LTC
Leonard Transportation Center
CAL STATE SAN BERNARDINO

Leonard Transportation Center

California State University, San Bernardino

ANNUAL REPORT 2022

www.CSUSB.EDU/LTC

1.   A Note from the Executive Director

The LTC team is delighted to present our 2022 annual report, spotlighting another year of concerted efforts in research and community engagement. As the world continued to adapt to the lingering impact of the Covid-19 pandemic, we embraced the return to in-person operations with renewed vigor. This shift facilitated not just a return to conventional work dynamics, but also invigorated our collaborative spirit and creativity. The tangible benefits of on-site interactions and impromptu dialogue have proven invaluable, propelling our research projects to unparalleled levels of innovation.

In 2022, our focus pivoted towards actionable, high-impact research that deeply engaged the Inland Empire community, the transportation sector, and diverse stakeholders. Our objective remained a robust analysis of the region's transportation challenges, but with an intensified emphasis on environmental sustainability and social equity. Since the revelations that the COVID-19 pandemic shared regarding the deep inequalities in society, the urgency for enhanced mobility solutions for marginalized communities has never been more apparent.

Thanks to generous community backing, our alliances with local, regional, and state transportation authorities have matured, enabling effective multidisciplinary collaborations. These partnerships have been pivotal in uniting governmental organizations, commercial entities, and nonprofit groups around a common vision. We recognized that delivering quality research, robust data analytics, and relevant publications are integral to tackling the intricate policy dilemmas of our times. While there remains a notable lack of publicly accessible studies on the IE's transportation issues, we are committed to facilitating broader conversations about the region's prospects.

To fill this knowledge void, LTC took the initiative to convene experts from a wide range of fields, aiming to cultivate an environment of shared learning and collaboration. Our mission was to produce thorough research capable of addressing the current and forthcoming challenges generated by the evolving economy closely connected to the transportation industry. As a committed regional community development ally, CSUSB continues to prioritize delivering the most beneficial results for the residents of the Inland Empire.

We thank you for your continued support and look forward to another year of impactful work.

Dr. Kimberly Collins
Executive Director, Leonard Transportation Center, CSUSB
December 2021

1   Overview of 2022 Activities

In the past year, the focus of our strategic initiatives has been geared towards addressing pressing challenges and catalyzing positive changes in the transportation sector. At the heart of our research efforts was the Second LTC Student Research Challenge, which mobilized talents from esteemed institutions like CSUSB, CPP, and UCR. In collaboration with the Riverside Transit Agency, Foothill Transit, and San Bernardino's Omnitrans, the challenge tackled the complexities of transit equity during the COVID-19 pandemic and the optimization of bus on-time performance through predictive analytics. The research projects did not only culminate in academic papers and conferences but also provided valuable data-driven insights for transit agencies and policymakers.

Beyond research, our educational and workforce development programs aimed to impact the next generation of professionals and leaders. The Second Annual "What Are Your Plans?" event served as a dynamic platform to enhance college readiness among high school students interested in supply chain, logistics, and business courses. The event attracted 122 students from Cajon and Arroyo Valley High Schools, along with 25 vendors, setting the stage for academic and career planning. Live-streamed for wider accessibility, the event offered resume workshops, campus tours, and key industry insights, all while providing much-needed in-person interaction after years of virtual learning.

The LTC's commitment to community engagement and development was manifested in the Regional Mobility Dialogue Series, which successfully conducted 27 Dialogues focused on pertinent mobility issues in the Inland Empire. With the continuing of the COVID-19 pandemic, the Dialogues continued successfully in the virtual format, witnessing higher attendance rates and participation from national experts. Community outreach further extended into collaborative ventures with public and private sector stakeholders, as showcased in a presentation to Amazon aimed at creating a more equitable transportation system in the Inland Empire. Across all these endeavors, we remained steadfast in our mission: *Leonard Transportation Center (LTC) believes that the region's transportation system is at a critical point where innovative transportation solutions need to be implemented to improve the Inland Empire (IE) residents' quality of life.*

2   2022 Strategic Initiatives

2.1   Research

2.1.1   The Second LTC Student Research Challenge

The Second Student Research Challenge revolved around the topic of "How to improve the Inland Empire's transit system using Big Data and Policy solutions." This research initiative was supported by the region's transit agencies - Riverside Transit Agency (RTA), Foothill Transit, and San Bernardino's Omnitrans. A total of six students were chosen from regional institutions, CSUSB, CPP, and UCR, to participate in this program. This research program commenced in the

summer of 2021 and concluded in the spring of 2022. The students worked on two areas of study:

Topic 1: Shifts in Public Transit Equity During the COVID-19 pandemic: A Case Study at Riverside, California

Equitable access for all community members is a crucial aspect of an efficient public transportation system. By incorporating equity into transportation networks, ridership and coverage can be enhanced. The issue of social equity in transportation is exacerbated by the historical reliance on automobiles in cities and the COVID-19 pandemic restrictions. This study aims to quantify transit equity using a modified version of the Gini Index. The findings are then applied to different time periods of a transit system during the pandemic, examining its impact on social equity in public transportation through a case study in Riverside, California. Geographic Information Systems (GIS) software is utilized to overlay heat maps on the transit network's lines and stops, visualizing the variables associated with transit equity calculations. The publicly available General Transit Feed Specification (GTFS) data is employed to depict the state of the transit network at various time points. The results indicate that the route modifications implemented during the COVID-19 pandemic had a noticeable but minimal effect on social equity in transportation.

A Conference paper was published on the topic - Shifts in Public Transit Equity during the COVID-19 Pandemic: A Case Study in Riverside, California at the American Society of Civil Engineering (ASCE) involving Preston Reed; Holly Chea; Sheng Tan; Raffi Der Wartanian, Ph.D.; Yongping Zhang, Ph.D. Yunfei Hou, Ph.D.; and Kimberly Collins, Ph.D.

Topic 2: Towards Predicting Bus On-Time Performance in the Inland Empire

Over the past few years, public transportation users have developed higher expectations for the intelligence of transit systems, requiring them to keep up with modern technology. A vital component of this advancement involves the accurate prediction and scheduling of bus arrival times. This research explores various regression algorithms, including Support Vector Regression and Linear Regression, while also evaluating different loss functions and regularization terms to address the challenge of predicting bus arrival times. A specific case study centered around Route 280 of the Foothill Transit Agency was conducted, revealing that the most precise predictions were achieved using Huber Regression with an Elastic Net penalty. In recent times, individuals relying on public transportation have grown to anticipate the progress of transit systems' intelligence, aiming to stay in line with contemporary technology. An essential aspect of this advancement is the ability to predict and schedule bus arrival times accurately. This study investigates different regression algorithms, such as Support Vector Regression and Linear Regression, and also assesses various loss functions and regularization terms to tackle the challenge of predicting bus arrival times. A specific case study is conducted on Route 280 of the Foothill Transit Agency, and the results demonstrate that the most accurate predictions are achieved using Huber Regression with an Elastic Net penalty.

Dr. Yunfei Hou (CSUSB, Computer Science), Dr. Mariam Salloum (UCR, Computer Science), Dr. Yongping Zhang (CPP, Civil Engineering), and Dr. Kimberly Collins (CSUSB, LTC) served

as their advisors. Special thank you note to Doran J. Barnes and Josh Landis from Foothill Transit; Erin Rogers and Jeremiah P. Bryant from Omnitrans; and Kristin Warsinski from RTA for their support of the project and for taking the time to work with the student researchers.

2.1.2 *Stanislav Kraft's Talk on Spatial aspects of motorcycle safety: Identifying accident hotspots and assessing the risk of road sections for motorcycle transportation.*

Motorcycle transportation is a popular mode of transportation worldwide. Dr. Stanislav Kraft's lecture talk, sponsored by the LTC on October 20, 2022, focused on the broad issue of motorcycle traffic safety. First, general aspects of motorcycle traffic safety were discussed, including risk factors that affected motorcyclist accidents. By employing both basic and advanced spatial-statistical methods, hotspots of motorcycle accidents were identified in Czech Republic, along with their underlying factors. Additionally, a synthetic risk assessment of individual road network sections in terms of motorcycle safety was examined. The entire topic had clear application potential and societal relevance.
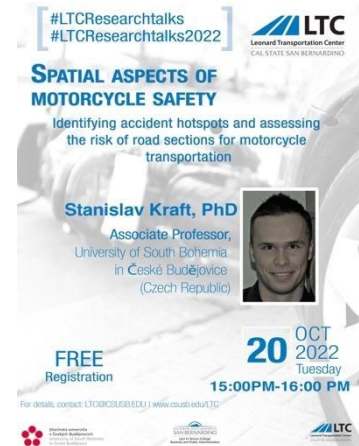
2.1.3 *Traffic Congestion Analysis*

Working to build on a Western Riverside Council of Governments (WRCOG) study on traffic flow in the region, our diverse research team set out to tackle the growing issue of traffic congestion in Rialto, California. Leveraging an extensive data set from StreetLight Data that consisted of over 4.4 million data points, we focused on analyzing different types of trips originating from Rialto. These included trips within the city itself, to other parts of San Bernardino County, and to neighboring counties such as Los Angeles, Riverside, and Orange. Advanced tools like ArcGIS, Python, and Microsoft Excel were essential in dissecting this data and uncovering the travel patterns and congestion points in and around Rialto.

Students Team Members
- Eugene Baldondo, BA in Economics at UCR
- Eiko Fukushima, MS in Mathematics at CSUSB
- Vishal Menon, BS in Computer Science Science at UCR
- Sonal Shinde, MS in Information Systems and
  Technology at CSUSB

- Spencer Tong, BS in Computer Science at UCR

Faculty/Industry Partners
- Dr. Yunfei Hou; Professor at CSUSB
- Dr. Raffi Der Wartanian, Research Fellow at the LTC, CSUSB
- Sean Reseigh, Transportation Planner at Fehr & Peers
- Christopher Tzeng, Program Manager at WRCOG

The analysis yielded several key insights. Almost 90% of all trips were contained within San Bernardino County, highlighting the importance of county-level planning. More specifically, most trips—44.27%—were within Rialto, while the second most common destination was Fontana at 14.12%. Another noteworthy finding was that most of the trips served daily needs such as grocery shopping or banking rather than work commutes. These insights underscore the need to focus not just on long-distance travel corridors, but also on local transportation networks to facilitate daily activities effectively.

The study's findings have significant policy implications for both local and county-level governance. For Rialto, the high percentage of local trips calls for improvements in the city's transportation infrastructure, possibly exploring more efficient public transport systems or better road planning. Given the significant travel to neighboring Fontana, collaboration between the two cities for improved connectivity could be beneficial. Lastly, with such a large percentage of travel occurring within San Bernardino County, there is a clear need for district legislators to focus on building more effective and sustainable transportation networks within the county. This study serves as a valuable foundation for future data-driven urban planning, setting the stage for targeted interventions that could markedly improve the quality of life in Rialto and its neighboring regions.

2.1.4   *New Eco-Social World Leaving No One Behind*

UNRISD Global People's Summit June 29, 2022 - July 2, 2022, provided a platform for participation, expression, and sharing of ideas towards a 'New Eco-Social World: that Leaves No One Behind'. The LTC presented its work on mapping and measuring social equity in the southern California transportation sector. This is a key issue for 21st century governance,
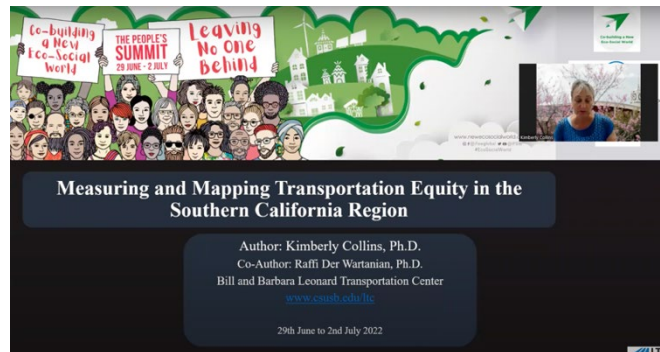

particularly in the transportation sector. The development of communities has been highly impacted by transportation infrastructure investments in the past and present. In many cases, it left a legacy of inequities that need to be identified and understood in today's terms to create a more equitable future. This can be seen particularly in a Southern California region known as the Inland Empire (IE). Seen by many as just an extension of the greater Los Angeles basin, the IE has its own history and needs touched by outside investments and decisions mixed with local responses. This study aimed to quantify transportation equity. It developed a model measuring equity and included the following indicators: transportation infrastructure; investments in transportation; mobility considerations; accessibility for residents; traffic-related pollution; traffic safety; and health impacts. These data were analyzed using correlation and regression techniques to measure the significance and coefficients of the relationship between the model variables. ArcGIS is used to map the indicators thereby providing visual analysis of

transportation equity throughout in the region. This work has implications for the Inland Empire and is a milestone in measuring transportation equity within regions, states, and nations.

2.1.5   *LTC Transportation Research Policy Briefs: Transportation, Sustainability, and Equity Scorecards in the Inland Empire*

A policy brief was developed to further discuss the work of the first student research challenge. This student group created a number of scorecards that evaluated mobility, sustainability, and equity across local governments in the Inland Empire. While some cities like Rancho Cucamonga and Riverside showed strengths, the overall data indicates significant room for improvement, especially in mobility safety and equity. These findings are not just assessments; they are a call to action. Our aim is to use this data to guide local governments in creating more equitable and sustainable transportation systems, fulfilling the long-standing vision set forth by William E. Leonard. As we

move forward, we remain committed to providing actionable research to improve the quality of life in the Inland Empire.
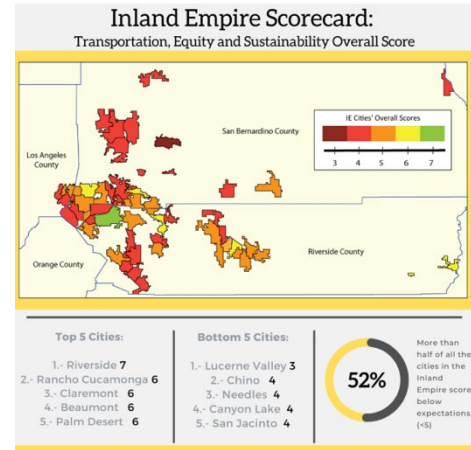
2.2   Education and Workforce Development

The Second Annual "What Are Your Plans?" Event

On March 10, 2022, the LTC in partnership with regional schools and businesses hosted The Second Annual "What Are Your Plans?" event. The event was organized to maximize the impact on student's academic and career plans. A total of 122 high school students – 60 students from Cajon High School and 62 students from Arroyo Valley – were in attendance and were led by their respective teachers and chaperones. Additionally, there were 25 vendors who tabled at the resource fair, including Stater Bros. Markets, Inland Empire Economic Partnership (IEEP), Old Dominion Freight Line, Inc., various college departments and support centers, local community colleges and others.

The purpose of The Second Annual "What Are your Plans?" event was to promote college readiness and college awareness to high school students in the pathways at Cajon High School and Arroyo Valley High School who are studying supply chain, logistics and business courses. Many high school students are unsure of what their plans are after graduation, hence, the name of the event, "What Are Your Plans?" Additionally, this event aimed to keep students engaged and their interest piqued as this was their first in-person event after two years of "Zoom fatigued." For those who could not attend in person, the San Bernardino County Superintendent of Schools Alliance for Education live-streamed the event.

The event featured two major speakers from industry and academia. In addition, the high school students had the opportunity to participate in a resume workshop and a campus tour, which included learning about the newly constructed San Manuel Student Union North.

2.3 Community Outreach and Development

2.3.1 Regional Mobility Dialogue Series (RMDS)

Over the past three years, the LTC has successfully hosted 27 Regional Mobility Dialogues (RMDS) to address mobility concerns in the Inland Empire. The Dialogues aim to bring together stakeholders from the public and private sectors, as well as community members, to improve mobility and promote economic growth for the region.

In response to the COVID-19 pandemic and stay-at-home orders in 2020, the Dialogues shifted to a virtual format using Zoom. This transition yielded positive outcomes, including higher attendance rates, the participation of renowned speakers and experts from across the nation, and an overall improvement in the series' quality. Despite the change, the main focus remained on facilitating meaningful discussions among attendees, centered around the topics presented by the invited experts.

The table below provides an overview of the covered topics and participant numbers. These events, which took place on various dates, aimed to address relevant issues related to mobility in the Inland Empire.

Date	Dialogue Topic	Number of Participants
Feb 22, 2022	Workforce Development: Empowering the Inland Empire's Talent Pool	133
Apr 19, 2022	Optimizing Transportation Equity Through Big Data	92
Jun 28, 2022	Deciphering Last Mile Delivery: How Does It Work?	62
Aug 23, 2022	Hydrogen and Clean Air Technologies: Preparing for the Future	100
Oct 18, 2022	Aviation Advancements in the Inland Empire	71
Dec 13, 2022	Cyber Security: How Technology Affects the Way We Move	73
2022	**Total Participants**	**534**

The 2022 series was sponsored by:

Platinum Sponsors:

Gold Sponsors:

Silver Sponsors:

Hosted by:

2.3.2 San Bernardino County Superintendent of Schools and Alliance for Education

In this year's Annual Report, we are pleased to spotlight Dr. Kimberly Collins' Labor Day presentation, organized in collaboration with the San Bernardino County Superintendent of Schools and the Alliance for Education. Her talk focused on the critical role that transportation and logistics play in both our local and broader economies. According to data, the Transportation Industry has been instrumental in shaping the economic landscape of San Bernardino County, a region uniquely positioned at the crossroads of three airports, six interstate highways, and the nation's busiest rail corridors. This strategic location has made the area a prime market for logistics, warehousing, and distribution, serving a multitude of Fortune 500 companies.

2.3.3 Amazon Presentation: Creating a More Equitable Transportation System in the IE Through Research and Education

A presentation to Amazon about the LTC's commitment to enhancing the Inland Empire's transportation system at a critical time of need, and how the people-centric approach, focusing on community engagement and multi-stakeholder partnerships to drive sustainable and equitable solutions. An overview of the LTC's programming was provided along with the methodological approach using big data and policy to find solutions to the complex mobility issues in the Inland Empire.

2.3.4 Online Presence

2.3.4.1 Social Media

Platform	% Increase of Followers Gained in 2022
Instagram	59.5%
Facebook	50.4%
LinkedIn	21.1%

The LTC has continued to grow its web presence via social media platforms in the past year. In 2022, there has been steady growth on all platforms – LinkedIn, Facebook, Twitter, and Instagram. These mediums continue to serve as informational and educational sources for the community. These platforms not only serve as valuable sources of information but also provide regular updates and event invitations.

One notable event is the Inland Empire Regional Mobility Dialogue Series, where the LTC facilitates discussions on critical matters pertaining to transportation, mobility, equity, logistics, and the supply chain industry. Through its online presence, the LTC ensures that it remains at the forefront of these important conversations and actively involves its audience in shaping the future of these areas.

2.3.4.2 YouTube

The Regional Mobility Dialogues Series are further edited and uploaded on YouTube, along with the highlighted videos. These videos are accessible to the public, allowing anyone to watch them. The channel offers valuable insights on crucial subjects, featuring expert perspectives from various fields. Presented below are a few channel analytics:

Content	Views	Watch time (hours)	Subscribers	Impressions	Impressions click-through rate
Total	615	30.8	5	8,500	1.8%

2.3.4.3 Website

Students, members of the community, and executives from businesses can visit the LTC website as a further resource to learn more about our ongoing activities. The website has undergone several improvements and revisions over the past year with the goal of increasing user friendliness and content navigation.

Page	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit
LTC	9,890	7,893	1 min 35 sec	3,564	62.90%	36.79%

2.4   Activities and Outcomes

2.4.1   Publications

Conference Papers:

Reed, P., Chea, H., Tan, S., Der Wartanian, R., Zhang, Y., Hou, Y., & Collins, K. (2022). *Shifts in Public Transit Equity during the COVID-19 Pandemic: A Case Study in Riverside, California*. 122–133. https://doi.org/10.1061/9780784484371.012

Alexander, B., Hou, Y., Khan, B., & Jin, J. (2022). Learn Programming In Virtual Reality? A Case Study of Computer Science Students. *2022 IEEE Global Engineering Education Conference (EDUCON)*, 270–275. https://doi.org/10.1109/EDUCON52537.2022.9766621

Peer Reviewed Journal Articles:

Hou, Y., Ghasemkhani, A., Aldirawi, H., McIntyre, M., & Van Wart, M. (2022). Shifts in STEM Student Perceptions of Online Classes across 18 Months. *American Journal of Distance Education*, *0*(0), 1–19. https://doi.org/10.1080/08923647.2022.2121521

Medina, P., Vij, N., Ni, A., Zhang, J., Hou, Y., & McIntyre, M. M. (2022). The "Mainstreaming" of Online Teaching and Conflicted Faculty Perceptions. *International Journal of Adult Education and Technology (IJAET)*, *13*(2), 1–16. https://doi.org/10.4018/IJAET.313435

Book Reviews:

Collins, K. (2023). Defining the Challenges of Twenty-First-Century Governance through an Analysis of North America's Borders. *Contemporary Sociology*, *52*(1), 13–19. https://doi.org/10.1177/00943061221142073a

Book Chapter:

Hou, Y., Collins, K., Wart, M. V., (2022). Intersection Management, Cybersecurity, and Local Government: ITS Applications, Critical Issues, and Regulatory Schemes. In *Smart Mobility—Recent Advances, New Perspectives and Applications*. IntechOpen. https://doi.org/10.5772/intechopen.101815

2.4.2   LTC Committee Representation

Title	Representative
SCAQMD AB 617 Steering Committee for SB/Muscoy	LTC Staff
Regional Work Based Learning Oversight Committee	Kimberly Collins, LTC Staff
Business Engagement Alignment Team, One Future CV	Kimberly Collins, LTC Staff
Distribution Management Association (DMA) of Southern California	Kimberly Collins/Danny Chung
Inland Southern California Climate Collaborative	Kimberly Collins
IEGO Logistics Center of Excellence Core Team	Kimberly Collins
California/Baja California Border Master Transportation Plan - Visionaries Panel	Kimberly Collins
Association of Borderland Scholars, Board of Directors	Kimberly Collins
Good Neighbor Environmental Board	Kimberly Collins
Redlands Friends of Prospect Park	Kimberly Collins
ACM/IEEE International Conference on Internet of Things Design and Implementation (IoTDI)	Yunfei Hou
IEEE Global Engineering Education Conference	Yunfei Hou
Computer Science Conference for CSU Undergraduates	Yunfei Hou
CSU Science, Technology, Engineering and Mathematics Network	Yunfei Hou
CSU Immersive Learning and AI Common Interest Group	Yunfei Hou
South Hub Education & Workforce Working Group	Yunfei Hou
Central Coast Data Science Partnership	Yunfei Hou
California Alliance for Data Science Education	Yunfei Hou
Association for Supply Chain Management (ASCM/APICS)	Danny Chung
Institute for Supply Management (ISM)	Danny Chung
Intelligent Transportation Society of California (ITSCA)	Danny Chung
The Cyber Intelligence and Security Organization (CISO) at California State University, San Bernardino	Danny Chung

3   Personnel

3.1   2022 Advisory Council Members – Every three months the LTC's advisory council comes together to discuss the research agenda, possible projects, and funding and gain their feedback and advice.

Member	Position	Affiliation
Kome Ajise	Executive Director	SCAG
Doran J. Barnes / Josh Landis	Executive Director / Planning Manager	Foothill Transit
Matthew Barth, Ph.D.	Professor of Electrical and Computer Engineering Director	UC Riverside
Liza Wilson	Family Representative / Director	sanofi
Christopher Gray	Director of Transportation	WRCOG Western Riverside Council of Governments
Ray Desselle	Deputy District Director of Planning	Caltrans
Mike Burrows	Executive Director	SBD International Airport
Garry Cohoe, Council Chair	Senior Vice President	advanced civil technologies
Kimberly Collins, Ph.D.	Executive Director and Professor of Public Administration	California State University San Bernardino
Carrie Gilbreth	Senior Partner	Westbound Communications
Paul Granillo	President and CEO	Inland Empire Economic Partnership
Yunfei Hou, Ph.D.	Associate Director and Assistant Professor Computer Science & Engineering	California State University San Bernardino
Frank Lin, Ph.D.	Professor, Information and Decision Sciences	California State University San Bernardino
Erin Rogers	CEO	OmniTrans
Steve Pontell	National Core	CORE National Community Renaissance
William "Bill" R. Leonard	Leonard Family representative; Capitol Commission volunteer; State Legislator 1978-2002	

3.2 LTC Staff

Dr. Collins is the Executive Director of the William and Barbara Leonard Transportation Center and a Professor in the Public Administration Department. Her current research focuses on social equity, sustainability, networks, and democracy in search of developing 21st-century institutions to respond to the future. She currently is a Professor of Public Administration, serves on the Good Neighbor Environmental Board (a U.S. EPA Presidential Advisory Commission) in 2018, and is the North American Regional Editor for the Journal of Borderlands Studies.

Kimberly Collins, PhD

Dr. Hou is the Associate Director of the Leonard Transportation Center and Assistant Professor School of Computer Science and Engineering. He received his Ph.D. from the Department of Computer Science and Engineering, University of Buffalo, SUNY, in 2016. His current research interests include applications in transportation cyber-physical systems and data and information analysis for transportation engineering. Recent projects span intersection management with connected vehicle technologies, electric taxi-sharing, and taxi fleet dispatch.

Yunfei Hou, PhD

Dr. Der Wartanian is a research fellow specializing in transportation policy, data science, sustainability, and equity. His multifaceted research interests encompass the electrification of medium and heavy-duty vehicles, big data analytics in traffic and transportation modeling, geospatial analysis, and public policy.

Raffi Der Wartanian, PhD

3.3   Research Team

Bhavik Khatri

Bhavik Khatri is an aspiring graduate student at CSUSB, majoring in Computer Science and holding a bachelor's degree in computer engineering. With a deep-rooted passion for software development and data science, he actively contributes as a research assistant at the Leonard Transportation Center, focusing on transportation projects in the Inland Empire. Bhavik leverages his technical expertise to address real-world challenges in logistics and data analysis. He strives to continuously learn and stay updated with emerging technologies, aiming to make a significant societal impact through his contributions to ongoing research.

Sai Kalyan Ayyagari

Sai is a Master's in Computer Science student with a bachelor's degree in Computer Engineering. Passionate about machine learning and data science, he works as a research assistant at the Leonard Transportation Centre. With a focus on leveraging cutting-edge technologies, he actively contributes to projects, collaborating with fellow researchers to develop innovative solutions and gain valuable insights from complex datasets. He stays updated with the latest advancements in the field and actively participates in conferences and workshops. His goal is to make significant contributions to computer science by applying his expertise in machine learning and data analysis to drive progress in various industries.

Holly Chea

Holly Chea is a California State University San Bernardino MBA program graduate student. Her concentration area of study is in Business Intelligence and Information Systems. Holly is interested in collecting, processing, analyzing, and interpreting data to help in data-informed decision-making. She previously worked for the last seven years in the financial industry in Private Banking and briefly in the Mortgage Industry. At CSUSB, she served on a Board of directors for Associated Students Inc. (ASI) and as Treasurer of the Society of Human Resource Management (SHRM). Holly is looking forward to working with this team combining her love for the Inland Empire with Big Data Analysis to impact the transportation sector of this area.

Alberto S. Sanchez

Alberto S. Sanchez is a multi-talented individual currently pursuing a bachelor's in business administration with a focus on Finance at California State University, San Bernardino. With a diverse employment history ranging from accounts payable roles to construction and snowmaking, Alberto is as versatile as he is skilled. He holds an associate degree in business administration from Barstow Community College and has demonstrated strong leadership, problem-solving abilities, and a customer-oriented approach throughout his career. Residing in Big Bear City, CA, he also boasts a clean 10-year driving record, underscoring his dependability.

Vaishnavi Rode

Vaishnavi is an aspiring graduate student at CSUSB, majoring in Information Systems & Technology and holding a bachelor's degree in computer applications. She contributes as a Student Assistant for LTC and handles the dialogue editing and content creation for our organization. She has an inclination towards cyber security and her goal is to make significant contributions to the field of Cyber & Incident handling by applying her past experience in Critical Incident handling to drive progress in various industries.

Gabriel Lara

Gabriel is a graduate student at CSUSB with a bachelor's degree in literature. After graduating, he was set on taking on new challenges. When he saw an opportunity to pursue employment outside of his field of study, he took it as an opportunity to apply some of the skills he gained from his studies in literature and also gain experience from a multidisciplinary perspective. After joining the LTC team, he has taken on the task of doing research on the past, present, and future policies concerning heavy-duty and medium-duty vehicles on a federal, state, and local level. He has since used his research to create tables and graphs to help the rest of the team get a better grasp of how the policy will be implemented into California vehicle standards.

3.4   2023 Expectations

In the year ahead, we are committed to spearheading several crucial initiatives aimed toward sustainable transportation in the Inland Empire. First on our research agenda is the development and optimization of medium and heavy-duty vehicle opportunity charging. This initiative will focus on identifying strategic locations and methods for setting up opportunity charging stations, making electric long-haul transportation increasingly feasible. Parallel to this, we plan to conduct vehicle miles traveled (VMT) study in select cities within San Bernardino County. This research is designed to explore the technical feasibility and economic viability of VTM, positioning the region as a leader in grid resilience and efficient energy utilization. Furthermore, we are dedicating substantial resources to a comprehensive study on transportation equity and sustainability, aiming to create transit solutions that are both environmentally responsible and accessible to all socio-economic groups, especially in underserved communities.

The Dialogue series will continue in 2023. We have six topics set for the year:

February – Balancing the Race to Zero Emissions in Transportation: Envisioning a Future with an Integrated Energy System

April -- Back in the Office? Traffic Patterns in the Inland Empire

June -- Developing a Sustainable Inland Southern California Port

August -- Urban Development and Transportation in the Inland Empire

October -- Moving People within the Inland Empire

December -- Linking Surface to Air Transportation

To ensure the successful execution of these research undertakings, workforce development will be another cornerstone of our 2023 activities. We will work on a tailored program to build a pathway for careers in sustainable transportation, encompassing partnerships with educational institutions, skill-building workshops, and on-the-job training initiatives. The objective is to closely align academic curricula with the evolving needs of the transportation industry. Taken together, these initiatives set the stage for 2023 to be a transformative year in advancing a cleaner, more equitable, and highly efficient transportation system for the Inland Empire.