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## President’s Message

*By Neelam Dorman, T.E., ITE Western District President*

The Western District Executive Committee met in September for a Kick-Off and On-Boarding meeting. We are excited to have **Kimberly Leung** join the Executive Committee next year and to have **Mark Spencer** represent the District on the International Board of Direction. In planning for successful and sus-

tainable District operations we are revamping our advertising/sponsorship. There are also great ideas that you can use at home with your families.

It’s also never too early to start looking forward to our Annual Meeting! We’ll be in Portland July 18th-21st with ITE International and the Mountain District.

And during this time of restricted travel, it may be nice to look further ahead to our District Annual Meetings:

- 2022 Palm Springs, California (June 26-29)
- 2023 Central California
- 2024 Sacramento, California
- 2025 Long Beach, California
- 2026 Seattle, Washington

tainable District operations we are revamping our advertising/sponsorship. Please check out the new advertising page: <https://westernite.org/advertising/>. We also hope to finish re-chartering our student chapters by the end of the year and are looking forward to supporting the Student Leadership Summit at Cal Poly SLO, January 15th-17th (<https://sls2021cpslo.weebly.com/>).

I’d like to take this opportunity to recognize all the agencies and firms for encouraging our volunteers and supporting them as they serve on the Western District Board and Committees. Thank you to: **City of Anaheim, Ganddini Group, WSP, W-Trans, Advantec, Wilson Okamoto, Iteris, SF Municipal Transportation Agency, University of California – San Francisco, Q-Free ASA, Sacramento County DOT, Michael Baker International, and CRW Engineering Group.**

November is National STEM month! Please start thinking about some virtual activities you section/chapter can lead. The STEM subcommittee also has put together a list of activities and presentation templates for our

Sponsoring WesternNITE now comes with a wider range of benefits for ultimate flexibility! We have updated our program with an additional sponsorship tier and a menu of items to select from that best fits the needs of your company. We relaunched our sponsorship webpage this month for self-service and with improved links to make payment effortless. Do you have a job opportunity that you want to share with our members? We have streamlined the job posting offerings to make the process faster and more simplified. Whether you’re interested in becoming one of our Principal sponsors, or you choose the WesternNITE Supporter level, there’s an affordable option available that will suit you!

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Check out the new advertising page at: <https://westernite.org/advertising/>

## Annual Board Meeting Highlights

*Joe De La Garza, PE, ITE Western District Secretary-Treasurer*

On June 28th, 2020, the Western District Board members, committee chairs, Local Arrangements Committee (LAC) Chairs, section/chapter leaders, and guests assembled virtually during the 2020 Annual Meeting for the Western District Annual Board Meeting.

**President Neelam Dorman** called the meeting to order and gave the President's report. New Section and Chapter Charters are in process to be finalized in the coming months.

**Vice President Giancarlo Ganddini** gave his report, which included updates on awards, committee travel budgets, leadership directory and membership. District membership was reported as 3,272 members.

**Secretary-Treasurer Joe De La Garza** provided the current fiscal year 2019-2020 year to date Financial Report. Final distributions of the split of funds to the new Mountain District was completed earlier in the year and all current income, expenditures, assets, and endowment balances are in line with the budget expectations.

**Past President Mark Spencer** presented information regarding the Individual and Lifetime Achievement Awards. ITE International now includes Transportation Achievement Awards in five categories; two projects will be recognized as best in their class at ITE International Annual Meeting.

**Junior International Director, Cathy Leong, and Senior International Director, Carlos Ortiz,** provided summaries of their activities. Both Directors serve on committees including Stra-

tegic Planning Task Force, ITE Consultants Council and the Advocacy committee.

**International Executive Director Jeffrey Paniati** provided updates from ITE International and discussed ITE's response to COVID-19.

**International Vice President Randy McCourt** reported on additional International efforts. He is developing a white paper regarding traffic counting during the pandemic.

**District Administrator Dalene Whitlock** provided an update on the Sections Charters that were approved by the ITE International Board of Direction. Dalene has also developed and updated Western District Board Procedures Manual.

Committee updates were given by **WesternITE Managing Editor Erica Jensen, Advertising Manager Ryan Zellers, Website Manager Cameron Shew, Technical Chair Amit Kothari, Career Guidance Chair Joshua McNeill, Student Endowment Chair Kimberly Leung, Public Relations Chair Paul Stanis, and LAC Committee Chair Cathy Leong.**

Meeting updates were provided by the (LAC) Chairs for their respective Annual Meeting. Section Representatives provided reports from each of the 11 sections regarding activities and provided a forum for coordination among all the Sections and the Board.

The meeting adjourned at 11:30 and the next Board Meeting will be held Friday, January 22, 2021.

## Annual Business Meeting Highlights

*Joe De La Garza, PE, ITE Western District Secretary-Treasurer*

The Western District Annual Business Meeting was held on Tuesday, June 30, 2020, virtually in association with the 2020 Annual Meeting. The meeting was called to order by **President Neelam Dorman** and commenced with a moment of silence for deceased members **Bill Law, Donald W. Barker, Albert L. Grover, Jerome W. Hall, Robert F. MacDonald, Judson S. Matthias, and James A. Willhite.**

Neelam recognized the LAC from the 2020 Annual Meeting for their handling and adjustments converting the Annual Meeting to a virtual meeting.

**Secretary-Treasurer Joe De La Garza** presented an overview of the current fiscal year-to-date budget; revenue and expenses are generally in line with expectations and budget. Joe also presented the draft proposed budget for 2020-2021;

overall proposed budget is balanced.

New bylaws state that the proposed budget does not have to be voted on by the members and is approved by the Executive Committee and the Section Representatives.

The election results were announced and the winners of the 2020 election include the following: **President Giancarlo Ganddini, Vice President Joe De La Garza, and Secretary-Treasurer Kimberley Leung.**

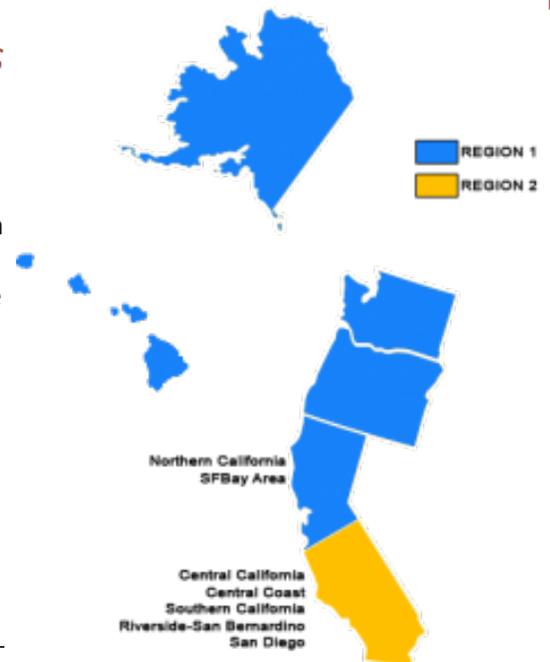
**ITE International President Randy McCourt** officiated the installation of the new officers.

Finally, the new President Giancarlo Ganddini provided closing remarks and the meeting was adjourned.

## Seeking Nominations for Western District Officer Candidates and Achievement Awards

The Western District Board is seeking nominations of qualified candidates for Secretary-Treasurer and International Director to run in the June 2021 election. Secretary-Treasurer nominations can be submitted for individuals from Region 2 (Central California, Central Coast, Southern California, Riverside-San Bernardino, San Diego) while International Director nominations can be submitted for individuals regardless of where they reside. Anyone who would like to submit a nominee for consideration, or who would like more information about the election process, should contact Western District Past President [Mark Spencer](#). Nominations will be accepted until **December 1, 2020**.

We are also requesting nominations for Western District Individual and Lifetime Achievement Awards. Award information and nomination forms are available [here](#). Nominations for the Individual and Lifetime Achievement Awards are due to Western District Past President [Neelam Dorman](#) by **November 1, 2020**.



## ITE International Board Report

*By Cathy Leong, P.E., Western District International Director*

The following summarizes the virtual ITE International Board of Direction's (IBOD) meetings during July 2020.

### Budget and Finance Committee Report

Finances for 2020 are fine now, but there are a few areas with a drop off in revenue that have been offset by reduced expenses. The Paycheck Protection Program forgivable loan we received also provides a cushion for 2020. In addition, we completed a clean audit that resulted in no recommendations. In the long term, we are focusing on 2021 dues renewal.

### Strategic Planning Update

The 2021-2023 ITE Strategic Planning was presented to the IBOD by **Shawn Leight**. The Strategic Planning Committee has been working on this document with input from the IBOD since the beginning of this year. The plan was approved by the IBOD with a few minor editorial changes.

### Technical Programs

**Chief Technical Officer Jeff Lindley** provided highlights on the Key Technical Programs. These highlights included the Procurement Guide by the Industry Council that will be published by the end of July, a pooled fund study on the research identified by ITE in the Signal Change and Clearance Intervals RP created with seed funding provided by FHWA, the TIA Certifi-

cate Program Training, and a proposal by NEXT who wants to partner with ITE to develop a technician / installer training program that would lead to a credential.

### ITE Policy Updates

**Policy Committee Chair John Davis** provided an update regarding suggested topics for new ITE Policy Statements as well as proposed and revised new ITE Policies. The IBOD approved the revised wording for the policy on Clear Roadsides and authorized publication of the proposed new statements to ITE Policy for member comment.

### Membership

**Membership Director Colleen Agan** provided updates on 2020 dues and indicated that the biggest drop in membership numbers was due to students because of the COVID situation in March. ITE hopes to have a student membership drive in the fall along with activities planned by the Traffic Bowl Committee. Colleen also reported that all Sections had submitted their Bylaws and Charters for IBOD approval. The IBOD approved these documents for all but 4 Sections. The remaining Sections will work through comments on their documents with the intent to have IBOD approval before the end of the year.

## 2020 Annual Meeting Award Winners

Award	2020 Recipient
Best Annual Meeting Paper Award	Cameron Shew, "Dynamic Implementation Tool for Flexible Mitigation Strategy"
Best Annual Meeting Paper Award by a Young Professional	Eric Milliken, "A Study of Local Gap Acceptance Behavior Using Drone Videography"
James H. Kell Award	1st Place: Brigham Young University (Natalie Gray, Sami Lau, Bruce Wang) 2nd Place: Brigham Young University (Logan Bennett, Justin Hunter, Camille Lunt, Mason Shoaf) 3rd Place (Tie): Cal Poly San Luis Obispo (Zachary Fucini, Jacob Hamada, Bryant Lee, Emily Lin, Philip Yang) 3rd Place (Tie): Cal Poly San Luis Obispo (Kassidy Kightlinger, Lauren Krueger, Cynthia Roe, Caroline Schulze)
Lifetime Achievement Award	John Fisher, Kenneth Ackeret
Mentor Award	Cathy Leong
MiteY Race Awards	MiteY Minions (family and friends) The SLOcals (Cal Poly SLO, students)
Outstanding Graduate Student	Travis Larson (Oregon State University)
Outstanding Educator	Chris Monsere (Portland State University)
Richard T. Romer Endowment Fund: Highest Contribution Per Member Award Highest Overall Contribution Award	Riverside-San Bernardino Section Northern California Section
Section/Chapter Activities Award, Large Section	Washington Section
Section/Chapter Activities Award, Small Section	Alaska Section
Section/Chapter Communication Award	San Diego Section
Section/Chapter Momentum Award	Washington Section
Student Chapter Award	Oregon State University
Student Chapter Momentum Award	Gonzaga University
Student Paper Award	Sara Urbina (Portland State University), "Influence of Autonomous Vehicles on Travel Behavior of 50+ Years Population"
Student Traffic Bowl Winner	Oregon State University
Wayne T. and Patricia VanWagoner Award (for best paper by a WD member published in ITE Journal in prior calendar year)	Ryan McClain, "Evaluating Success: Complete Streets Before and After"
Young Professional Achievement Award	Julie Kentosh

*Note: No Outstanding Undergraduate Student or Individual Achievement Award submissions for 2020*

# 2020 Best Paper

The District’s Best Paper Award is one of the most prestigious presented each year. The winning paper is presented here.

## Dynamic Implementation Tool for Flexible Mitigation Strategy

Cameron Shew, PE, TE, Senior Civil Engineer,

Sacramento County Department of Transportation, [shewc@saccounty.net](mailto:shewc@saccounty.net)

### 1. Executive Summary

Like many jurisdictions, Sacramento County has historically conditioned development to implement roadway improvements and mitigations at “triggers” tied to a specific number of dwelling units or equivalents (DUEs). While this approach has been effective for smaller scale developments, it does not always dictate the appropriate timing and location of improvements for large specific or community plans. The County has developed an alternate approach to provide flexibility and align mitigations to the actual location of development.

This new strategy has led to what is currently referred to as the Dynamic Implementation Tool (“Tool”). Traffic impact studies (TIS) typically only analyze transportation impacts at full build-out, a process that would likely occur over many decades, or hypothetical phasing scenarios that inevitably change. The Tool provides for an understanding of the impacts incremental development would have on the transportation network. For any amount of phased development that might be implemented, a spreadsheet estimates volume changes through roadways and intersections and determines if the volume growth would trigger an impact.

The spreadsheet is based on the trip assignment from the regional travel demand model used for the TIS. The model tracks the origin and destination of each trip end by traffic analysis zones (TAZs), which are aggregated to larger traffic sheds called “districts.” Select zone analysis determines the fair share

allocation of volume growth to each district. Based on the amount of development assumed and entered into the tool by district, VMT-generation rates are applied to estimate volume increases of partial buildout. With this information, a nexus can be established between a phasing concept and infrastructure needs without the costly and time-consuming process of rerunning the demand model. This approach gives developers flexibility with project phasing and optimization, while ensuring that deficiencies are expeditiously addressed. The County has the tools to proactively monitor and manage the transportation network, ensuring transportation funds are spent where they are needed.

### 2. Background and Prioiv Policies

As of 2019, Sacramento County has a total population of 1,546,000, including 594,000 (38%) living in unincorporated areas<sup>1</sup>. The adopted 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS)<sup>2</sup> assumes a regional (six-county) increase of 260,000 housing units,  
<sup>1</sup> <https://www.saccounty.net/Government/Pages/DemographicsandFacts.aspx>  
<sup>2</sup> [https://www.sacog.org/sites/main/files/file-attachments/chapter3\\_mtp-scs\\_0.pdf?1580327288](https://www.sacog.org/sites/main/files/file-attachments/chapter3_mtp-scs_0.pdf?1580327288)

270,000 jobs, and 620,000 population by Year 2040, outpacing both California and the rest of the nation. By buildout, the six-county region expects to add a total of 663,000 new housing units and 1,100,000 new jobs. Sacramento County’s numerous growth areas are shown as the colored areas in [Figure 2-1](#). The large growth areas leads to a unique set of challenges, compared to other parts of the state that are geographically constrained from further development. Areas that are mostly built-out must strive to get the most out of their constrained capacity through operational and ITS improvements, as well as

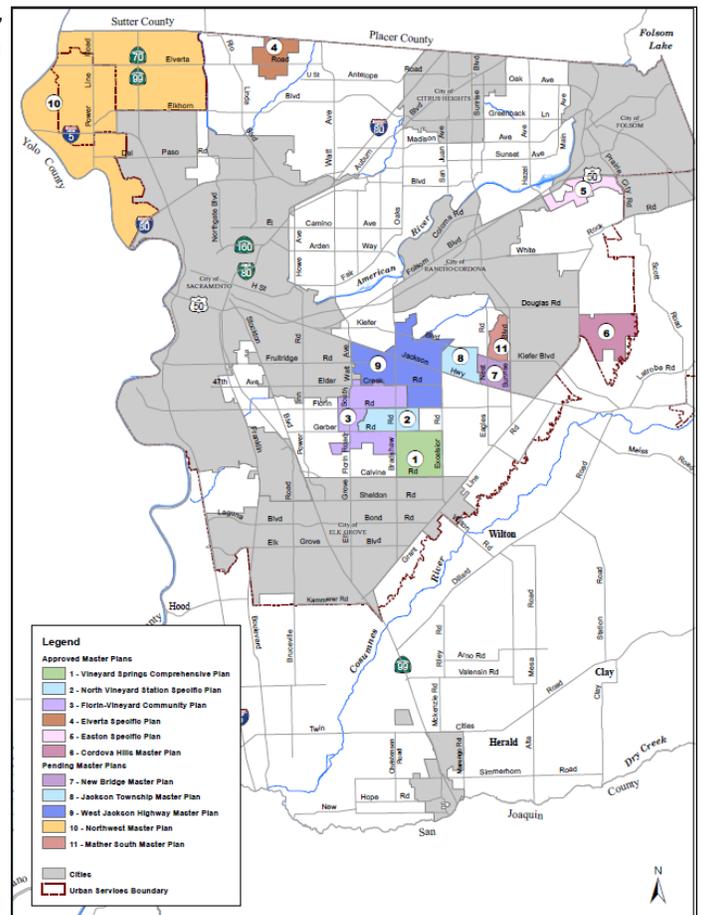


Figure 2-1: Growth Areas in Unincorporated Sacramento County

fund ongoing maintenance and pedestrian, bicycle, and transit improvements. In addition to these challenges, Sacramento County must deliver over \$3 billion in capital improvements<sup>3</sup>, mostly roadway and intersection projects, to support and sustain growth.

**Early 1990’s: “Fair Share” Approach**

The County’s first mitigation strategy simply required that developers pay fees to cover their fair share of improvements. The idea was that the County would take responsibility for delivering public roadway improvements necessary for development. This approach had significant problems, including difficulty delivering projects in the timeline needed to keep up with traffic demand. Additionally, the funds collected were not always sufficient.

**Mid 2000’s: “Trigger” Based Approach**

In the mid-2000’s, Sacramento County shifted to a “trigger” based system to address these shortcomings. These triggers required developers to deliver a set of improvements themselves once a specified level of development was reached. Specifically, this strategy ties a subset of transportation improvements from the list of mitigation measures in the environmental impact report (EIR) to a specific number of dwelling unit equivalents (DUEs), based on a phasing analysis. *Figure 2-2* shows an example of trigger-based conditions. For example, 2 roadway projects might be required prior to being allowed to exceed 2,020 units. This practice has been effective at ensuring that development cannot get out in front of the delivery of needed improvements. When the economy and housing market were booming, the strategy worked well. However now that the market has returned to normalcy, two major issues have developed:

- Triggers do not always approximate the appropriate timing and location of transportation improve-

ments. Development in one corner of a plan area may trigger improvements located several miles away on other side of the plan area.

- Individual developers that reach the trigger cannot always afford to carry the cost of the improvements, resulting in development halting. For example, a trigger requiring that \$11M worth of improvements will effectively stop a 40 unit independent developer. While in theory “no development equals no impacts,” history has shown that traffic will continue to increase based on growth in other jurisdictions. The improvements will still be needed, and no revenue will be available for the County to implement them.

**3. Dynamic Implementation Tool**

**Overview**

In collaboration with consultant DKS Associates, the County has developed a new approach for improvement phasing, currently referred to as the Dynamic Implementation Tool (“Tool”). The Tool consists of (1) travel demand model trip assignment outputs; and (2) an Excel spreadsheet that provides an interface and post-model calculations. The Board of Supervisors recently adopted the Tool as the mitigation strategy for four ongoing development projects: the West Jackson Highway Master Plan, the Jackson Township Specific Plan, the NewBridge Specific Plan, and the Mather South Community Master Plan.

The Tool uses the vehicle trip assignment from the regional travel demand model (SACSIM) to estimate the trips added to the roadway

network by incremental development. A model script tracks the origin and destination of each trip end by traffic analysis zones (TAZs), which are aggregated to larger traffic sheds called “districts.” Select zone analysis determines the fair share allocation of volume growth to each district. Based on the amount of development assumed and entered into the tool by district, VMT-generation rates are applied to estimate volume increases of partial buildout. With this information, a nexus can be established between a phasing plan and infrastructure needs without the costly and time-consuming process of rerunning the demand model.

The Tool outputs (1) roadway segment volumes and level of service; and (2) intersection peak hour turning movement volumes, which can be imported into intersection analysis software. After determining if any significant impacts would result, the County can assign transportation improvements and/or fee payments to the increment of development.

**Modeling Methodology**

For most large transportation studies in the Sacramento region, the Sacramento Area Council of Governments’ (SACOG’s) SACSIM travel demand model is used to forecast travel patterns and volumes. SACSIM is an activity-based model that tracks the travel of individuals throughout the day in trip

<p><b>Prior to recordation of 2021<sup>st</sup> residential building lot within the FVCP Area:</b></p> <p>28. Reconstruct, widen existing two-lane road section, add southbound lane and frontage where necessary, and restripe existing French Road to a four-lane arterial from Florin Road to Gerber Road based on a 74-foot standard arterial (the 6-foot separated sidewalk shall be installed in an adjacent pedestrian/landscape easement). (12.1.1, 12.1.2, 12.1.3) Mitigation Measures: TC-1(l), TC-1(cc), TC-3(r) and TC-3(v).</p> <p>29. Widen the existing bridge on French Road at the Elder Creek crossing based on a 74-foot standard arterial. (12.1d) Mitigation Measures: TC-1(l), TC-1(cc), TC-3(r) and TC-3(v).</p> <p><b>Prior to recordation of 2126<sup>th</sup> residential building lot within the FVCP Area:</b></p> <p>30. Widen the existing intersection of Florin Road at Florin-Perkins Road (French Road) by adding a westbound right-turn lane. (14) Mitigation Measures: TC-2(ee) and TC-4(s).</p> <p>31. Widen existing intersection of Florin Road at South Watt Avenue from a partial 4X4 to a full 6X6 (relocate signal). (15) Mitigation Measure: TC-4(u).</p>
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*Figure 2-2: Example Trigger-Based Conditions in the Florin-Vineyard Community Plan*

<sup>3</sup> <https://sacdot.saccounty.net/Pages/DevelopmentFees.aspx>

tours. SACSIM thus requires a detailed definition of household population, demographics, and employment type at a parcel-level of geography. This allows the model to capture smaller-scale land use changes and differences. SACSIM is sensitive to the local physical environment, including pedestrian and bicycle facilities, the patterns of local street networks (e.g., grid vs. cul-de-sacs), and the density, proximity and mix of surrounding land uses (i.e. employment destinations, schools, retail, parks, etc.). SACSIM forecasts automobile, transit, bicycle, and walk trips.

Large development projects can be represented by upwards of 50 traffic analysis zones (TAZs), in order to provide sufficiently detailed network loading for intersection analysis. A model script tracks the origin and destination of each trip by TAZ. For simplification purposes, TAZs are aggregated to larger traffic sheds called "districts" (with each district containing an average of 2.2 TAZs). An example of districts within a master plan area is shown in [Figure 3-1](#). Select zone analysis determines the fair share allocation of volume to each district. The script outputs spreadsheet files containing the total volume for every selected link and turning movement, split out into different columns for existing trips, growth from districts 1 through n, and through trips (i.e. external growth).

**Spreadsheet Methodology**

The purpose of the spreadsheet is to translate the static model data into forecasts that can be used for traffic analysis through dynamic adjustments to development assumptions.

The spreadsheet is comprised of the following components:

1. Model Data: contains static traffic data (volume growth attributed to every project district at buildout) from the model run output
2. Control Panel: allows dynamic adjustments to development assumptions. A percentage of assumed development to buildout VMT in each district is estimated.
3. Forecasting: the percent of buildout from step 2) is applied to the buildout traffic growth from step 1) and added to an existing count.
4. Traffic Analysis: the segment volumes and levels of service are displayed in the spreadsheet. The intersection turning movement volumes are formatted for importing into traffic analysis software.

**Control Panel**

The control panel tab, shown in [Figure 3-2](#), processes all user inputs. The 'Assumed' column allows the user to

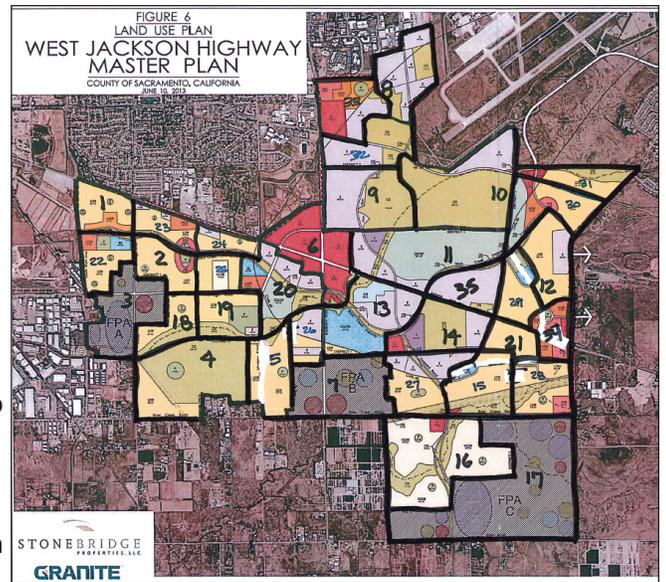


Figure 3-1: West Jackson Hwy Master Plan District Map

specify how much development should be assumed in the forecast. The 'Buildout' column shows what was assumed in the model runs at project buildout. The user may enter an 'Assumed' value greater than the 'Buildout' value; however, the usual cautions about extrapolation apply. Additional model runs should typically be completed whenever land use or transportation changes are expected to cause significant shifts in travel patterns.

**Forecasting**

The model output data contains the total volume on every roadway seg-

District	Single Family Dwelling Units (du)		Multi Family Dwelling Units (du)		Retail (s.f.)		Office (s.f.)		Industrial (s.f.)		Employment (s.f.)		School (students)		Calculated VMT by District		
	Buildout	Assumed	Buildout	Assumed	Buildout	Assumed	Buildout	Assumed	Buildout	Assumed	Buildout	Assumed	Buildout	Assumed	Buildout	Assumed Development	% of Traffic Assumed
1	288	144	430	215	191,600	0	0	0	0	0	0	0	0	0	3866.87	1393.70	36.0%
2	534	267	0	0	0	0	0	0	0	0	0	0	0	0	2696.70	1348.35	50.0%
3	0	0	0	0	0	0	0	0	0	0	0	0	3,750	0	833.39	0.00	0.0%
4	149	0	0	0	304,850	0	0	0	0	0	0	0	0	0	2469.97	0.00	0.0%
5	1,080	0	276	0	0	0	0	0	0	0	0	0	750	0	6309.60	0.00	0.0%
6	477	0	0	0	0	0	0	0	0	0	0	0	0	0	2408.85	0.00	0.0%
7	0	0	391	0	0	0	731,800	0	0	0	0	0	0	0	5453.61	0.00	0.0%
8	305	0	225	0	0	0	0	0	0	0	0	0	0	0	2237.75	0.00	0.0%
9	253	0	292	0	0	0	0	0	0	0	0	0	0	0	2182.85	0.00	0.0%
10	516	0	453	0	0	0	0	0	0	0	0	0	750	0	4010.10	0.00	0.0%
11	557	0	0	0	0	0	0	0	0	0	0	0	750	0	2812.85	0.00	0.0%
12	100	0	438	0	767,850	0	0	0	0	0	0	0	0	0	6188.87	0.00	0.0%
<b>Total</b>	<b>4,259</b>	<b>411</b>	<b>2,305</b>	<b>215</b>	<b>1,264,300</b>	<b>0</b>	<b>731,800</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,000</b>	<b>0</b>	<b>41471.42</b>	<b>2742.05</b>	<b>6.6%</b>
1	75	0	427	0	170,000	0	0	0	0	0	0	0	0	0	2660.23	0.00	0.0%
2	240	0	0	0	30,000	0	180,000	0	0	0	0	0	0	0	2424.30	0.00	0.0%
3	365	0	0	0	0	0	0	0	0	0	0	0	750	0	1843.25	0.00	0.0%
4	521	0	0	0	0	0	0	0	0	0	0	0	0	0	2631.05	0.00	0.0%
5	230	0	187	0	120,000	0	0	0	0	0	0	0	0	0	2417.28	0.00	0.0%
6	210	0	240	0	0	0	0	0	0	0	0	0	0	0	1804.50	0.00	0.0%
7	255	0	405	0	60,000	0	0	0	0	0	0	0	750	0	2881.29	0.00	0.0%
8	324	0	369	0	0	0	0	0	0	0	0	0	0	0	2780.10	0.00	0.0%
<b>Total</b>	<b>2,220</b>	<b>0</b>	<b>1,628</b>	<b>0</b>	<b>380,000</b>	<b>0</b>	<b>180,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,500</b>	<b>0</b>	<b>19442.00</b>	<b>0.00</b>	<b>0.0%</b>

Figure 3-2: Spreadsheet Control Panel Tab

ment and turning movement attributable to every district at buildout. To estimate the growth increment at a development level less than buildout, the spreadsheet multiplies the growth at buildout by the ratio of development VMT to buildout VMT (i.e. the percentage in the red cell in Figure 3-2). The County has adopted VMT generation rates for different land use types (i.e. trip generation rate multiplied by average trip length) for the Sacramento County Transportation Development Fee Program (SCTDF). The total VMT generated by the development assumption and at buildout are calculated using these rates. For example, if a district contains only single family dwelling units, then 50% of the units built would result in 50% of the VMT generated. But if a district contains multiple land use types, a smaller percentage of a higher-intensity land use type will cause a higher percentage of the district's VMT to be generated. The estimated growth is then added to an existing count to produce roadway segment and intersection turning movement forecasts.

**Traffic Analysis**

For roadway segments, the County uses a methodology based on service volume thresholds. If the project-added traffic causes the segment to exceed an acceptable operating threshold (typically level of service E), or causes a deficient segment to increase by more than .05 V/C, the roadway segment will be flagged as an impact requiring mitigation (see Figure 3-3). For intersections, the County uses methodologies consistent with the Highway Capacity Manual (HCM). The

spreadsheet calculates turning movement forecasts and formats a .CSV file that can be directly imported into intersection analysis software. If the project-added traffic causes the intersection to exceed an acceptable operating threshold, or causes a deficient intersection to increase in average control delay by more than 5 seconds, mitigation will be required.

**4. Assigning Improvements**

After the needed improvements are identified, the last step in the adopted strategy<sup>4</sup> is checking that the cost is roughly equal to the development's financial obligation:

$$\text{Financial Obligation} = \text{Number of DUEs in development} \times \text{transportation fee rate per DUE in fee program}$$

This is to ensure that the financial burden on the individual developer is proportionate to the size of the development. If the tool assigns an improvement costing less than the developer's financial obligation, the County will collect the difference and build a surplus. If the assigned improvement is greater than the developer's financial obligation, surplus funds will be provided to cover the cost of the improvement in

<sup>4</sup> <http://www.agenetnet.saccounty.net/sirepub/cache/2/wxn0dd0ebpjjai2xe5dz-pix3/899746503172020042912509.PDF>

excess.

For example, a developer comes in with residential units, retail, and office space totaling 400 DUEs. Each DUE must pay \$14,000 in plan area roadway fees in order to satisfy their financial obligation. So, we calculate 400 DUEs X \$14,000 = \$5.6 million. The tool identifies mitigation needs totaling \$4.0 million, which are assigned to the developer. The developer is required to begin to construct and complete their improvements at specified stages of their development. A surplus of \$1.6 million is deposited into the County's roadway fee account, which may be given to the next small development that trips a large improvement.

**5. Limitations**

**Double Counting of Trips between Project Districts**

In the select zone calculation, any project district generating or attracting a trip was allocated both trip ends. Typically for fair share calculations, both trip ends are only allocated to the project if one end is external to the project; if a trip goes between two project zones, one trip end is usually allocated to each zone. The methodology used may thus result in double counting of trips between two project districts. This was a necessary assumption for phasing analysis, as the actual sequence of development is unknown.

Roadway Segment Levels of Service																
Number	Roadway	Segment		LOS Policy Criteria	Travel Lanes	Facility Type <sup>2</sup>	Existing				Lanes from Scenario:				Level of Service	
		From	To				Daily Capacity	Daily Volume	Volume / Capacity Ratio	Level of Service	Travel Lanes	Facility Type <sup>2</sup>	Daily Capacity	Forecasted Volume		Volume / Capacity Ratio
1	Bradshaw Road	Folsom Boulevard	US 50	D	6	Arterial M	54,000	20,592	0.38	A	6	Arterial M	54,000	21,180	0.39	A
2	Bradshaw Road	US 50	Lincoln Village Dr	D	6	Arterial M	54,000	52,590	0.97	E	6	Arterial M	54,000	54,564	1.01	F
3	Bradshaw Road	Lincoln Village Dr	Old Placerville Road	D	6	Arterial M	54,000	42,787	0.79	C	6	Arterial M	54,000	45,227	0.84	D
4	Bradshaw Road	Old Placerville Road	Goethe Rd	E	6	Arterial M	54,000	38,984	0.72	C	6	Arterial M	54,000	42,006	0.78	C
5	Bradshaw Road	Goethe Rd	Kiefer Boulevard	E	4	Arterial M	36,000	28,651	0.80	C	4	Arterial M	36,000	32,798	0.91	E
6	Bradshaw Road	Collector WJ-8	Collector WJ-8	E	4	Arterial M	36,000	28,651	0.80	C	4	Arterial M	36,000	32,103	0.89	D
7	Bradshaw Road	Collector WJ-8	Kiefer Boulevard	E	4	Arterial M	36,000	28,651	0.80	C	4	Arterial M	36,000	32,798	0.91	E
8	Bradshaw Road	Kiefer Boulevard	Jackson Road	E	4	Arterial M	36,000	30,726	0.85	D	4	Arterial M	36,000	37,954	1.05	F
9	Bradshaw Road	Kiefer Boulevard	Collector WJ-9	E	4	Arterial M	36,000	30,726	0.85	D	4	Arterial M	36,000	37,975	1.05	F
10	Bradshaw Road	Collector WJ-9	Mayhew Road	E	4	Arterial M	36,000	30,726	0.85	D	4	Arterial M	36,000	38,046	1.06	F
11	Bradshaw Road	Mayhew Road	Jackson Road	E	4	Arterial M	36,000	30,726	0.85	D	4	Arterial M	36,000	38,048	1.06	F
12	Bradshaw Road	Jackson Road	Elder Creek Road	E	4	Arterial M	36,000	22,871	0.64	B	4	Arterial M	36,000	22,962	0.64	B
13	Bradshaw Road	Jackson Road	Rock Creek Parkway	E	4	Arterial M	36,000	22,871	0.64	B	4	Arterial M	36,000	22,938	0.64	B
14	Bradshaw Road	Rock Creek Parkway	Collector WJ-10	E	4	Arterial M	36,000	22,871	0.64	B	4	Arterial M	36,000	22,944	0.64	B
15	Bradshaw Road	Collector WJ-10	Collector WJ-11	E	4	Arterial M	36,000	22,871	0.64	B	4	Arterial M	36,000	22,944	0.64	B
16	Bradshaw Road	Collector WJ-11	Elder Creek Road	E	4	Arterial M	36,000	22,871	0.64	B	4	Arterial M	36,000	22,962	0.64	B

Update lanes as mitigations are assigned

Impacts Identified; Mitigations should be implemented as identified in TIS

Figure 3-3: Roadway Segment Analysis Results

Consider a trip that occurs between a residential unit in district 3 and retail in district 7 at project build-out. If district 3 develops before district 7, those residents would still generate shopping trips that would have to be satisfied elsewhere in the network. Thus, it is necessary to assign both trip ends to that district to avoid underestimating roadway usage before district 7 develops. A schematic representation of the select zone assignment is shown in Figure 5-1.

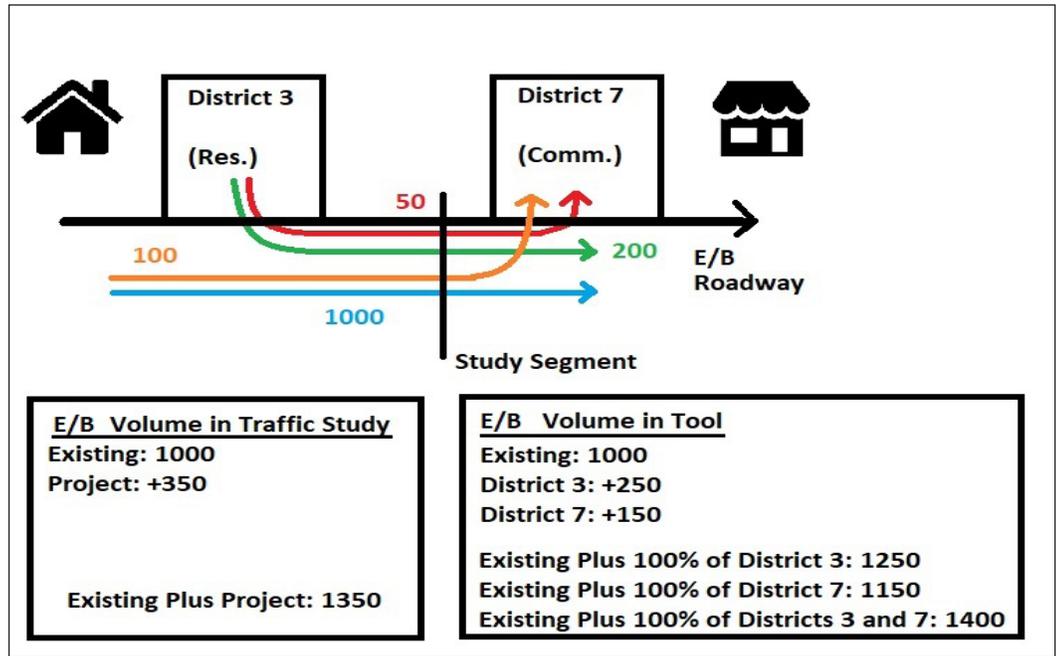


Figure 5-1: Representation of Double Counting Effect in Select Zone Assignment

It should be remembered that impacts are based on traffic forecasts which assume full buildout of the project. The tool is simply a select zone assignment used to determine when previously-identified mitigations are needed. A double count only occurs when (1) trips go between two project districts; and (2) the tool assumes development in both of those districts. Even then, while it is possible that mitigation may be built slightly sooner than needed, the project would not be responsible for any impacts that were not identified in the original traffic impact study.

**Shelf Life**

The tool produces forecasts based on traffic counts consistent with the baseline of the model. Over time, background growth will fill in excess capacity of roadways and intersections. As growth occurs in multiple districts of the project, the double counting effect may also go from being negligible to perceptible in the results. Thus, it is anticipated that the tool may have a “shelf life” of 5± years, at which point it will need to be refreshed. Resetting the baseline would involve collecting new traffic counts and updating the model to ensure that the “Existing No Project” scenario includes growth to date in the project and periphery.

**Trip Distribution**

The aggregation of TAZs to districts

creates a traffic shed that is inherently assumed to have the same trip distribution. In reality, individual components (especially different land use types, e.g. residential and retail) would have different distributions. However, this granularity cannot be achieved without an unreasonably large number of TAZs or re-running the model as each development increment comes in. These run contrary to the goal of the tool, which is to provide simplified, “good enough” information for phasing analysis.

**Trips between Adjacent Projects**

The tool tracks trips for four ongoing, adjacent development projects: the West Jackson Highway Master Plan, the Jackson Township Specific Plan, the NewBridge Specific Plan, and the Mather South Community Master Plan. Each plan area has a separate traffic impact study and separate “Existing Plus Project” analysis excluding the other plan areas. While all four plan areas were assumed in the cumulative analyses, no trips are assumed to occur between plan areas in the “Existing Plus Project” scenarios used in the tool. This assumption was intentional, as large employment and retail centers in the West Jackson Highway Master Plan would skew the trip distribution from

the adjacent, more residential-focused projects. In reality, retail and office typically lag residential development, so most of these trips will head north to existing centers in Rancho Cordova in the early stages of development. Over time, the tool will be updated to reset the baseline, and growth to date in other plan areas will be incorporated.

**6. Transferability, Outreach, and Final Thoughts**

While the strategy described in this document was developed using the Sacramento region’s SACSIM travel demand model, the concept can be applied to any travel demand model capable of select zone analysis. The spreadsheet tool is simply an interface containing model assumptions and outputs, and allowing users to make interpolations based on an assumed relationship between the two.

The County first tested a variety of scenarios to check that mitigation results were logical, and all previously identified impacts would be triggered at 100% development. After feeling comfortable with the results, the County reached out to the development community to explain the strategy and

conduct a live demonstration. While the audience was primarily non-technical, they understood the concept at a high level and become familiar with how the process worked. The feedback received was positive, as they appreciated the benefits of being able to quickly and cheaply test different phasing scenarios and effects on their cash flow. With the support of the development community, the tool-based mitigation strategy was presented to the Board of Supervisors and formally adopted.

The strategy has not yet been applied on a project, as three of the four plan areas have not yet been approved by the Board of Supervisors. However, the benefits are anticipated to be (1) additional control to ensure that improvements are built when and where they are needed; and (2) flexibility to ensure that our customers do not face unreasonable barriers to development. The County does anticipate this strategy requiring more resources than traditional approaches. Staff will need to serve as a “gatekeeper” for the tool to track all development applications to date and the mitigation assigned to each applicant.

## *Thank You for Attending the 2020 Joint Western and Mountain District Annual Meeting!*

*by Cathy Leong, 2020 LAC Chair*

The 2020 Joint Western & Mountain Districts Annual Meeting was a great success thanks to our sponsors, exhibitors, speakers, volunteers, and attendees. We had over 600 registered attendees with most of our sessions attended by over 200 people. In conjunction with our diverse technical sessions, we pioneered new virtual events like our Exhibit, student sessions, and Student Traffic Bowl. The 2020 Technical Compendium is already available at <https://westernite.org/annual-meetings/technical-compedia/2020-honolulu-technical-compedium/>. We hope that you enjoyed the meeting and hope that you will visit Hawaii in the future to enjoy everything else we had hoped to share with you. Until then, A Hui Hou (until we meet again) and ‘O kākou ka ‘oi (together we are the best)!

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Plan early to attend next year's ITE International Meeting in Portland, OR which will be joint with the Western & Mountain Districts. The meeting will be held at the brand new Hyatt Regency Portland and the Oregon Convention Center. We have several Western District events also being planned during the conference including a Family Night event on Monday, July 19th. Stay tuned for more information about the meeting!

## Committee Updates

### *District Local Arrangements Committee (LAC)*

*By Cathy Leong, PE Committee Chair*

The District LAC Committee also continues to assist the local LACs for the 2021 Portland, 2022 Palm Springs, 2023 Fresno, and 2024 Sacramento meetings. The Annual Meeting website has already been updated to include available information for the 2021 meeting. In addition, we have been assisting the Portland meeting with coordination and District-only events, and transitioned advance planning for the Palm Springs meeting to its local committee. Finally, in the coming months, we will be working with Conference Direct on hotel contracts for the Fresno and Sacramento meetings.

### *Public Relations Committee*

*By Paul Stanis, Committee Chair*

The Western District Lifetime Achievement Award is considered the District's highest recognition of professional accomplishment and outstanding services in the interest of Western District. It is designed to honor members of Western District who, as active or retired members in good standing of Western District, have accomplished significant achievements over a period of not less than 20 years that have benefited the membership of Western District, ITE as an organization, and the profession of transportation engineering and/or planning. This year, two winners were selected. The 2020 ITE Western District Lifetime Achievement Award winners were presented to **Ken Ackeret** and **John Fisher** at the Virtual Annual Meeting.

### *Student Funding & Initiatives Committee (SFIC)*

*By Kimberly Leung, PE, TE, Committee Chair*

Earlier this summer, the joint Western and Mountain Districts Annual Meeting was held as a virtual event due to the ongoing COVID-19 pandemic. Even though we were not able to be in Hawaii together, the Annual Meeting still attracted over 90 students! The SFIC adapted the Kell Competition, Student Traffic Bowl, Student/Leadership Forum, Career Guidance Q&A, and resume reviews to a new virtual format for our students. Read more about the Annual Meeting in the July/August Endowment Fund spotlight: [westernite.org/student-endowment-fund-julyaugust2020/](http://westernite.org/student-endowment-fund-julyaugust2020/)

Student Traffic Bowl: The top three teams at the Student Traffic Bowl were: 1st **Oregon State University**, 2nd (tie) **Cal Poly San Luis Obispo** and **UCLA**. Oregon State University received the District's traveling trophy and \$500 and will participate in the virtual Collegiate Traffic Bowl Grand Championship in late October.

The James H. Kell Student Competition gives students an opportunity to apply transportation engineering classroom knowledge to a specific "real-world" problem. The winners of the competition were: 1st Brigham Young University, 2nd Brigham Young University, 3rd (tie) Can Poly San Luis Obispo and Oregon Tech. The Brigham Young University teams received \$500 and \$300, and Cal Poly San Luis Obispo and Oregon Tech each received \$300 from the Western District.

# MiteY Race Recap

Thank you to all the teams that participated in the Virtual MiteY Race during the 2020 Western & Mountain Districts Annual Meeting! We kicked off the meeting on Saturday with a virtual version of our annual race. The top family & friends teams were:

- 1st Place: MiteY Minions (Mark & Alex Spencer)
- 2nd Place (tied): E-Squared (Victoria & Lisa Edington)
- 2nd Place (tied): All We Do is Nguyen (Lisa & Ricky Nguyen)

The top student teams were:

- 1st Place: The SLOcals (Cal Poly SLO)
- 2nd Place: The Winners (hopefully) (Cal Poly SLO)
- 3rd Place: Solteras (Cal State Fullerton)

Congratulations to all of our teams of completing the race and we look forward to seeing you in Portland, OR next year where you will see how everything will be “Coming Up Roses.”



## Section and Chapter Updates

### Alaska Section

*by Tony Liang, Secretary-Treasurer*

ITE Alaska section is staying strong through a tumultuous year. What is not cancelled this year, however, is the scholarship program: applications for ITE Alaska Section student scholarship are soon to be open.

The chapter resumed monthly meetings through Webex virtual meeting room in September; it's the first time that the current board attempted to host a virtual meeting and the outcome exceeded expectations both in the quality and attendance, sixty people tuned in to watch **Derek Christianson** present on Progressive Design Build system, an innovative method to carry out capital projects. The same success was displayed at the October meeting when **Trevor Strait** presented a case study on corridor health, assessing critical assets in the state. The chapter's strong attendance at the virtual meetings reinforces our confidence in the chapter moving forward during times of uncertainty.

### Hawaii Section

*by Jasmine Teramae-Kaehuaea, Secretary-Treasurer*

We held our first virtual section meeting on September 23, 2020. We had **Kimberly Leung** present on “San Francisco’s Slow Streets Program”. She discussed the quick development of the program in response to COVID-19 including challenges and lessons learned.

We hosted a Virtual Resume Review Workshop in September to help University of Hawaii at Manoa’s Civil & Environmental Engineering students prepare for the College of Engineering Career Faire this fall. Our next virtual section meeting will be held on October 21, 2020. **Randy McCourt** will join us to discuss completing traffic counts and studies during a pandemic.

## Oregon Section

by Molly McCormack, Scribe

The Oregon Section selected Oregon State University graduate student **Cadell Chand** for the 2020 Bill Kloos Scholarship. Cadell won with a “choose your own adventure” video submission called “LTS: The Future of Bicycle Network Planning”. Viewers learned about LTS while stepping through the childhood of Benny the Beaver in Corvallis, Oregon: <https://www.youtube.com/watch?v=TUQ1OyoSgqw&feature=youtu.be>.

In 2020, the Oregon Section has put on a series of webinar lunch presentations in lieu of our normal luncheon meetings. Webinars were held in May, June, July, and September so far this year.

In addition to technical presentations, the Oregon Section held a (Virtual) Happy Hour in May where participants were split into several “rooms” to mingle and chat from home. The Oregon Section has several upcoming “social social-distancing” events on the horizon including:

- Meet Your Board biweekly conversation series
- 29th Annual Bill Kloos Traffic Bowl: retooled this year as a trivia-style event for both students and professionals

## San Diego Section

by Mohammad Amin

Events held so far this year include:

- April 16: SB743 and San Diego Regional Guidelines
- May 14 & 20: Joint RSBITE/San Diego webinars
- June 4: San Diego regional COVID-19 economic impact
- July 16: HCM’s Freeway Facilities Methodology
- August 14: Virtual Happy Hour
- September 10: Effective TDM Program Workshop

## Southern California Section

By Dina Saleh, Section Vice President

The ITE Southern California Section swore in its new Board Officers for the 2020-2021 year and awarded its Classic Transportation Engineer Award to Walter Okitsu and Indi-

vidual Excellence Award to David Schwegel in June 2020. In addition, the SoCal section hosted its Annual Student Night presentations in partnership with the Orange County Traffic Engineering Council (OCTEC) virtually in June 2020. Approximately \$14,000 was awarded to six local university student chapters, split evenly as all universities were faced with challenging times during the pandemic and quickly shifted their approach.

The SoCal section has shifted all meetings and activities to virtual platforms for the foreseeable future. This has helped us gain new attendees who would not have been able to attend meetings due to location challenges. In September 2020 the

SoCal section hosted a virtual meeting titled “Local Deployments of Adaptive Traffic Control Systems” with presentations from local agencies. Although attendance was free for this virtual meeting, the SoCal section successfully encouraged donations for the student chapters. The SoCal section looks forward to having another fun and successful year, either in-person or virtually!

### Save the Date for the Cal Poly SLO Student Leadership Summit

Welcome! Cal Poly SLO ITE is excited to announce the first ever virtual Student Leadership Summit. We’re bringing it back to where it all began but now in a virtual environment. Even though we are planning it virtual, we still are trying to maintain a typical SLS schedule of Friday afternoon to Sunday morning. SLS 2021 will be held from January 29th to January 31st so be sure to save the date! Here is the link to the website: <https://sls2021cpslo.weebly.com/>

## Washington Section

By Darcy Akers, Secretary

In February, we held our last in-person event: a student-industry night at Gonzaga University. The event provided a great opportunity for students to learn about potential careers in the transportation field – from planning to engineering and everything in between.

In May, but we held our first virtual meeting with a presentation about the safe systems approach to Vision Zero. We continued to support our student chapters by offering three scholarships this year. The recipients were graduate students **Mehrzad Mehrabipour** (Washington State University) and **Mayuree Binjolkar** (University of Washington), as well as undergraduate student **Madelyn Cayton** (Gonzaga University).

June, we held the section’s annual meeting virtually, hosted a physically distanced golf classic (which has been an annual tradition for 32 years), and had a virtual technical program.

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