. Moisture Sensitivity Specification for LWT

State	Test Standard	% AV	Test Temperature and Condition	Moisture Sensitivity Criteria		
				Max. Rut Depth (mm)	No. of Passes for Max. Rut Depth	SIP, Min
Cal.	AASHTO T 324	7±0.5%	PG 58: 45°C, W	12.5	PG 58/<: 10000	PG 58/64: 10000
			PG 64: 50°C, W		PG 64: 15000	PG 70: 12500
			PG 70/>: 55°C, W		PG 70: 20000	PG 76/>: 15000
					PG 76/>: 25000	
Iowa	AASHTO T324	7±1.0%	PG 52/58: 40°C, W	20.0	20000	TDS: 10000
			PG 64/>: 50°C, W			TDV/H: 14000 ^c
La.	AASHTO T 324	7±0.5%	50°C, W	TL1: 10	20000	N/A
				TL2: 6		
Maine	AASHTO T 324	7±0.5%	45°C, W	12.5	20000	15000
Mass.	AASHTO T 324	7±0.5%	50°C, W	12.5	20000	TL1: 10000
						TL2/3: 15000
Texas	Tex-242-F	7±1.0%	50°C, W	12.5	PG 64/<: 10000	N/A
					PG 70: 15000	
					PG 76/>: 20000	
Utah	AASHTO T 324	7±1.0%	PG 58/<: 46°C, W	10.0	75/< Gyr.: 10000	N/A
			PG 64: 50°C, W		75/> Gyr.: 20000	
			PG 76/>: 54°C, W			
Wash.	AASHTO T 324	7±0.5%	50°C, W	10.0	<0.3m ESALs: 10000	20000
					0.3 to > 3m ESALs: 12500	
					>3m ESALs: 15000	

Max: Maximum; Min: Minimum; %AV: Percent air void content; Cal.: California; La.: Louisiana; Mass.: Massachusetts; Wash: Washington; W: wet; TL1: Traffic level 1; TL2: Traffic level 2; PG: Performance grade; /: or; /<: or lower; />: or higher; Gyr.: Gyration; m: million; ESALs: Equivalent standard axle loads; TDS: Traffic designation S; TDV/H: Traffic designation V or H; N/A: Not applicable.

OBJECTIVES AND SCOPE

The objective of this study was to evaluate the capability of the Loaded Wheel Tracking test (Hamburg type) to evaluate the moisture susceptibility of asphalt mixtures with different moisture conditioning protocols. Specific objectives include:

- evaluate the effect of asphalt binder type on moisture damage of asphalt mixtures,
- evaluate the effect of aggregate type on moisture damage of asphalt mixtures, and
- evaluate the effect of moisture conditioning protocols on moisture damage of asphalt mixtures.

To achieve the objectives of this study, asphalt binder and asphalt mixture experiments were conducted. An unmodified asphalt binder and a styrene-butadiene-styrene (SBS) modified asphalt binder meeting Louisiana specification for PG 67-22 and PG 70-22, respectively were utilized in the asphalt binder experiment.

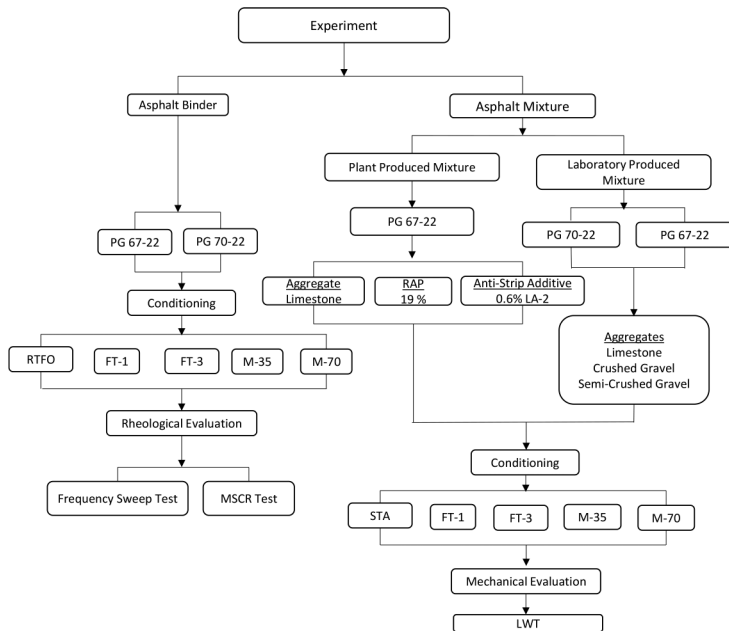
Five conditioning levels were considered in the asphalt binder experiment: short-term aging via rolling thin-film oven test (RTFO), single freeze-thaw (FT-1)-, triple freeze-thaw (FT-3)-, MiST 3500 (M-35), and MiST 7000 (M-70) conditioning cycles. Frequency sweep at multiple temperatures and multiple stress creep recovery (MSCR) tests were performed to characterize rheological properties of each conditioned asphalt binder.

Seven 12.5 mm Level 2 asphalt mixtures were utilized with two asphalt binder types (unmodified PG 67-22 and styrene-butadiene-styrene (SBS) modified PG 70-22) and three aggregate types (limestone, crushed gravel, and a semi-crushed gravel). Similar to the asphalt binder conditioning levels, five moisture conditioning levels were considered in the asphalt mixture experiment: short-term aging (STA) of loose mixtures, single freeze-thaw-, triple freeze-thaw-, MiST 3500 cycles. and MiST 7000 cycles of compacted mixtures. Asphalt mixture samples were then evaluated using the Loaded Wheel Tracking (LWT) test.

METHODOLOGY

Figure 2 presents the experimental plan for the study. The detailed experimental plan is discussed below.

Figure 2. Experimental Plan



Note; RTFO: Rolling thin film oven; FT-1: Single freeze-thaw; FT-3: Triple freeze-thaw; M-35: 3500 Moisture induced stress tester cycles; M-70: 7000 Moisture induced stress tester cycles; MSCR: Multiple stress creep recovery test; RAP: Recycled asphalt pavement; LWT: Loaded wheel tracking test.

Materials

Two asphalt binder types, unmodified PG 67-22, and SBS modified PG 70-22 meeting Louisiana DOTD standard specification for asphalt binders were selected (LADOTD, 2016). Further, three aggregate types, limestone (absorption <2%), crushed gravel (absorption >2%, natural sand content >15%), and a semi-crushed gravel (absorption >2%, and natural sand content >15%) meeting specification for 12.5 mm NMAS were selected. It is noted that the semi-crushed gravel was selected such that all particles passing the No.4 sieve (4.75 mm) were crushed whereas those particles retained on the No.4 sieve (50%) were smooth and round aggregates.

Asphalt Binder Experiment

The asphalt binder experiment comprised of the conditioning of the asphalt binder specimens and the subsequent rheological evaluation of the conditioned asphalt binders.

Moisture Conditioning

Five conditioning levels were evaluated in the asphalt binder experiment. The first conditioning level is the control based on short-term aging of asphalt binders following the RTFO (AASHTO, 2013). RTFO aged asphalt binder was heated to 160°C until it was sufficiently fluid and then poured into PAV pans to achieve a uniform thickness of 3.2 mm, and with dimensions similar to those specified in AASHTO R28 (AAHSTO, 2021). The specimens in the

PAV pans were then subjected to the remaining four conditioning levels. The second and third conditioning levels included single- and triple- freeze-thaw conditioning, respectively. The fourth and fifth conditioning levels were MiST 3500 (3500 Moisture induced stress tester cycles) and 7000 (7000 Moisture induced stress tester cycles) conditioning cycles, respectively. Details of each conditioning cycle procedure are described in the “Freeze-Thaw and MiST Conditioning” sections.

Asphalt Binder Rheological Characterization.

Each asphalt binder specimen subjected to one of the five conditioning levels were then rheologically evaluated through multiple temperatures and frequencies and multiple stress creep recovery (MSCR) tests. A minimum of three replicates were used in each test.

Asphalt Mixture Experiment

Seven 12.5 mm Superpave asphalt mixtures were designed utilizing 2 levels of asphalt binders and 3 levels of aggregates, Table 2. A Level 2 design ($N_{\text{initial}} = 7$, $N_{\text{design}} = 65$, $N_{\text{final}} = 105$ gyrations) was performed in accordance with AASHTO R 35, “Standard Practice for Superpave Volumetric Design for Hot Mix Asphalt (HMA),” AASHTO M 323, “Standard Specification for Superpave Volumetric Mix Design,” and Section 502 of the 2016 Louisiana Standard Specifications for Roads and Bridges (LADOTD, 2016). Specifically, the optimum asphalt cement content was determined based on volumetric properties ($VTM = 2.5 - 4.5\%$, $VMA \geq 13.5\%$, $VFA = 69\% - 80\%$) and densification requirements ($\%G_{mm}$ at $N_{\text{initial}} \leq 90$, $\%G_{mm}$ at $N_{\text{final}} \leq 98$). Among the asphalt mixtures evaluated, six (M1-M6) were laboratory produced and laboratory compacted, whereas one (M7) was plant produced and laboratory compacted. Mixtures M1, M2, and M3 consisted of unmodified PG 67-22 asphalt binder and limestone, crushed gravel, and semi-crushed gravel aggregates, respectively, Table 2. Mixtures M4, M5, and M6 included SBS modified PG 70-22 asphalt binder and limestone, crushed gravel, and semi-crushed gravel aggregates, respectively, Table 2. Mixture M7 was plant produced mixture prepared with PG 67-22 and Limestone aggregate. It is noted that mixture M7 contained liquid anti-strip additive (Arr-Maz Products, Inc) at a dosage rate of 0.6% by weight of mixture, and 19% RAP material, Table 2.

Table 2. Louisiana Level 2 Asphalt Mixture Compositions

Mix ID	Asphalt Binder Type	Aggregate Type	Anti-Strip Additive	Moisture Sensitivity
M1	PG 67-22 ¹	Limestone	N/A	L
M2		Crushed Gravel	N/A	H
M3		Semi-Crushed Gravel	N/A	H
M4	PG 70-22 ¹	Limestone	N/A	L
M5		Crushed Gravel	N/A	H
M6		Semi-Crushed Gravel	N/A	H
M7	PG 67-22 ¹	Limestone	0.6% LA-2	L

¹Meeting 2016 Louisiana DOTD Specifications for Road and Bridges; % RAP: Percent recycled asphalt pavement content; N/A: Not Applicable; LA-2: Liquid anti-strip additive; L: low moisture susceptible aggregate (water absorption < 2%); H: high moisture susceptible aggregate (water absorption > 2%)

Five conditioning levels were considered in the asphalt mixture experiment. The first conditioning level is the control and comprised of short-term aging of loose asphalt mixture samples according to AASHTO R 30, "Standard Practice for Mixture Conditioning of Hot Mix Asphalt (HMA)" prior to compaction in the gyratory compactor. The other four conditioning levels were performed on compacted asphalt mixtures samples as follows:

Freeze-Thaw Cycle Conditioning

The freeze-thaw cycles were performed according to AASHTO T 283, "Standard Method of Test for Resistance of Compacted Asphalt Mixtures to Moisture-Induced Damage." For the second and third conditioning levels, RTFO aged asphalt binders and compacted short-term aged asphalt mixture samples were subjected to one and three freeze-thaw conditioning cycles, respectively. For each conditioning level, asphalt mixture specimens were partially vacuum saturated between 70 and 80%. Vacuum-saturated specimens were covered tightly with plastic wraps and placed in a freezer at a temperature of -18°C for 16 hrs. Further, asphalt mixture specimens were removed from the freezer and placed in a water bath at 60°C for 24 hours. Asphalt binder specimens were conditioned without vacuum saturation or utilizing plastic wraps. It is noted for the three conditioning cycles, specimens were removed from water, tightly covered with plastic wraps, and then placed back in the freezer to repeat freeze-thaw cycles two more times. After conditioning, the specimens were removed from 60°C water bath and placed in another water bath at 25°C before testing.

MiST Conditioning

The moisture induced stress tester (MiST) conditioning was performed according to ASTM 7870, "Standard Practice for Moisture Conditioning Compacted Asphalt Mixture Specimens by Using Hydrostatic Pore Pressure." For the fourth and fifth conditioning level, RTFO aged and compacted asphalt mixture samples were conditioned at 3500 and 7000 cycles, respectively, in the MiST. Specimens were placed in the MiST and the chamber filled with water to the appropriate level. The specimens were kept in the machine at 60°C for 20 hours to simulate adhesive failure in the mixture. Further, a pressure amplitude of 40 psi was applied for 3500 and 7000 cycles, respectively, for the fourth and fifth conditioning levels. After conditioning, the specimens were removed from the MiST and placed in another water bath at 25°C before testing.

Loaded Wheel Tracking (LWT) Test

The loaded wheel tracking test was conducted in accordance with AASHTO T 324, "Standard Method of Test for Hamburg Wheel-Track Testing of Compacted Hot Mix Asphalt (HMA)." The test duration is 20,000 passes at a rate of 52 passes per a minute. Four specimens (two specimens for each wheel) were tested. Rut depth measurements were recorded at 11 locations across cylindrical specimen until failure. Then, rut depth measurements at four middle locations were averaged. Further, rut depth at 20,000 cycles was recorded and used in the analysis. In addition, stripping inflection point (SIP) is computed and reported as a measure of moisture damage for mixtures evaluated. Further, LWT test results were analyzed according to a procedure developed by Yin et al. (2014) to separate the total rut depth into viscoplastic and stripping

components of deformation. It is noted that the Loaded Wheel Tracking (LWT) device used in this paper was of a Hamburg type.

RESULTS AND DISCUSSION

Results were statistically analyzed using analysis of variance (ANOVA) procedure provided in the Statistical Analysis System (SAS) 9.4 program (SAS I., 2013). Multiple comparison (Tukey test) procedure with a confidence level of 95% were performed on the means. Groupings represent the mean for the test results reported by asphalt binder or asphalt mixture type. Results of the statistical grouping are reported with letters: A, B, C, and so forth, representing statistically distinct performance from best to worst. Multiple letter designations, such as A/B (or A/B/C) indicate that the difference in the means is not statistically significant.

Frequency Sweep Test

Effect of Conditioning on Asphalt Binder Stiffness

Figure 3a presents frequency sweep master curves for asphalt binders evaluated. For the two asphalt binders evaluated, freeze-thaw conditioning (FT-1 and FT-3) resulted in an increase in stiffness as compared to the RTFO conditioned asphalt binder. Similar increase from RTFO was observed for MiST conditioned (M-35 and M-70) asphalt binder. However, PG 67-22 asphalt binder exhibited higher increase in stiffness from RTFO for each conditioning level as compared to PG 70-22 asphalt binder, Figure 3a. It is noted that an increase in conditioning level (FT-1 to FT-3, and M-35 to M-70) resulted in increased stiffness.

Figure 3b shows the rut factor, $G^*/\sin\delta$, 50°C, 10 rad/s, values for asphalt binders considered. For PG 67-22 binder, it is noted that the rut factor values increased as conditioning level progressed from RTFO to FT-1 and FT-3. However, a slight increase in the rut factor was observed as conditioning level progressed from RTFO to M-35 and M-70. Further, for PG 70-22 asphalt binder, FT and MiST conditionings had minimal effect on rut factor values.

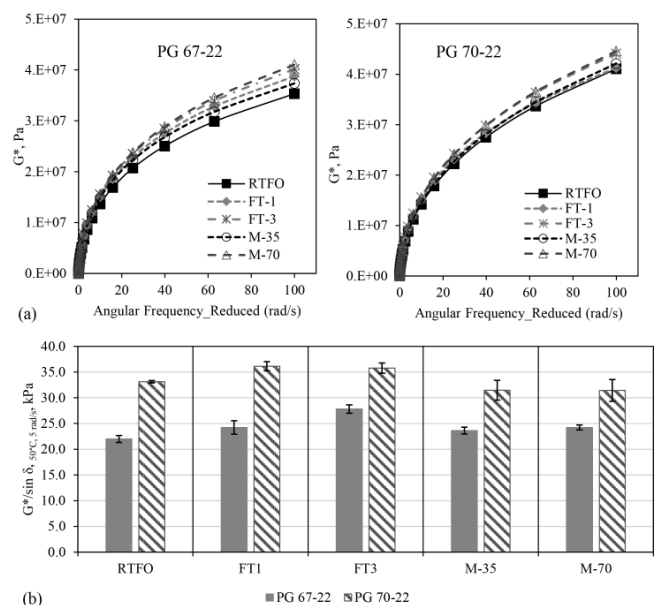


Figure 3(a) Frequency Sweep Master Curves, and (b) $G^*/\sin\delta$, 50°C, 10 rad/s for Asphalt Binders

MSCR Test Results

Effect of Conditioning on Elastic Response

Figure 4 presents the elastic response curve for the asphalt binders evaluated. Two clusters for each binder type were identified: PG 70-22 in the passing zone and PG 67-22 in the failed zone. For the two clusters of asphalt binders in Figure 4, freeze-thaw (FT-1 and FT-3) and MiST (M-35 and M-70) conditioning had no effect on the capability of the asphalt binder to meet the delayed elastic response criteria (Kabir and King, 2017).

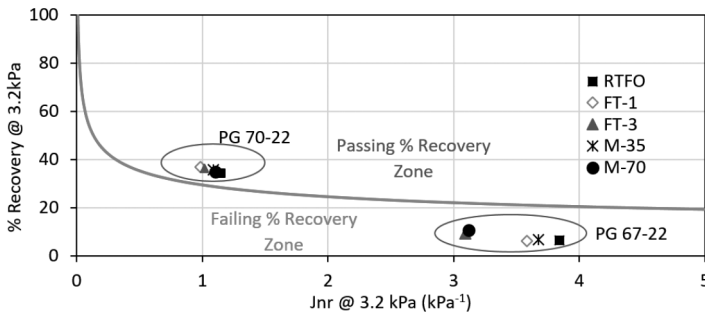


Figure 4. Elastic Response Curve for MSCR at 67°C

LWT Test Results

Effect of Conditioning on Moisture Resistance

Figure 5 presents the LWT rut depth of asphalt mixtures evaluated. Moisture susceptible mixtures are expected to show higher rut depths in the LWT test. For each asphalt mixture evaluated, freeze-thaw (FT-1 and FT-3) and MiST (M-35 and M-70) conditioning resulted in increased rut depth as compared to the control asphalt mixture. An increase in conditioning level (FT-1 to FT-3, and M-35 to M-70) resulted in a significant increase rut depth. The increased rut depth is in conflict with the one observed in asphalt binder test results, Figure 3. This observation may be attributed to the dominance of adhesive failure in the mixtures and is consistent with the one reported by other researchers). It has been demonstrated that for wet conditioned specimens, the predominant failure mode in the bitumen bond strength (BBS) test was adhesive failure (Apeagyei et al., 2014; Zhang et al., 2018). Cohesive failure is mainly dominated by asphalt binder response (Caro et al., 2008; Lytton et al., 2005).

Mixtures M2, M3, M5, and M6 were prepared with moisture susceptible aggregates per Louisiana DOTD Standard Specification (LADOTD, 2016). Further, LWT test results of mixtures M2, M5, M6 showed compliance with specifications per AASHTO T 324. However, as samples were conditioned, an increase in rut depth measurements was revealed that exceeded specification criteria. Conditioning levels considered on mixture M3 had significant effect on sample integrity (samples were damaged during conditioning), Figure 4a. This observation is attributed to the use of 50% uncrushed material in M3.

Further, the addition of anti-strip additive in mixture M7 improved the moisture damage resistance as compared to Mixture M1 at all conditioning levels evaluated. Although mixtures M1, M4 and M7 were moisture resistant (LADOTD, 2016), an increase in freeze-thaw (FT-1 to FT-3) and MiST (M-35 and M-70) conditioning levels exposed

them as moisture susceptible mixtures. Therefore, it is relevant to incorporate a moisture conditioning protocol in AASHTO T324 test for moisture damage.

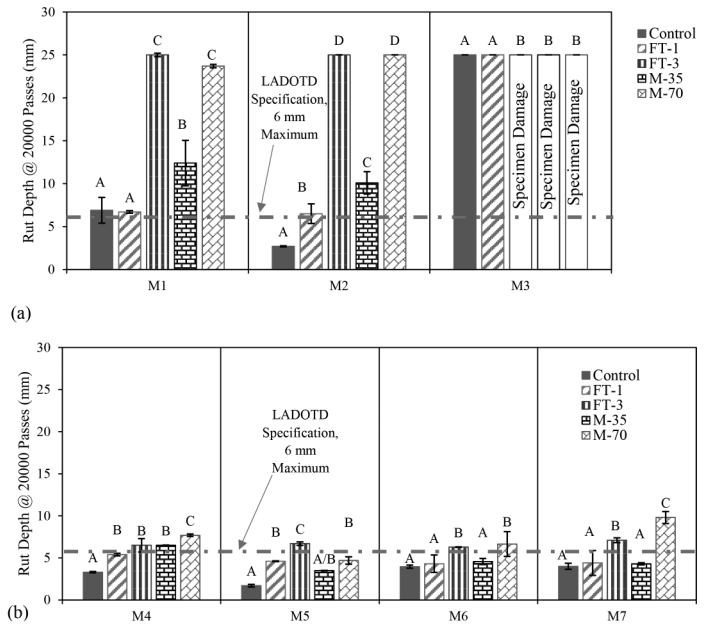


Figure 5. LWT Results – Total Rut Depth for Mixtures (a) M1-M3 and (b) M4-M7

Figure 6 shows the SIP values of mixtures evaluated. Higher SIP values are desired for moisture resistant asphalt mixtures. Mixtures with SBS polymer modified PG 70-22 asphalt binder (M 4, M 5, and M 6) performed well with no stripping damage. However, mixtures with unmodified PG 67-22 asphalt binder (M 1, M 2, M 3, and M7) did see a reduction in SIP values with a progressive increase in moisture conditioning level. This observation is consistent with field performance of asphalt mixtures containing SBS polymer modified asphalt binder (Blankenship et al., 1998; Lu and Harvey, 2006).

Conditioning of mixture M3 at FT-3 and M-70 caused severe damage and sudden disintegration within few cycles of wheel passes, Figure 7. Thus, stripping inflection point for these mixtures were selected as the number of passes to failure, Figure 6. For mixtures with no clearly defined stripping slope, selection of the total number of passes to total failure may be misleading. To address this issue, SIP is rendered invalid whenever the ratio of stripping slope to creep slope is less than 2.0 (Iowa DOT, 2015).

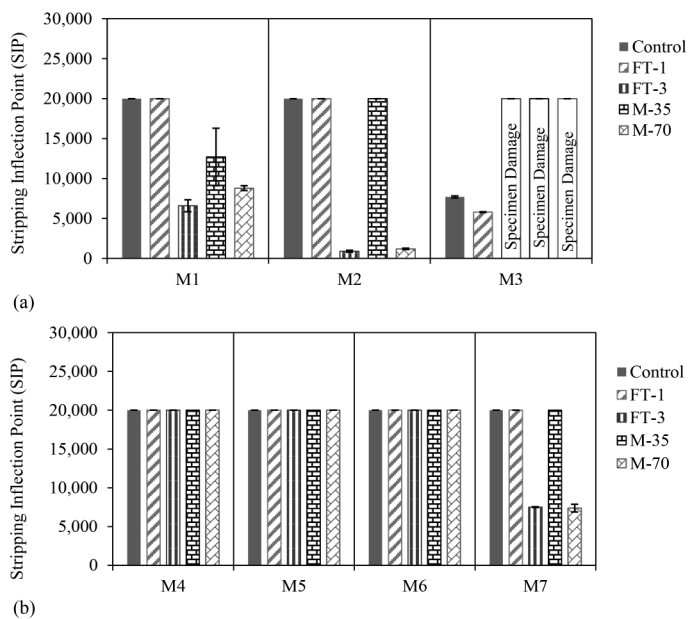


Figure 6. LWT Results - Stripping Inflection Point for Mixtures (a) M1-M3, and (b) M4-M7

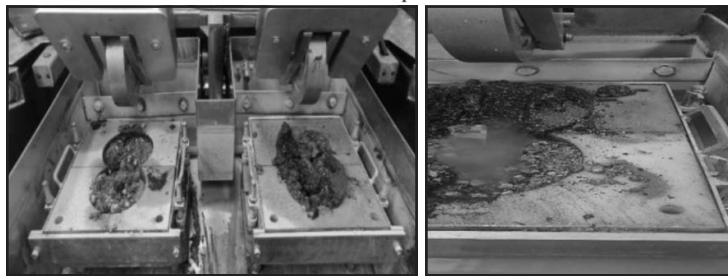
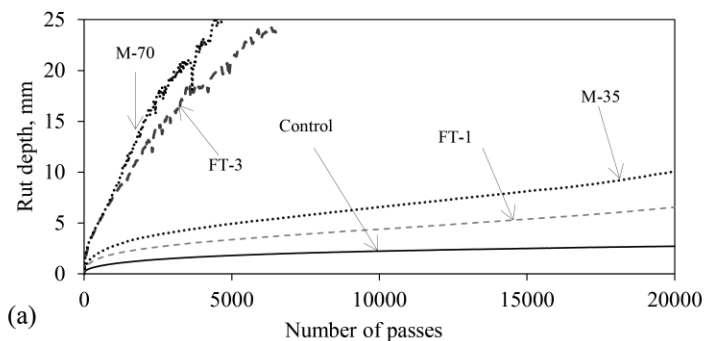


Figure 7 (a) LWT Test Results for M3, (b) Disintegrated Conditioned Specimens

Figure 8 presents LWT rut depths separated into viscoplastic and stripping components of deformation (Yin et al., 2014). Among mixtures evaluated, only mixtures M 1 (FT-3, M-35, and M-70) and M7 (FT-3 and M-70) exhibited stripping deformations. Further, mixture M1 had much higher stripping deformation than M7. In addition, progressive increase in MiST conditioning from M-35 to M-70 yielded an increase in the stripping and viscoplastic rut components for mixtures M1 and M7, Figure 8. This observation is consistent with the one reported by Santuci (2002). Pore pressure build-up in asphalt mixtures has the potential to emulsify and soften asphalt binder films and hence result in increased rutting

and stripping in asphalt mixtures (2002). Analysis reported by Yin et al. (2014) could not separate total rut depth into stripping and viscoplastic components for some mixtures with very high rut depths due to the sudden disintegration of these mixtures within a limited number of wheel passes, Figure 7.

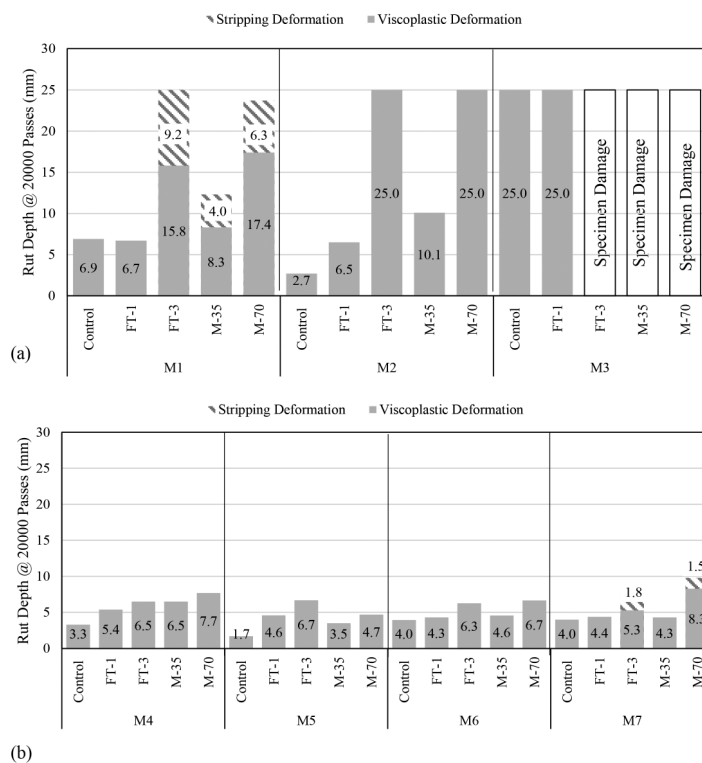


Figure 9. Viscoplastic and Stripping Rut Depth Components for Mixtures (a) M1-M3, and (b) M4-M7

Table 3 presents a summary of computed parameters from LWT test results used by different states in the US to ascertain moisture damage. It is noted that these parameters are summarized in Table 1. Generally, performing LWT test according to AASHTO T324 on samples that went through moisture conditioning were effective in capturing moisture damage as opposed to conducting the test as currently specified with no moisture conditioning. For example, results of LWT tests on mixtures M1, M2, M3, and M7 that were freeze-thaw (FT-3) and MiST (M-70) conditioned did not meet the corresponding State criteria for moisture damage, Table 3. However, those same mixtures did meet the specified State criteria when the test was conducted according to current AASHTO T 324 protocol. It is noted that the use of SBS polymer modified asphalt binder is a major contributor to moisture damage resistance.

SUMMARY AND CONCLUSION

The objective of this study was to evaluate the capability of the Loaded Wheel Tracking test to evaluate the moisture susceptibility of asphalt mixtures with different moisture conditioning protocols. Asphalt binder and asphalt mixture samples subjected to five conditioning levels were evaluated.

Freeze-thaw and MiST conditioning of asphalt binders resulted in an increase in stiffness as compared to the RTFO aged asphalt binders. For the mixtures evaluated, freeze-thaw and MiST

conditioning resulted in an increase in rut depth compared to the control asphalt mixture. The conditioning levels evaluated were effective in exposing moisture sensitive mixtures, which initially showed compliance with LADOTD specification per AASHTO T324. Therefore, it is recommended that a moisture conditioning protocol is incorporated in AASHTO T324 test to capture the risk of moisture sensitive asphalt mixtures. SBS polymer modified PG 70-22 asphalt mixtures performed well with no stripping damage, whereas unmodified PG 67-22 asphalt binder showed a reduction in SIP values with a progressive increase in moisture conditioning level. Specific observations include:

- Generally, rut factor values for unmodified PG 67-22 asphalt binders increased with an increase level of freeze-thaw and MiST conditioning.
- Freeze-thaw and MiST conditioning had no effect on rut factor of SBS modified PG 70-22 asphalt binders
- PG 67-22 asphalt binder exhibited higher increase in stiffness from RTFO for each conditioning level as compared to PG 70-22 asphalt binder.
- Two clusters for each binder type were identified in the MSCR elastic response curve: PG 70-22 in the passing zone and PG 67-22 in the failed zone.
- For the two clusters of asphalt binders in Figure 4, freeze-thaw (FT-1 and FT-3) and MiST (MiST 3500 and MiST 7000) conditioning had no effect on the capability of the asphalt binder to meet the delayed elastic response criteria.
- The addition of anti-strip additive in mixture M7 improved the moisture damage resistance as compared to Mixture M1 at all conditioning levels evaluated.
- Progressive increase in MiST conditioning from 3500 to 7000 yielded an increase in the stripping and viscoplastic rut components for mixtures M1 and M7.

ACKNOWLEDGMENTS

This work was supported by the Louisiana Transportation Research Center in cooperation with the Louisiana Department of Transportation and Development and the Federal Highway Administration. The authors would like to acknowledge the efforts of Sanchit Sachdeva, former LSU graduate student, as well as the contributions of Engineering Material Characterization and Research Facility staff.

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Table 3. Summary of LWT Results																
State	Test Condition	M1		M2		M3		M4		M5		M6		M7		SIP, min
		R, max	SIP, min	R, max	SIP, min	R, max	SIP, min	R, max	SIP, min	R, max	SIP, min	R, max	SIP, min	R, max	SIP, min	
Cal.	T 324	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P
	T324/FT-1	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P
	T324/FT-3	F	F	F	F	F	F	P	P	P	P	P	P	P	P	F
	T324/M-35	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P
	T/324M-70	F	F	F	F	F	F	P	P	P	P	P	P	P	P	F
Iowa	T 324	P	P	P	P	F	I	P	P	P	P	P	P	P	P	P
	T324/FT-1	P	P	P	P	F	I	P	P	P	P	P	P	P	P	P
	T324/FT-3	F	F	F	I	F	I	P	P	P	P	P	P	P	P	F
	T324/M-35	P	F	P	P	F	I	P	P	P	P	P	P	P	P	P
	T/324M-70	F	F	F	I	F	I	P	P	P	P	P	P	P	P	F
La.	T 324	F		P		F		P		P		P		P		
	T324/FT-1	F		F		F		P		P		P		P		
	T324/FT-3	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A	P	N/A	F	N/A	
	T324/M-35	F		F		F		F		P		P		P		
	T/324M-70	F		F		F		F		P		F		F		
Mass.	T 324	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P
	T324/FT-1	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P
	T324/FT-3	F	F	F	F	F	F	P	P	P	P	P	P	P	P	F
	T324/M-35	P	F	P	P	F	F	P	P	P	P	P	P	P	P	P
	T/324M-70	F	F	F	F	F	F	P	P	P	P	P	P	P	P	F
Texas	T 324	P		P		F		P		P		P		P		
	T324/FT-1			P		F		P		P		P		P		
	T324/FT-3	P	N/A	F	N/A	F	N/A	P	N/A	P	N/A	P	N/A	P	N/A	
	T324/M-35	P		P		F		P		P		P		P		
	T/324M-70	F		F		F		P		P		P		P		
Utah	T 324	P		P		F		P		P		P		P		
	T324/FT-1	P		P		F		P		P		P		P		
	T324/FT-3	F	N/A	F	N/A	F	N/A	P	N/A	P	N/A	P	N/A	P	N/A	
	T324/M-35	P		P		F		P		P		P		P		
	T/324M-70	F		F		F		P		P		P		P		
Wash.	T 324	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P
	T324/FT-1	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P
	T324/FT-3	F	F	F	F	F	F	P	P	P	P	P	P	P	P	F
	T324/M-35	P	F	P	P	F	F	P	P	P	P	P	P	P	P	P
	T/324M-70	F	F	F	F	F	F	P	P	P	P	P	P	P	P	F

Cal.: California; La.: Louisiana; Mass.: Massachusetts; Wash.: Washington; T324: AASHTO T 324; /And: FT-1: One freeze-thaw cycle; FT-3: Three freeze-thaw cycles; M-35: MIST 3500 cycles; M-70: MIST 7000 cycles; R, max: maximum rut depth at specified number of passes; SIP, min: Minimum stripping inflection point; P: Passes specification; F: failed specification; N/A: Not applicable; I: Invalid stripping inflection point value (Iowa DOT, 2015)

Louay Mohammad, PhD, PE, Fellow ASCE

Dr. Mohammad is a professor of Civil and Environmental Engineering and holder of the Irma Louise Rush Stewart Endowed Professorship and Transportation Faculty Group Coordinator at Louisiana State University. He is also an award-winning professional engineer, a Transportation Research Board Emeritus member, and an elected fellow of the American Society of Civil Engineers (ASCE). Dr. Mohammad serves as the director of the Engineering Materials Characterization and Research Facility at the Louisiana Transportation Research Center (LTRC).

Dr. Mohammad teaches and conducts research in the areas of highway construction materials, pavement engineering, accelerated pavement testing, advanced materials characterization and modeling, and infrastructure resiliency and sustainability. He is pre-eminent in understanding fundamental characterization and modeling of highway construction materials and asphalt pavement performance of our multi-trillion-dollar transportation infrastructure with more than 33 years of industrial and academic experience. His research has resulted in numerous awards and revisions to the Louisiana Department of Transportation and Development’s (LADOTD’s) specifications for Roads and Bridges and has been adopted in the engineering state-of-practices throughout the nation.

Moses Akentuna, PhD, PE

Dr. Akentuna is a pavement research engineer at the LTRC- DOTD. He is a registered professional engineer in the state of Louisiana. Dr. Akentuna is a member of the American Society of Civil Engineers (ASCE), and serves as a member of ASCE’s Transportation and Infrastructure Committee. Before joining LTRC-DOTD, Dr. Akentuna worked as a Research Associate at Louisiana State University-LTRC. He has the experience of working on research projects that sought to recommend different mixture design and construction techniques for the state of Louisiana. Dr. Akentuna has worked on a several LTRC sponsored projects as a Co-Principal investigator, which covered pertinent topics such as mixture design and construction, sustainable pavement materials (i.e., recycled asphalt pavements, rejuvenators, waste tires, etc.), long-term pavement performance, and moisture damage of asphalt pavements.

ASCE

LOUISIANA CIVIL ENGINEER – MAY 2022

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ASCE Region 5 News

By Ronald L. Schumann, Jr., PE, Regional Governor At-Large

Region 5 is comprised of all the Sections, Branches and Student Chapters within the states of Alabama, Florida, Georgia, Louisiana, Mississippi, and Puerto Rico.

The Purpose of Region 5 is to Advance the Profession by:

- Inspiring Members
- Creating Excitement
- Promoting Excellence in Civil Engineering

The Region 5 Board of Governors has been working on updating the Region 5 Strategic Plan. The current Strategic Plan for the region was developed over five years ago. The board is in the process of finalizing the strategic plan that will provide the vision; and define the purpose and goals of the Region 5 Board of Governors into the future.

The Board also discussed the idea of holding a Region 5 Assembly to bring together the leadership from Region 5 and foster greater communication and sharing of ideas, collaboration and initiatives across the region. The regional assemblies have been held in conjunction with the Multi-Regional Leadership Conferences in the past. The last in-person region assembly was held in conjunction with the 2020 MRLC in Philadelphia. The Board has held virtual assemblies for the Section and Branch leadership over the past couple of years. The Board is considering having an assembly in conjunction with the next MRLC being planned for January 20-21, 2023, in Charlotte, NC.

Regional cooperation between Sections may become more important in the future, particularly in regard to working with our Student Chapters. The student symposiums have recently been realigned to correspond to the ASCE Region boundaries. Within Region 5, there are 2 student symposiums. The first Southeast Student Symposium consisting of schools from Florida, Georgia and Puerto Rico, was recently held at Florida State University in Tallahassee, Florida. The first Gulf Coast Student Symposium consisting of schools from Alabama, Mississippi and Louisiana was held at Auburn University in Auburn, Alabama. Both symposiums were a great success and the student chapters and our student members had an exciting and fun time competing in various competitions held during the events. These student symposiums continue to create the conduit for the future leaders of ASCE. The Board of Governors encourage

our branches to become more engaged with the local student chapters by contacting and working with the Student Chapter Faculty Advisors to strengthen the relationship between the professional members and our student members.



Ronald L. Schumann, Jr., PE

The Region 5 Board of Governors looks for ways to connect with our Sections and Branches. Holding our meetings in conjunction with meetings of the Sections is one way in which we do this. Our February 4th meeting in Norcross, Georgia, gave us a great opportunity to connect with the leadership of the Georgia Section. We will be looking for the opportunity to do this with our other Sections across the region in the future.

The Board is also in the process of updating our bylaws to bring them into conformance with the societies' recommendations. Almost three years ago the Region 5 Board of Governors re-established the Puerto Rico Section. The Board is now considering adding a Governor to the Region 5 Board to represent the Puerto Rico Section. This is what initiated the re-write of the bylaws. Changes to the bylaws will be distributed to the Sections for review this summer prior to being finalized and submitted to the ASCE Board of Directors for approval.

We also encourage our members to visit the Region 5 website. There you will find information on Region 5 grants that are available to promote Civil Engineering and ways to nominate members for the Region 5 Awards, as well as information on upcoming events.

One of the initiatives of the Region 5 Board of Governors is to be a resource to our membership by fostering collaboration between the various groups within the region including Sections, Branches, Student Chapters, and Younger Member Groups. If your local group has an idea, program, initiative, or suggestion, please share with your Region 5 Governor so that other groups within the region can benefit.

2022 ASCE Section Spring Conference

By Linsey Olivier, PE, Shreveport Branch Conference Chair & Past-President, LA Section Director

The 2022 ASCE Section Conference was hosted this year by the ASCE Shreveport Branch beginning Thursday, May 5 through Friday, May 6. The Conference was held at the Shreveport Convention Center in downtown Shreveport and was a tremendous success! We initially planned a hybrid conference that incorporated a virtual option, but we decided to cancel it because everyone registered to attend in person! Special thanks goes out to the ASCE Shreveport Branch President, Luke Haney, EI, who helped plan and organize the event, and the Shreveport Branch officers for their tremendous assistance before and during the event: Josh Walker, PE, Victor Bivens, EI, and Sabrina Kelly, EI. We would also like to recognize the ASCE Louisiana Section for their financial support to ensure the success of this conference. Our goal was to provide an informative, productive, and motivational event and the opportunity to make valuable connections throughout the days.

The lineup for this year's conference included a variety of topics and speakers, including special appearances from LAPELS, City of Shreveport Water & Sewer, Louisiana Department of Health, Louisiana Tech University, and the Port of Caddo-Bossier. The Conference averaged around 30 attendees per day, and we had 14 exhibitors participate. We also had 10 gold sponsors (\$500), 5 silver sponsors (\$300), and 4 bronze sponsors (\$175) that contributed to make this conference a success!

Thursday's event began with registration in our main event hall. Each attendee then had the option of attending one of the two speakers in our breakout rooms. Our presentations included:

- "Safe Digging in Louisiana" by **Jeff Morrison**, Louisiana One Call
- "AWWA Quarter Turn Valves" by **Aaron Kielar**, Val-Matic
- "Public Speaking and Presentation Skills for the Introvert" by **Andy Brown**, D&W Systems
- "Collection Systems: Today's Problems, Today's Solutions" by **Richard Aguirre**, Gulf States Engineering
- "Evaluation of Emissions from Steam-Cured in Place Pipe Rehabilitation of Mains" by **Dr. John Matthews**, LATech
- "Crossing the Pond: Building Bridges in a Changing World" by **Alexandra Carter**, Desire Line, LLC
- "Enhanced Investigation of Material Flood Damage to Support Multi-Scale Flood Damage Protection" by **Dr. Elizabeth Matthews**, LATech
- "How EPA Brownsfields Program is Helping Return Vacant Sites to Commerce" by **Lem Dial**, PE, Terracon
- "Industrial Expansion of SWLA" by **R.B. Smith**, SWLA Economic Development Alliance
- "Surveying and Advanced Measurements" by **Brad Holleman**, PLS, EI, Forte & Tablada
- "City of Shreveport Water & Sewer" by **William Daniel**,

PE, Director of COS Water & Sewer, and **Joe Darlington**, **PE**, Burns & McDonnell

- "Geosynthetics in Soft Soil Applications" by **Jay Richardson**, Industrial Fabrics, LLC
- "LAPELS Update: Laws, Rules, Renewals, and Licensure" by **Donna Sentell**, Louisiana Professional Engineering and Land Surveying Board
- "Hydrodynamic Modeling for Houma Navigation Canal Lock Complex" by **Dr. Ranjit Jadhav**, **PE**, D.WRE, FTN Associates
- "Ethics and Professionalism in Engineering" by **Jeffrey Pike**, **PE**, LATech, LAPELS



Brad Holleman, PLS, EI, with Forte & Tablada presenting on Advanced Measurements



Donna Sentell with LAPELS presenting on LAPELS Updates about Laws, Rules, Renewals, and Licensure



William Daniel, PE, Director of Shreveport Water & Sewer, and Joe Darlington, PE, with Burns & McDonnell presenting on City of Shreveport Water & Sewer Projects

All attendees, speakers, and exhibitors received door prize tickets during registration. During our lunch break, we awarded 4x \$25, 4x \$50, and 1x \$100 gift cards to various places including Best Buy, Home Depot, Starbucks, and Amazon.

Section News

After the last session, we had over 20 people attend our evening social at Flying Heart Brewing where we had pizza, wings, and beer! There was a mix of attendees, speakers, and exhibitors who came to eat, relax, and network. It was a great turn out and a lot of fun!

Friday's schedule was calmer since we had one speaker per hour instead of breakout sessions. Friday's presentations included:

- "Clean Water and Consent Decrees" by **Aaron Clauson, PE**, Contech Engineered Solutions
- "Caddo-Bossier Port Expansion and Master Plan Updates" by **Tyler Comeaux, PE**, Director of Special Projects at Caddo-Bossier Parishes Port Commission
- "LDH Updates on Lead and Copper, Grading Rule, Water Sector Commission and the Infrastructure Bill" by **Barbara Featherston, PE**, Louisiana Department of Health
- "Designing for Prosperity: How to Align Land Use, Infrastructure, and Development Policy to Cultivate Communities that are Financially Resilient, Affordable, and Inclusive" by **Kevin Shepherd, PE & Tim Wright, PE**, Verdunity

The conference wrapped up with lunch and the Section General Membership meeting lead by Ronald Schumann, Jr., PE, ASCE Regional Governor-at-Large and Will Cenac, PE, ASCE Louisiana Section Vice President, where new LA Section leadership officers were elected and general updates were provided. Marcus Taylor, Louisiana Section Secretary-Treasurer, was also in attendance. They also recognized Distinguished Senior and Junior Civil Engineering Students who received Section Awards. Mallory Mankins, Distinguished Junior from Louisiana Tech University, was in attendance and was presented her award.



Will Cenac, PE, ASCE LA Section Vice-President presenting Mallory Mankins, LA Tech University, with Distinguished Junior Civil Engineering Student Award

In total, the conference was a great success, offering a total of twelve PDH opportunities for over 50 total attendees. On behalf of the Shreveport Branch, I would like to thank the speakers, sponsors, exhibitors, attendees, and ASCE members for the ongoing support of the branch. We strive to provide innovative information for the

ASCE

growth of your professional career, and we look forward to continue serving you and our community. We really appreciate everyone's involvement, and we were happy to coordinate an event that benefitted the membership from around the State.

Gold Sponsors

- Aillet, Fenner, Jolly, & McClelland, Inc
- Burk-Kleinpeter, Inc
- Clow Valve
- D&W Systems Sales
- ETEC
- Forte & Tablada
- Halff Associates
- Helical Concepts Inc
- Utiliserve/Fireserve
- Wicker Construction

Silver Sponsors

- Barksdale Federal Credit Union
- Compliance EnviroSystems (CES)
- Neel-Schaffer
- Terracon
- Volkert

Bronze Sponsors

- Ardaman & Associates
- Civil Design Group
- Delta Process Equipment
- Fenstermaker

Exhibitors

- Clow Valve
- Contech Engineered Solutions
- D&W Systems Sales
- Desire Line, LLC
- EJ
- Ferguson
- Gulf States Engineering
- Halff Associates
- Industrial Fabrics, Inc
- J. H. Wright
- LAPELS
- LA Tech ASCE Student Chapter
- Red River Pumps
- Utiliserve/Fireserve
- Volkert



Distinguished Senior Civil Engineering Student Awards

Madalyn Mouton, Louisiana State University
Edward L. Landry, Louisiana Tech University
Juan Castano, McNeese State University
Jelani G. Smith, Southern University
Aaron D. Enlund, University of Louisiana Lafayette
Yelitza Cedeno, University of New Orleans

Distinguished Junior Civil Engineering Student Awards

Eli Paul Barbin, Louisiana State University
Mallory G. Mankins, Louisiana Tech University
Karlee Nunez, McNeese State University
Courtlynn Elizabeth Thomas, Southern University
Jeanne Marie Vidrine, University of Louisiana Lafayette
Kayla Goins, University of New Orleans

ASCE-COPRI Louisiana Chapter News

By John Darnall, EI, Director – Communications



COAST, OCEANS,
PORTS AND RIVERS
INSTITUTE

Louisiana Chapter



John Darnall, EI
Director – Communications

The Louisiana Chapter of the Coasts, Oceans, Ports, and Rivers Institute (L.COPRI) of the American Society of Civil Engineers (ASCE) promotes membership, professional development, and visibility throughout the State of Louisiana by conducting virtual webinars and in-person events.

Scholarship Announcement

L.COPRI recently collected scholarship applications from students studying Civil, Coastal, Ocean or Environmental Engineering, or a Coasts, Oceans, Ports, or Rivers related field. L.COPRI awarded a \$500 scholarship to one undergraduate and one graduate student. We received several applications from many impressive students, making our jobs quite difficult! However, after independent evaluations from each of the L.COPRI Board Members, we awarded the two (2) scholarships to Graduate Student: **Mercedes Pinzon Delgado** and Undergraduate Student: **James Anderson**. Scholarship winners were presented their checks during the L.COPRI Spring Seminar.

For upcoming scholarship opportunities, please contact William Gohres, Scholarship Director at williamgohres@matrixpdm.com.

Past Events

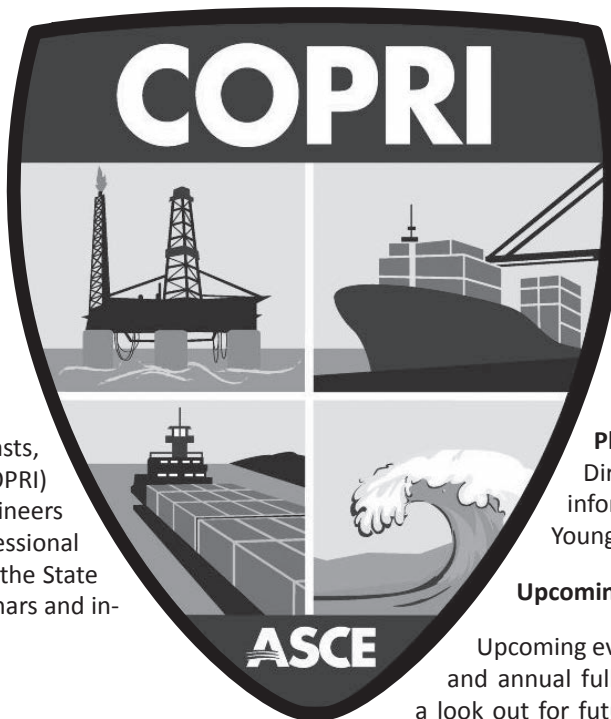
Half-Day Spring Technical Seminar

L.COPRI hosted a half-day in-person seminar on Thursday, April 28, 2022 at the Tulane River and Coastal Center in New Orleans. The two technical speakers were **Chris Gilmore**, PE, PMP, Director of Engineering, Port of New Orleans and **Paul Matthews**, Executive Director, Port of South Louisiana.

The speakers discussed topics important to their respective ports and to the industry as a whole. A more detailed summary and photos will be included in the August 2022 journal.

YPG Participates in Jefferson Parish Coastal Tree-Cycling Event

The L.COPRI YP group participated in the Jefferson Parish Ecosystem and Coastal Management “Coastal Tree-Cycling” event on Saturday,



February 5, 2022. Donated Christmas trees were placed in the area behind Cochiara's Marina (4477 Jean Lafitte Blvd., Lafitte, LA 70067) to protect wetland habitat within the Barataria basin. L.COPRI's YPG Director Kiara Horton organized the group of volunteers who were not afraid to get their hands dirty! We had an incredible turnout even with the extremely cold weather. We look forward to helping out Jefferson Parish next year at this event.

Please reach out to Kiara Horton (YPG Director, kiara.horton@freese.com) for information on how to get involved as a Young Member.

Upcoming Events

Upcoming events include our annual summer webinar and annual full-day Fall Seminar in Baton Rouge. Keep a look out for future event announcements via email and LinkedIn.

If you have any general event questions, please contact Programs Director Brett McMann at bmcman@thewaterinstitute.org.

Other Information

The activities of L.COPRI includes seminars, workshops, and other activities to benefit all ASCE and COPRI members. Members do not have to be an engineer to join COPRI. The Institutes of ASCE are formed for the benefit of ASCE and non-ASCE members to participate and interact with other professionals interested in coastal, oceans, ports, and riverine efforts in Louisiana. We would like to extend an invitation to our members to submit feedback and ideas for upcoming webinars and events. Please submit these ideas to bmcman@thewaterinstitute.org, and stay-tuned for a meeting invite if you are a member of our L.COPRI email list.

Also, please don't forget to follow us on LinkedIn. We have a new L.COPRI page giving you real time updates on the events we are hosting.

Professional Achievement Awards

National COPRI offers several opportunities to recognize our colleagues for their professional achievements. For more information on individual, project, research, and younger member award opportunities, please visit <https://www.asce.org/communities/institutes-and-technical-groups/coasts-ports-oceans-rivers-institute/awards>.



Executive Director of the Port of South Louisiana, Paul Matthews, presenting on Port updates/improvements



L.COPRI Scholarships Director, William Ghores (on right), presenting graduate student, Mercedes Pinzon Delgado (on left), with her scholarship check



L.COPRI Programs Director, Brett McMann, introducing the Seminar Program



Director of Engineering at the Port of New Orleans, Chris Gilmore, presenting on Port updates/improvements

ASCE-G-I Louisiana Chapter News

By Kirk Lowery PE, D. GE, Chapter Chair

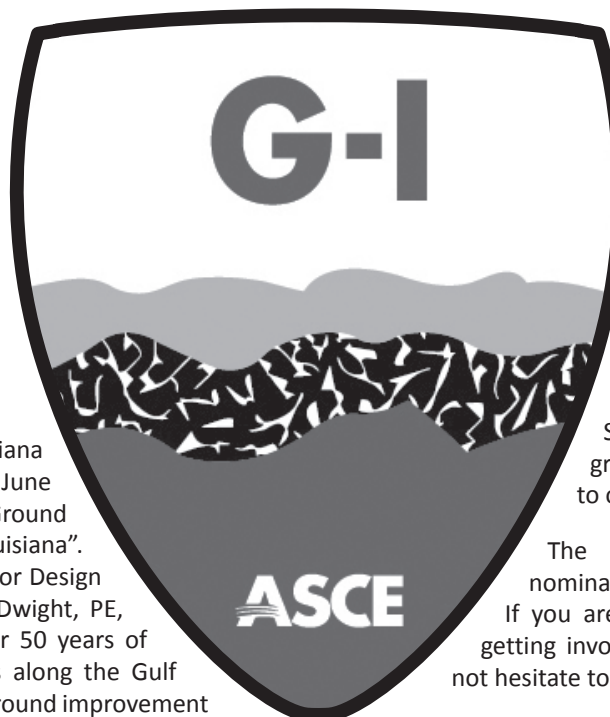


GEO-
INSTITUTE
LOUISIANA CHAPTER



Kirk Lowery, PE, D. GE
G-I Chair

The Geotechnical Institute of Louisiana will host a virtual presentation on June 21st from 12:00 to 1:00 "Goo to Good: Ground Improvement Applications in South Louisiana". The presenters Chris Marshall, PE, Senior Design Engineer, Menard USA and Jonathan Dwight, PE, Vice-President, Menard USA have over 50 years of experience dealing with the soft soils along the Gulf Coast. Menard delivers a full range of ground improvement



techniques to provide effective, innovative and economical solutions for soft soil conditions. The poor subsurface soil conditions in South Louisiana create significant challenges for site development and foundation support. This presentation will provide an overview of the most common ground improvement techniques used in South Louisiana and specific challenges commonly encountered on South Louisiana ground improvement projects. Representative projects in South Louisiana will be highlighted where ground improvement was successfully used to overcome difficult site and soil conditions.

The Geotechnical Institute is taking nominations/volunteers for serving on the board. If you are interested in serving on the board or getting involved or have any suggestions, please do not hesitate to email kirk.lowery@arcadis.com.



Janet L. Evans, PE
Government Relations Chair

ASCE 2022 Legislative Fly-In and Policy Week March 2-4, 2022

The Fly-in is an annual event that normally takes place in Washington DC in person; however, part of it was held in virtual format March 2-4, 2022. The Louisiana Section's representatives were Kirk Lowery PE, D.GE (in-person), William Cenac III, PE (virtual), and Nedra Davis Hains, MA (virtual) who met with several Congressional offices in "Virtual Hill Visits".

The 2022 Fly-In and Policy Week kicked off at the Hyatt Regency Washington on Capitol Hill March 2-4, 2022. The Wednesday, March 2, 2022, Session started with the Advocacy Captains Briefing by Elisabeth 'Lizzie' Dorman, Sr. Manager, Grassroots Programs and State Advocacy, ASCE. The "Legislative Fly-In Refresher" session was held concurrently by Maria Lehman, PE, ENV SP, F.ASCE, President-Elect, ASCE. ASCE President Dennis Truax, Ph.D., PE, DEE, D.WRE, F.ASCE gave a warm welcome to everyone. Dr. Geraldine Richmond, Undersecretary for Science and Energy, U.S. Department of Energy gave the Keynote Address and Q&A.

This was followed by afternoon sessions including the "Issue Briefing, Part I - IJIA Implementation" by Caroline Sevier, Director, Government Relations, ASCE and "How Infrastructure Became a Trending Topic" by Errol Barnett, Transportation Correspondent, CBS News. The State Departments of Transportation Discussion was given by Louisiana's own Secretary Shawn Wilson, Louisiana Department of Transportation and Commissioner Victoria Sheehan, New Hampshire Department of Transportation. "Issue Briefing, Part II - Gas Prices Relief Act" was given by Eleanor Lamb, Manager, Federal Government Relations, ASCE.

Thursday, March 3, 2022, ASCE started with the "Awards Breakfast" with speaker U.S. Representative Josh Gottheimer (D-NJ), ASCE Honorary Fellow, 2022 and U.S. Senator Rob Portman (R-OH), ASCE Honorary Fellow, 2022 followed by "2022 Outstanding Civil Engineer Advocate of the Year Awards Presentation" by Jean-Louis Briaud, PhD, PE, D.GE, Dist.M.ASCE, ASCE Past President. This was followed by the "Congressional Meeting Best Practices" by Brad Fitch, President and CEO, Congressional Management Foundation

The afternoon sessions included, "Issues Briefing, Part III - Research and Development and Resilient Infrastructure" by Martin Hight, Sr. Manager, Federal Government Relations, ASCE and the "Issues Briefing, Part IV -



Will Cenac, Nedra Hains, Kirk Lowery meet virtually with Ron Anderson of Senator Cassidy's office

Resilient Infrastructure Continued and Water Resources Development Act" by Matthew McGinn, Sr. Manager, Federal Government Relations, ASCE.

Virtual Congressional Visits with Kirk Lowery participating virtually from the Hyatt, with William Cenac III, PE, and Nedra Davis Hains, MA participating virtually from Louisiana. Kirk Lowery, PE, D.GE ended his Capitol Hill visit with the "Infrastructure Gamechangers Reception" at the Hyatt Regency Washington on Capitol Hill.

The key messages were delivered on March 3, 2022, to Maggie Ayrea, Legislative Director in Congressman Graves' Office; Coby Sammis, Legislative Correspondent attended for Congressman Higgins' office, Ron Anderson, Senior Policy Advisor attended for Senator Cassidy's office; and Herman Gesser, Chief Counsel and Projects Director Staff attended for Senator Kennedy's office. Lowery, Cenac, and Hains conveyed the key messages: ASCE strongly opposes S. 3609, the Gas Prices Relief Act; Fully fund the National Levee Safety Program at \$79 million in FY23; ASCE strongly supported the passage of the IJIA; ASCE urges Congress to finalize a comprehensive package focused on the nation's research agenda. Congressional leaders must conference the Senate-passed U.S. Innovation and Competition Act, USICA, (S.1260) and the House-passed, the America COMPETES Act (H.R. 4521); and ASCE urged Members of the House and Senate to work in a bipartisan fashion to ensure that the Water Resources Development Act (WRDA) is a priority in 2022 and continues to be passed on a two-year cycle.

ASCE provided, "A one-stop shop for understanding and tracking implementation of the bipartisan infrastructure law," this ASCE member-only resource includes legislative analysis, a list of open grant applications, opportunities to weigh in on implementation, and a schedule of upcoming funding distribution cycles (coming soon). The Infrastructure Investment and Jobs Act (IIJA) is a five-year, \$1.2 trillion infrastructure package that was signed into law in November, 2021. The bipartisan IIJA marks the country's largest investment in infrastructure across all Report Card categories in nearly a century. Need the password? Email reportcard@asce.org.

Congress Graves' Legislative Director Maggie Ayrea shared that the Congressman wants WRDA done, and they have been working on priorities that benefit Louisiana. Ayrea said, "Garret Graves relies on smart people and engineers like you all." William Cenac III, PE brought up the issue of the permitting processing with Senator Bill Cassidy's Senior Policy Advisor Ron Anderson, who answered with, "We can reach out and help you expedite in line with CPRA and state entities, if you have specific projects, get us details and we will help facilitate permitting or whatever we can help you resolve. But if you can provide a better way, we can help push it... change takes time." Kirk Lowery PE, D.GE noted that it was noticeable that each category from the ASCE Report Card are addressed in the IIJA legislation and Anderson responded, "that it is positive reinforcement." The legislative meeting with Herman Gesser III Chief Counsel and Projects Director Staff in Senator Kennedy's office said his biggest portion of time is spent on USACE Louisiana issues. Herman said, "a big piece of WRDA, provide authority for USACE, water infrastructure pieces outside of the USACE, the Louisiana delegations have the largest requests... we have so many needs related to water. In Louisiana we had to prove our needs, more importantly, after Katrina and the creation of CPRA, I find it lends so much all these years later that we are better received, the engineering community in Louisiana has gained a lot of clout as a result of it. It makes it easier for us to pursue authorization and funding and it has to do with the science you and what ASCE is developing." Herman concluded, "y'all do great work and we appreciate ASCE."

The LA Section Government Relations Committee encourages you to schedule a Back Home Visit or attend a local town hall meeting or other event with an elected official to raise the issue of infrastructure. For more information on the Report Card for America's Infrastructure please see <http://www.infrastructurereportcard.org>.



Mike Paul
T&DI Chair

Louisiana State Science and Engineering Fair

In continuation of our efforts to promote interest in transportation, planning, and engineering, the T&DI Louisiana Chapter contributed to the 68th annual Louisiana State Science and Engineering Fair that was held on March 22nd and 23rd at the Royal Cotillion Ballroom at the LSU Student Union. The State is divided into multiple regions and each region holds a Science Fair early in the year. The top winners from each Region can participate at the State level. The Judges for the transportation-related special awards category consisted of T&DI Executive Committee members Sean Daly, Joffrey Easley, PE, and Dan Aucutt, PE. The special awards winners for the Junior and Senior Divisions are shown below:

For the Junior Division, the following exhibits were selected:

- Ms. Raleigh Brock: First prize for her study of solar powered car array configurations
- Mr. Maverick Hassenboehler: Second prize for his study of three types of truss bridges using a system of wood kabab skewers held using pinned joints and weight-tested with a fishing scale.

For the Senior Division, the following exhibits were selected:

- Mr. Gage Baldassaro: First prize for his bottle rocket design using different size exhaust nozzles.
- Ms. Isabella Clardy: Second prize for her traffic study using hybrid intersection designs to improve traffic efficiency.

East Baton Rouge Stormwater Master Plan Seminar

On March 29 the T&DI Louisiana Chapter hosted a virtual seminar on the topic of the East Baton Rouge (EBR) Stormwater Master Plan (SMP). In recent years, the Parish has experienced widespread flooding which brought to light the current challenges with stormwater management. Consequently, the Parish is in the process of developing a SMP. This presentation provided an overview of the SMP project goals, schedule, and status. Initially, the seminar



discussed the project extents, data collection methods, and the three-tiered modeling approach as well as presenting the flood hazard analyses findings. The SMP identifies flood-related risks and vulnerabilities. The SMP has recommended prioritized capital improvement projects and policies to mitigate those risks as well as minimize future risk. The seminar discussed approved projects and funding sources. The seminar also discussed the ongoing coordination efforts with various entities, specifically MOVEBR and LADOTD.

The seminar was presented by Ms. Melissa Kennedy, PE. Ms. Kennedy is the Project Manager leading the effort to develop the SMP and currently serves as Senior Project Manager at HNTB. Ms. Kennedy has 35 years of experience in water resources planning and design and is a graduate of the University of Illinois.

This seminar was 1 hour long, free to all those that registered and a certificate for one (1) PDH was issued to those that attended.

Looking Ahead

The intent of T&DI is to promote transportation and development as a career path, and to provide training and networking opportunities for all professionals involved in the transportation industry. If you are interested in co-sponsoring a seminar at your branch, the T&DI Louisiana Chapter has prepared a Seminar Coordinator's Check List to assist you in your preparation. Contact Roy Payne rpayne@rciconsultants.com for a copy of the checklist. Historically our seminars are two hours in length and are typically presented from 5:30-7:30 pm in either the New Orleans or Baton Rouge areas. Recently our seminars have gone virtual and have been presented mid-day. In keeping with the intent of the Institute to provide training and networking opportunities for all professionals involved in transportation projects, the Chapter is planning the following future seminars:

- Green Infrastructure: Integrating Infrastructure Needs
- Bicycle Lanes / Complete Streets
- Convention Center Beautification
- Surface Transportation Resiliency
- New Mississippi River Bridge – P3 Financing and Tolling
- Hurricane/Emergency Evacuation Planning
- I-12 Widening over Tchefuncte River
- I-10 / College Drive Flyover



ACADIANA BRANCH

By Grant Besse, PE, Branch President

Dear Acadiana Branch Members,

This spring has gotten the ASCE Acadiana Branch off to a good start. We've already had two social events, a disc golf outing and a joint crawfish boil with IEEE. Both events were well attended by professionals and students and provided everyone the opportunity to meet outside of the office

for some more informal socializing.

There have been four technical events hosted by ASCE. Two joint pdh presentations with ULL on geomembranes and concrete protection products, and one with McNeese on soil stabilization and precast concrete construction. We've also had an ethics presentation by the

ASCE general Counsel Tara Hoke. All of these presentations were well attended and we look forward to continuing more throughout the summer and fall.

Be on the lookout for an email for the June luncheon. We will be planning a joint luncheon with LES Lafayette Branch, and look forward to seeing everyone.

This fall, the branch is planning on putting together a golf tournament fundraiser. The last fundraiser golf tournament was well attended in 2019, and we're looking forward to putting a fun event together to add to the ASCE scholarship fund. Be on the lookout for upcoming emails regarding registration and sponsorships.

Finally, if anyone would like to submit technical spotlights for the Branch newsletter, we are always looking.



BATON ROUGE BRANCH

By Tyler H. Branch, PE, Branch President

In February, ASCE Baton Rouge Branch collaborated with LES to celebrate Engineers Week with an Awards Banquet held at Ruffino's Restaurant in Baton Rouge. The event recognized Local Engineers, who have contributed in various ways to the Engineering Profession / Professional Organizations, as well as Student Scholarship Recipients.

The 2021-2022 ASCE Baton Rouge Branch Scholarship was awarded to Southern University student, Mr. Jelani Smith. A special thanks is extended to Mr. Greg and Mrs. Rhonda Young and their daughter Mrs. Rachael Y. Lambert who were present to award the 2021-2022 Melissa Young Doucet, PE, Memorial Scholarships to Louisiana State University students, Ms. Natalie Dante, Ms. Morgan Domingue, and Ms. Madalyn Mouton. All scholarship recipients demonstrated high academic achievement and dedication to ASCE. We are very proud of them and wish them well with all their future endeavors!

In March, Mr. Bob Jacobsen, PE, presented to our membership at Drusilla Seafood Restaurant in Baton Rouge on the topic of Property-Specific Flood Risk, which was recently high-lighted in the last two editions of this Journal. His presentation was very topical for our region and current times. In April, Mr. Mark Goodson, Mr. Hilary Thibodeaux, PE, and Mr. Brian Lennie presented to our membership at Drusilla Seafood Restaurant, providing an Update on the University Lakes Project in Baton Rouge, LA. Also in April, ASCE collaborated with LES and APWA to host a Younger Member Social Event at The Bulldog in Baton Rouge.

We would like to recognize ASCE at LSU for their participation in the ASCE Gulf Coast Student Symposium at Auburn University in April

where they placed 5th overall and competed in multiple events, including the Steel Bridge Competition which earned them a spot in the National Finals Competition at Virginia Tech this month!

Our upcoming events include a joint luncheon with LES this month, our Annual Past Presidents Luncheon in June, and a "Bridging the Gap" event in August, which focuses on guiding younger professionals in the early stages of their careers. More information on these and other events will be forthcoming. We hope you can join us!



Bob Jacobsen gives presentation at the monthly luncheon



Student Scholarship Recipients



NEW ORLEANS BRANCH

By Stephanie C Bayne, PE, Branch President

The New Orleans branch started the 2022 with a Luncheon Zoom Webinar on January 20. Mr. Bob Jacobsen highlighted some aspects of his recent article for the Louisiana Civil Engineer on "Property-Specific Flood Ri\$K." The branch took a short break from events during February to avoid conflicts with Carnival Season.

With the arrival of Spring, Branch activities greatly increased. On March 15, the Branch hosted its first in-person with a virtual option luncheon at Lula Restaurant & Distillery. This is a service we hope to continue to provide to add value for our members. At this March luncheon, the Louisiana Section President of ASCE, Dr. Tonja Koob Marking, gave a presentation called, "Forensic Hydrology and Environmental Assessment in Louisiana's First Oil Field: A 100-Year Recreation of Historical Land Use." She discussed her forensic analyses utilizing records and sources from disciplines typically not consulted in engineering studies. On March 31, a Joint Spring Social with LES and ASCE was held at Mid-City Rock-N-Bowl. This event was very well attended.

April was also a busy month for the New Orleans Branch. On April 6, our second in-person and virtual luncheon at Lula Restaurant & Distillery. Dr. Brian Wolshon of Louisiana State University spoke about his research on changes to daily travel and activity patterns since March 2020 due to COVID-19. A Joint Professional Social

was held April 14 at Tchoup Yard. The next Thursday, the Younger Member Spring Kickball Team began playing their season at City Park. On April 23, nine of our members volunteered at the first annual MudFest at the Louisiana Children's Museum. They worked with LCM to create an activity to talk about resilient cities and how to build on "mud." The volunteers were able to talk about building with piles. The volunteers were also able to show the children real soil samples from far below the ground surface. This led to questions about clayey soil. The children attending this event were anywhere from babies to pre-teens. They all seemed to really enjoy just playing in the mud and building structures in it.

On May 12, Blake Fogleman of the Louisiana Department of Health, Bureau of Engineering Services spoke on current and future State/Federal funding sources for water and sewer systems. It includes LDH's State Revolving Fund (SRF), Louisiana's Water Sector Program and addition SRF grants through the Federal Bipartisan Infrastructure Law (BIL), including consolidations and emerging contaminants.



SHREVEPORT BRANCH

Luke Haney, EI, President of Shreveport Branch

May 2022

The Shreveport branch hosted a monthly luncheon on February 21 at the Petroleum Club in Shreveport. We had approximately 30 attendees join us to hear Katy Ruzicka with DOTomation Consulting present on the "Top 3

Proposal Problems AEC Firms Face". In March, we joined with the local LES chapter to listen to Jeff Pike, PE from LA Tech give our

annual Ethics luncheon. We spent the month of April preparing for the 2022 Louisiana Section ASCE Spring Conference. We had a great time hosting engineers and vendors from all over the state at the Shreveport Convention Center on May 5-6. Many thanks to all sponsors, vendors, speakers, and attendees who supported us and helped make it happen! The Shreveport branch will now take its summer break and regroup in September to wrap up our year and begin the transition for new officers.

ASCE-SEI New Orleans Chapter News

By Mark Castay, PE



Mark Castay, PE



As we gear up for the wonderful spring weather, the SEI New Orleans chapter has been busy at work planning for the year ahead. The committee recently held a seminar titled "Hernando Desoto Bridge Fracture Repair" presented by Dr. Francesco Russo, PE and Richard Schoedel, PE from Michael Baker International. This bridge is on the I-40 connecting Arkansas and Mississippi and received national attention in May of 2021 when a severe fracture was found on the bottom tie girder causing the bridge to be shut down until emergency repairs were made to return the bridge to service. Due to the fact this bridge is only one of two Mississippi river crossings within hundreds of miles in this area, this closure created an unprecedented and critical need to be returned to service quickly. Dr Russo and Mr. Schoedel managed and lead the design teams for the bridge repair and rehabilitation. The presentation went into detail including preliminary stabilization through final design and repair implementation to rehabilitate the structure. The presentation discussed how many teams were immediately mobilized and worked simultaneously starting with original hand calculations which were refined and verified with finite element analysis. The seminar was well received with approximately 30 in attendance.

The SEI New Orleans Chapter routinely meets and discusses how we can give back and further the profession. This year the committee has voted to become a sponsor for the ASCE Concrete Canoe competition held at LA Tech. We have provided funds for the competition host as well as individual teams who petition and supply a brief write up to the committee for how the donations can facilitate their team. Teams are encouraged to contact us for further information.

On a similar note, the Chapter has also volunteered at the Greater New Orleans Science and Engineering Fair which was held virtually

February 14-17, 2022. The areas brightest young minds from grades 6-12 present their projects for advancement to the state and national competitions in addition to cash and prizes. The New Orleans Chapter supplied 2 judges for the competition in addition to donations for the junior and senior winners.

The SEI New Orleans Chapter is transitioning back to holding seminars at the University of New Orleans Engineering Auditorium (2000 Lakeshore Drive, New Orleans, LA 70148). The next seminar titled "Remembrances of the World Trade Center Tower Structures and the Architects and Engineers that Designed Them" was held on April 28, 2022 and presented by Jon Magnusson, PE, SE, Hon. AIA, Dist. M. ASCE, NAE. This seminar was the 2022 David Hunter Lecture which the Chapter gives annually. The session is to honor the late David Hunter who was one of the founding members of the ASCE Structural Committee of the New Orleans Branch and served on its Executive Committee (1991-1999). Each year the SEI New Orleans Chapter Executive Committee selects a distinguished presenter to deliver this lecture which has been a tradition since 2000.

The lecture described some of the history of the creation of the towers, the events on the day of the attacks, and the ramifications for the design of tall buildings since then and into the future. Mr. Magnusson is Senior Principal at Magnusson Klemencic Associates consulting civil/structural engineers. He earned his BSCE and MSCE from the University of California, Berkley and has been a practicing engineer since 1976. He has in-depth knowledge and relationships with the structural engineers and architect for the WTC. He also served on the ASCE/FEMA Building Performance Assessment Team that studied the attack and its aftermath.

Thank you for attending the April 28, 2022 David Hunter Lecture! Thank you to our sponsors for the complimentary food and drinks that were available prior to the seminar. If you would like to get on our mailing list to receive advance notifications of our upcoming seminars, please email us at asceseinola@gmail.com. We also encourage the concrete canoe teams to reach out to us at this email address for possible donations.

Student Chapter News

LOUISIANA TECH UNIVERSITY

By Mallory Mankins, ASCE Student Chapter President

The American Society of Civil Engineers at Louisiana Tech has had a very busy Spring Quarter! Starting off the spring quarter, our chapter was ready for all the events coming up and jumped right to it.

When we got back to school at the beginning of April, we finished everything that needed to be done on the canoe after pouring it during the winter quarter. Our steel bridge team started construction of the steel bridge, our sustainable solutions team worked on finishing the design of the community of tiny homes, and our surveying team finished up the Civil3D design as part of their competition requirements. Each of these different teams held practices several times a week to prepare and be ready for our regional competition.

Our chapter brought 30 students to Auburn University on March 31st for a long weekend of competitions at the Gulf Coast Regional Symposium. We placed first in 12 out of the 14 competitions that we participated in. Our canoe team blew it out of the water in their races by placing first in all 5 of the different competitions—women's and men's sprint, women's and men's slalom and coed sprint. Some of the other events that we placed first in at this competition included Steel Bridge Aesthetics, Community Service, Sustainable Solutions, Geotechnical. The team earned a second-place win in the Tug of War Competition, and third-place wins in the Transportation Competition and the Concrete Canoe Technical Presentation. Louisiana Tech placed 2nd in the overall Student Symposium, right behind Auburn University.

Once our group returned from regionals, we never lost a beat with hosting different events. We held several industry presentations from different companies, assisted with events in cleaning up the community and hosted professional development events. Our members have been able to grow in different aspects by participating in these different events. Each of the teams that competed in the regional symposium have also been preparing to get ready to compete at the ASCE Concrete Canoe Competition + that is coming up soon.



Louisiana Tech University competition teams posing with the awards they won at this year's ASCE Gulf Coast Student Conference



Looking forward, Louisiana Tech will be hosting the 2022 ASCE Concrete Canoe Competition+ June 3rd- 5th, here in Ruston. As we are getting into the final stretch of planning this eventful weekend, there is still a lot of work to be done but it is all coming together. We invite and welcome everyone to come to Ruston for some fun competitions and delicious food!

LOUISIANA STATE UNIVERSITY

by Madalyn Mouton, Student Chapter President & Eli Barbin, Student Chapter Vice President

LSU's ASCE Student Chapter travelled to Auburn University from March 31st to April 2nd to compete in the first in-person student conference in 3 years! It was a year of firsts on many levels. The AISC Steel Bridge Competition returned to ASCE events for the first time in several years. Because of COVID, only a few members traveling had ever been to an in-person ASCE regional event before. Furthermore, most of the student members were new to their competitions. Both Madalyn Mouton, captain of Concrete Canoe, and Alex Stapp, captain of Surveying, competed for the first time this year and recruited all-new team members. Despite their youth and inexperience, the Tigers had a strong showing at Auburn, winning many accolades.



LSU's competition teams posing with the awards they won at this year's ASCE Gulf Coast Student Conference

LOUISIANA STATE UNIVERSITY, CONTINUED

LSU competed in the following events: Concrete Canoe, Steel Bridge, Surveying, Hydraulics, Transportation, Lawn Darts, Professional Paper, T-Shirt, Tug of War, and the Mystery Event. The Steel Bridge Team dominated the competition, sweeping 1st place in every major category including Overall, Construction Speed, Lightness, Stiffness, Economy, Efficiency, and Cost Estimate. The rules for this season added many challenging design constraints, but the team responded creatively to create a wonderful product. The bridge uses a stacked girder design to maximize rigidity and minimize weight. It also features well-designed connections that allow for quick and easy construction. The build team members were Eli Barbin, Jake Wismans, Zillah Zoleta, and Keith Furr. The bridge team was led by captain Eli Barbin and co-captain David Fuller. The lead welder was Cody Harris. The Steel Bridge team will now be competing at the Nationals in Virginia Tech at the end of May. The Concrete Canoe Team showed up with a beautiful boat and placed 5th in the Men's Sprints and Men's Slalom, and 6th in the Coed Sprints and Women's Slalom. The canoe team was led by captain Madalyn Mouton and rowing members include Madalyn Mouton, Joseph Lamendola, Mya Gildon, Nicholas Vu, and Myles Martin. The Survey Team was led by captain Alex Stapp and team members included Jordan Radford,

Brennan Smith, Julie Lupoli, Luke Ory, Madison Carney, and Tony Gallagher. The Transportation Competition team won 1st place with members Nathalie Dante, Tony Gallagher, Madison Carney, and Alex Stapp. The Mystery Event team won 3rd place with Cody Harris, Hongjie Zhu, and Keith Furr. The Lawn Darts team won 3rd place with captain Hannah DiLeo and members David Fuller, Emily Rone, and Eli Barbin. The 3rd place winning T-shirt was modeled by David Fuller. LSU competed in the following events: Concrete Canoe, Steel Bridge, Surveying, Hydraulics, Transportation, Lawn Darts, Professional Paper, T-Shirt, Tug of War, and the Mystery Event. The Tigers made the podium in 5 separate events and came away with 5th place overall in the conference.

ASCE@LSU also hosted Masters & Modjeski, ISC Engineering, US Army Corp of Engineers New Orleans Division, LJA Engineering, and Costello in the months of February, March, and April for their general meetings. The chapter hosts a firm for students to learn more about what the day-to-day operations and real-world projects are like for a civil engineer. They also get the chance to network with visiting firms to learn more about what employment opportunities they might have. The students are thankful for the experience.

— CALENDAR OF EVENTS —

2022

August 11, 2022, Baton Rouge Branch, Bridging the Gap Event, LSU Museum of Art, Third Floor. 100 Lafayette Street, Baton Rouge, LA 70806 Please see the website below for times

Events are constantly being updated online:

For ASCE Society events please see online:
https://www.asce.org/conferences_events/
https://www.asce.org/student_conferences/

For ASCE Baton Rouge events please see online:
<http://branches.asce.org/baton-rouge/events>

For ASCE Shreveport events please see online:
<https://www.facebook.com/ASCEShreveport/>

For ASCE Acadian events please see online:
<http://branches.asce.org/acadiana/events>

For ASCE NOLA events please see online:
<http://asceneworleans.org/events/>

For more events visit the ASCE Events Calendar: <http://www.lasce.org/calendar.html>

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