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Research Highlight

Title

Commercial Vehicles, Fatigue, Parking and Safety

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Author

Gosselin, Katherine

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Commercial vehicles, fatigue, parking, and safety

Katherine Gosselin

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For commercial drivers, operator fatigue and parking in undesignated areas can result in dangerous collisions.¹ Exacerbating this issue is a lack of freight truck parking, making it difficult for truck operators to find a safe spot when in need of rest. For bicyclists and pedestrians, loading and unloading commercial vehicles in downtowns also present hazards.² Increasing the availability of legal truck parking could improve safety for all road users.

Background

The National Institute for Occupational Safety and Health (NIOSH) motor vehicle crashes to be the leading cause of workplace fatalities.³ A study from UC Berkeley looked specifically at commercial truck-involved, fatigue-related crashes on the I-5 in California. Each rest area adjacent to the corridor is estimated to have an average parking space deficiency of twenty spaces.⁴ The University of Washington studied commercial vehicle conflicts with bicycles and pedestrians. They observed that truck drivers will park near the businesses they serve to load and unload regardless of the availability of legal parking and these activities often present conflicts with other users.^{2,5}

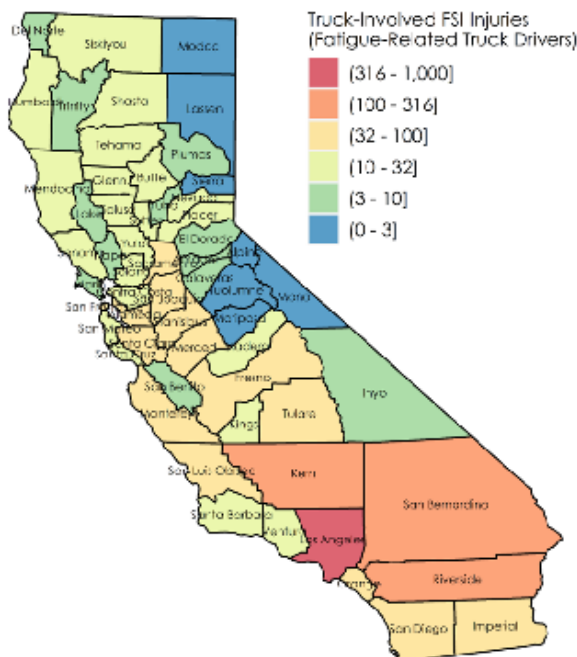
Strict definition of fatigue-related crash

The primary collision factor was “fell asleep” or driver was reported as being fatigued.¹

Expanded definition of fatigue-related crash

When the party was at fault, was not drunk nor speeding, experienced no vehicle defect, and either ran off the road, crossed into an opposing lane or struck another vehicle/ fixed object between the hours of 2 a.m. and 6 a.m. or 2 p.m. and 4 p.m.¹

Truck-Involved Fatal and Serious Injuries (FSI) in California, 2014-2018

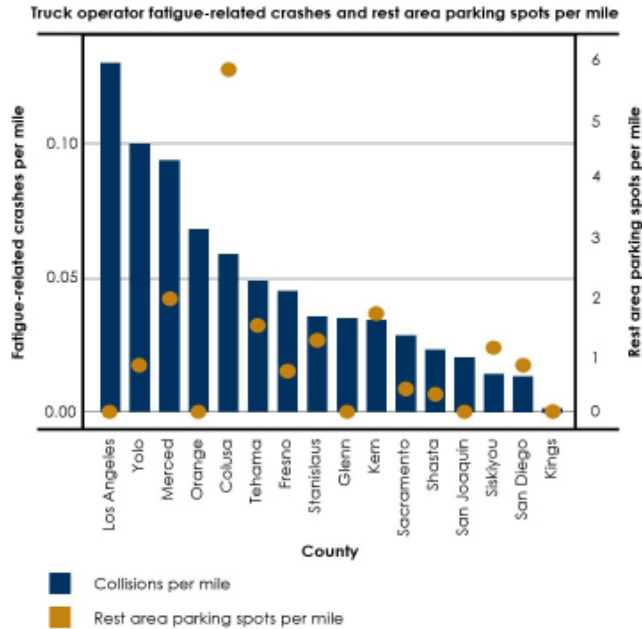


County	FSI Injuries	County	FSI Injuries
Los Angeles	360	Siskiyou	16
San Bernardino	204	Nevada	15
Riverside	182	Salerno	15
Kern	131	Butte	13
Fresno	89	Glenn	12
Merced	77	Sutter	12
San Joaquin	76	Tehama	12
San Diego	73	Colusa	11
Orange	68	Humboldt	11
Alameda	64	Santa Cruz	11
Tulare	56	Amador	10
Santa Clara	49	Napa	10
Sacramento	47	Yuba	10
Imperial	38	Del Norte	9
San Luis Obispo	36	Calaveras	8
Stanislaus	36	Inyo	8
San Francisco	35	El Dorado	7
Monterey	34	Plumas	7
Kings	30	Lake	6
Ventura	30	Marin	6
Contra Costa	29	San Benito	6
Madera	27	Trinity	5
Shasta	26	Mariposa	3
Yolo	25	Modoc	3
Placer	22	Mono	3
Sonoma	22	Tuolumne	3
San Mateo	21	Lassen	2
Mendocino	18	Alpino	1
Santa Barbara	16	Sierra	1

Source: SWITRS 2014 - 2018 (Provisional 2018)

NOTE: California average truck-involved FSIs (2014-2018) = 37.2.

From 2015 to 2018 there were thirty-six fatigue related truck crashes on the I-5 freeway in California. The crashes on I-5 resulted in forty-nine reported injuries and six fatalities.



Los Angeles County had the only fatalities, highest number of fatigue-related collisions, lowest parking availability, and highest freight volumes. In contrast, San Joaquin County had one of the highest freight volumes, only one reported fatigue-related collision, and one of the highest truck parking to mile ratios. Kern County had the greatest parking supply in total per mile and only two reported collisions. However, this negative correlation is not statistically significant due, in part, to a small sample size.⁸

Vulnerable road users

Loading and unloading commercial vehicles present unique conflicts for vehicle operators, pedestrians, and bicyclists. Through interviews with bicyclists, researchers found that illegally parked trucks were the most serious perceived problem.² Unlike legally parked trucks, illegally parked trucks, particularly those parked in a bike lane, require cyclists to maneuver into traffic. This increases exposure and risk. There is little space allocated for vehicle operators to engage in loading and unloading activities, resulting in operators extending ramps, handling equipment, maneuvering goods, and walking in traffic lanes, pedestrian pathways, and bicycling infrastructure.⁵ Implementing an operative envelope could help reduce conflicts and result in safer conditions for all road users and commercial vehicles.

Commercial drivers are mandated to only drive eleven hours after ten consecutive off-duty hours, but parking or amenities are not guaranteed.⁶ Some studies suggest that drivers lose significant time and money just looking for parking. There has been an effort to develop crowd-sourced apps that provide truck operators with forecasted and dynamic parking availability data, but they do not yet manage parking demand nor guarantee a driver a spot.⁷ In downtown areas, ensuring that loading zones meet the needs of delivery drivers will help reduce illegal parking and improve conditions for vulnerable road users.

Conclusion

Not having access to truck parking and addressing fatigue risk management presents a public health and traffic safety hazard for all road users, especially those most vulnerable like pedestrians and bicyclists.

“Corporate fleet safety management practices like driver training, fatigue risk management, in-vehicle monitoring systems (IVMSs), and strong mobile phone policies can reduce the number and severity of motor vehicle crashes.”³

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