

Motorsports Vehicle Field Test



Final Report to the Legislature

**Prepared in Compliance with
California Vehicle Code Section 35401.5(g)**

January 2017

DEPARTMENT OF TRANSPORTATION

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*Making Conservation
a California Way of Life.*

August 10, 2017

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Mr. Daniel Alvarez
Secretary of the Senate
State Capitol, Room 3044
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Mr. E. Dotson Wilson
Chief Clerk of the Assembly
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Sacramento, CA 95814

Dear Ms. Boyer-Vine, and Messrs. Alvarez and Wilson:

I am pleased to transmit the California Department of Transportation's (Caltrans) "Motorsports Vehicle Field Test" report required by Vehicle Code section 35401.5(g).

Caltrans is mandated to conduct field tests of motorsports truck combinations on transition routes leading to motorsports racetracks, and to report findings and recommendations to the California State Legislature by January 1, 2017.

Distribution to the Legislature has been made pursuant to Government Code section 9795. This report can be found at: <http://www.dot.ca.gov/reports-legislature.htm>.

Sincerely,

A handwritten signature in blue ink, appearing to read "Malcolm Dougherty".

MALCOLM DOUGHERTY
Director

Enclosure

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Executive Summary

This report details the results of field tests of large motorsport trucks on transition routes leading to motorsport racetracks in the State. The report is mandated by Vehicle Code section 35401.5(g), which requires Caltrans to report findings and recommendations to the Legislature (SB 1175, Walters, Chapter 786, Statutes of 2014). The findings of the field tests are that select transition routes still require roadway upgrades to accommodate these large trucks to avoid the trucks encroaching in other traffic lanes on the transition routes from State highways to the motorsport racetracks. As such, Caltrans recommends that the current law requirement for special oversized permits be continued for these transition routes. Upon correction of the transition route deficiencies, the requirement for oversized permits will be removed for those routes, as specified in current law.

The largest truck tractor and semitrailer combination legally allowed on California highways, without special oversized permits, has a maximum kingpin to rearmost axle (KPRA) length of 40 feet and a semitrailer length of 53 feet. The legal dimensions allowed in other states varies, and many states allow a longer KPRA and semitrailer length than allowed in California. Longer truck combinations are typically denied entry into California unless special oversized permits have been authorized. State law grants special permission for longer truck combinations to attend certain motorsports events and has authorized the California Department of Transportation (Caltrans) to issue special oversized permits for these longer motorsports truck combinations to access sanctioned motorsports racetracks. The motor truck combination allowable under the special oversized permits is a truck tractor and semitrailer that is allowed to have a KPRA length up to 46 feet, and a semitrailer length up to 56 feet.

Since these motorsport truck combinations are longer than typically allowed in California, it is necessary to evaluate their performance along transition routes to these motorsport event locations. Pursuant to the requirements of Vehicle Code section 35401.5(g), Caltrans conducted field tests on the transition routes leading to the entrances of Fontana Auto Club Speedway, Pomona Auto Club Raceway, and the Sonoma Raceway. Following the recommendations in the previous Motorsports Exemption Vehicle Field Test report to the Legislature, dated January 2014, Caltrans also analyzed all other racetracks in California that are member organizations of the Automobile Competition Committee for the United States (ACCUS). However, only field reviews and computer analyses were performed on these remaining racetracks.

It is recommended that special oversized permits, known as motorsports permits, not be required at racetrack locations where the transition routes can currently accommodate the longer motorsports truck combinations. Caltrans will continue to issue permits to motorsports truck combinations for the racetrack locations that require further analysis, or that require improvements along the transition routes to accommodate the longer truck combinations.

This report provides:

1. A list of the ACCUS racetracks and the type of analysis performed at each racetrack.
2. A description of the test vehicles used in the field testing.
3. A description of the pass/fail criteria used in the transition route analysis.

4. The analysis results and discussion of each racetrack.
5. Suggested improvements on the transition routes where needed.
6. A discussion about recreational vehicles and toterhomes that attend motorsports racing events.
7. Recommendations on the reauthorization of Vehicle Code section 35401.5(g).

The results of the analysis determined whether a motorsports permit is required for a transition route. A permit is not required on a transition route if, after applying the pass/fail criteria, the test vehicle was able to safely traverse the transition route. Conversely, if the test vehicle failed any portion of the transition route, a permit will be required for motorsports truck combinations traveling to those racetracks.

Based on field testing, field review, and computer analysis, this report recommends the following:

1. Fontana Auto Club Speedway – The test vehicle performed well while traveling on the transition route between Interstate 10 and the front entrance of Fontana Auto Club Speedway, but the test vehicle failed on the transition route to the back entrance, and therefore, motorsports permits are required. Permits will be issued until roadway improvements are completed. Roadway improvements are recommended at the back entrance of Fontana Auto Club Speedway where the test vehicle encountered geometric constraints when entering and exiting. These geometric constraints are located at facilities outside of state jurisdiction.
2. Pomona Auto Club Raceway – Motorsports permits are required until roadway improvements are completed. Roadway improvements are recommended on the transition route from Interstate 10 to Pomona Auto Club Raceway where the test vehicle encroached into adjacent or opposing lanes.
3. Sonoma Raceway – Motorsports permits are required until roadway improvements are completed. Roadway improvements are recommended on the transition route (State Route 37) from Interstate 80 to Sonoma Raceway where the test vehicle encroached into an adjacent lane and shoulder.
4. Motorsports truck combinations with a semitrailer length up to 56 feet and a maximum 46-foot KPRA do not require motorsports permits when traveling on transition routes to the following racetracks: Grand Prix of Long Beach, Auto Club Famoso Raceway, Kern County Racetrack, Silver Dollar Speedway, Perris Auto Speedway, El Toro Airfield, Chuckwalla Valley Raceway, Prairie City SVRA (State Vehicle Recreation Area), Bakersfield Speedway, Madera Speedway, Keller Auto Speedway, Lemoore Raceway, and Coronado Speed Festival. See Table 8 for transition routes that do not require a motorsports permit.
5. Motorsports permits are required for motorsports truck combinations with a semitrailer length up to 56 feet and a maximum 46-foot KPRA when traveling on the transition routes to the following racetracks: Pomona Auto Club Raceway, Sonoma Raceway, Fontana Auto Club Speedway, Buttonwillow Raceway, Mazda Raceway Laguna Seca, Willow Springs

International Raceway, All American Raceway, Sacramento Raceway, Irwindale Event Center, Thunderhill Raceway Park, Glenn Helen Raceway, Petaluma Speedway, Calistoga Speedway, Santa Maria Raceway, Thunderbowl Speedway, Keller Auto Raceway at Plaza Park, Ventura Raceway, Lucas Oil I-10 Speedway, Crows Landing Air Facility, and Qualcomm Stadium. See Table 9 for the transition routes that require a permit.

The California Highway Patrol (CHP) reviewed the pass/fail criteria and field test results, and their recommendations are incorporated into this report.

Background

Statutory Reference & Purpose

In 2013, the Legislature granted permission for motorsports truck combinations with a longer kingpin to rearmost axle (KPRA) and semitrailer to attend certain motorsports events when issued a motorsports permit by the California Department of Transportation (Caltrans). These vehicle combinations consist of a truck tractor and semitrailer with a semitrailer length up to 56 feet and a KPRA length up to 46 feet. Since these permitted truck combinations are longer than typically allowed in California, it is necessary to evaluate their performance along the transition routes.

Vehicle Code section 35401.5(g), effective January 1, 2015, mandates Caltrans to conduct field tests of motorsports truck combinations on transition routes leading to motorsports racetracks, and to report findings to the Legislature by January 1, 2017. To determine whether to support reauthorization of the 56-foot semitrailer for use exclusively in connection with motorsports events, Caltrans conducted field tests to examine the transition routes for geometric constraints that would inhibit the movement of the longer motorsports truck combinations. From the assessment, Caltrans identified all constraints and recommends improvements that would eliminate all geometric constraints.

Program Background

California hosts numerous motorsports racing events throughout the year. The 56-foot semitrailer motorsports exception applies to events that are sanctioned by the member organizations of the Automobile Competition Committee for the United States (ACCUS). The participants include: professional race teams that normally haul their racing vehicles in a truck tractor semitrailer combination, non-professional hobbyists that normally haul their racing vehicles in a motorhome-trailer combination, and merchandisers that often haul their products and equipment in a trailer towed by a toterhome.

Beginning in 1997, federal and state law allowed a motorsports truck combination to have a KPRA length of up to 46 feet, and a maximum 53-foot semitrailer length while traveling on Caltrans authorized transition routes from the National Network to sanctioned motorsports events (see Appendix A, "Motorsports Exemption - Current and Previous").

In 2012, California added a 56-foot semitrailer temporary exemption to the existing 46-foot KPRA limitation, and allowed motorsports truck combinations to access both the National Network and Terminal Access routes. The exemption became effective on January 1, 2013, and would sunset on January 1, 2016. That exemption also required Caltrans to perform field tests at various locations and submit a report to the Legislature by January 1, 2014, with recommendations on whether the exemption should be reauthorized. Caltrans evaluated five locations and submitted a report titled "Motorsports Exemption Vehicle Field Test" to the Legislature in January 2014, recommending reauthorization of the motorsports exemption.

Beginning January 1, 2015, Vehicle Code section 35401.5(g) became effective and mandated that permits be issued to the previously-exempted motorsports truck combinations with a 56-foot semitrailer and 46-foot KPRA when traveling on interstate routes and any other routes

authorized by Caltrans, in consultation with the CHP. This law also required Caltrans to perform field tests at Fontana Auto Club Speedway, Pomona Auto Club Raceway, and Sonoma Raceway, and submit a final report to the Legislature by January 1, 2017.

Definitions

Interstate Truck

“Interstate truck” refers to the truck tractor and semitrailer dimensions allowed by the 1982 federal Surface Transportation Assistance Act (STAA). See Table 1 for the maximum dimensions of interstate trucks. (See STAA trucks in Appendix B).

Interstate trucks are often referred to as “STAA trucks.” In this report, the term “interstate truck” is used. Interstate trucks may travel on virtually all interstate routes, and on state or local routes where interstate truck access has been approved and the required signs are posted.

California Legal Truck

The “California Legal truck” is allowed on virtually all interstate and state routes, and on many county and city roads. See Table 1 for the dimensions of California Legal trucks (See CA Legal trucks in Appendix B).

Motorsports Truck

A “motorsports truck” refers to a truck tractor and semitrailer combination that is allowed a maximum KPRA of 46 feet. Vehicle Code section 35401.5(g)(1), effective January 1, 2013, allows this combination to have a maximum semitrailer length of 56 feet under a previous exemption. Effective January 1, 2015, California requires these longer combinations, used exclusively or primarily in connection with motorsports to have a motorsports permit issued by Caltrans when traveling on an authorized motorsports route. See Table 1 for the maximum dimensions of motorsports trucks.

Table 1 – Maximum Truck Lengths

TRUCK TYPE		MAXIMUM OVERALL COMBINATION (ft.)	MAXIMUM KPRA (ft.)	MAXIMUM SEMITRAILER (ft.)
1	Motorsports Trucks	Unlimited	46	56
2	Interstate Trucks	Unlimited	Unlimited	48
3	Interstate Trucks	Unlimited	40	53
4	CA Legal Trucks	65	40	Unlimited

Motorsports Permits (Permits)

Written documents with special provisions issued by Caltrans authorizing motorsports truck combinations with a KPRA length limit of not more than 46 feet, and a semitrailer length of not more than 56 feet to travel on specific, authorized motorsports transition routes.

Motorsports Transition Route (Transition Route)

Route leading to the track entrance used by motorsports truck combinations. A transition route includes the National Network, Terminal Access routes, state routes, local roads, and connectors, such as ramps, interchanges and intersections. Transition routes also include those authorized by Caltrans, in cooperation with local governments after the first motorsports exemption became effective in 1997. For previously authorized and other recommended transition routes, see Tables 8 and 9.

National Network (NN)

Consists primarily of interstate routes. For the National Network routes, see the National Network (STAA) routes on the Truck Network Map at:

<http://www.dot.ca.gov/trafficops/trucks/truck-network-map.html>.

Terminal Access (TA)

State and local routes that allow access to interstate trucks. For state TA routes, see the Terminal Access (STAA) routes on the Truck Network Map at:

<http://www.dot.ca.gov/trafficops/trucks/truck-network-map.html>.

The local city and county TA routes are posted on city and county websites.

Motorhome

A house car as defined in Vehicle Code section 362 (see Appendix D, “Motorhomes and House Cars”).

Toterhome

A motorhome built on a truck chassis with a living space behind the cab. Toterhomes are designed to haul fifth wheel or gooseneck trailers. For more details on toterhomes, see section titled “Related Issue—recreational vehicles, motorhomes, and toterhomes” in this report. Also see Appendix E and Appendix QQ.

Recreational Vehicle (RV)

According to Health and Safety Code section 18010, an RV is a motorhome, travel trailer, truck camper, or camping trailer with a maximum internal area of 320 square feet and a maximum gross area of 400 square feet (see Appendix D, “Recreational Vehicle”). Note: to comply with the maximum gross area requirements in this definition, an RV trailer that is 8.5 feet wide cannot exceed 47 feet in length. This maximum length for an RV is significantly less than the 56-foot semitrailer length allowed in the motorsports exception.

Highway Design Manual (HDM)

California Department of Transportation, Highway Design Manual, 6th Edition, revised December 30, 2015.

Curve

Turns at intersections, off-ramps and on-ramps where the test vehicle was evaluated.

Swept Width

Lines that delineate the path of the vehicle body as the vehicle moves through a turn, and will always exceed the tracking width.

Tracking Width

Lines that delineate the path of the vehicle tires as the vehicle moves through a turn.

Program Status/Program Accomplishments

ACCUS Racetrack Locations

There are currently twenty-nine (29) ACCUS racetracks in California. The transition routes recommended for access to these racetracks were determined based on field tests, field observations, and computer analyses. Vehicle Code section 35401.5(g) mandates that Caltrans perform field tests at Fontana Auto Club Speedway, Pomona Auto Club Raceway, and Sonoma Raceway.

Table 2 is a list of all twenty-nine (29) ACCUS racetracks and the type of analysis performed at each location. In addition, five non-ACCUS affiliated racetracks are included in the table. Nineteen racetracks were field reviewed by Caltrans staff, and three of the nineteen racetracks were field tested by Caltrans staff as well. A field review consisted of visiting the racetracks to investigate the transition routes and to observe the vehicle types, sizes, and combinations attending the motorsports events. Additionally, all nineteen tracks, along with all remaining tracks, were evaluated by computer analysis using the AutoTurn software. This software models the motorsports vehicle as it travels the transition route and demonstrates the amount of swept width required as the test vehicle traverses curves through the transition route. See Appendix F.

Table 2 – Racetrack Locations

#	LOCATION	CITY / COUNTY	DATE(S) OF FIELD VISIT(S)	TYPE OF ANALYSIS
1	Pomona Auto Club Raceway	Pomona / Los Angeles	February 12, 2013	Field reviewed/ tested
2	Grand Prix of Long Beach Racetrack	Long Beach / Los Angeles	April 18, 2013	Field reviewed
3	49'er Truck Stop*	Sacramento / Sacramento	June 19, 2013	Field reviewed
4	Sonoma Raceway	Sonoma / Sonoma	June 20, 2013 July 24, 2013	Field reviewed/ tested
5	Auto Club Famoso Raceway*	McFarland / Kern	March 6, 2014	Field reviewed
6	Fontana Auto Club Speedway	Fontana / San Bernardino	March 19, 2014 February 7, 2015	Field reviewed/ tested
7	Mazda Raceway Laguna Seca	Monterey / Monterey	April 30, 2014	Field reviewed
8	Willow Springs International Raceway	Rosamond / Kern	September 24, 2014	Field reviewed
9	Buttonwillow Raceway	Buttonwillow / Kern	August 21, 2015	Field reviewed
10	Kern County Raceway Park	Bakersfield / Kern	August 22, 2015	Field reviewed

Table 2 – Racetrack Locations (continued)

#	LOCATION	CITY / COUNTY	DATE(S) OF FIELD VISIT(S)	TYPE OF ANALYSIS
11	All American Raceway*	Roseville / Placer	September 10, 2015	Field reviewed
12	Sacramento Raceway*	Sacramento / Sacramento	September 10, 2015	Field reviewed
13	Irwindale Event Center*	Irwindale / Los Angeles	September 16, 2015	Field reviewed
14	Silver Dollar Speedway	Chico / Butte	October 22, 2015	Field reviewed
15	Thunderhill Raceway Park	Willows / Glen	October 23, 2015 December 4, 2015	Field reviewed
16	Perris Auto Speedway	Perris / Riverside	October 28, 2015	Field reviewed
17	El Toro Airfield	Irvine / Orange	October 29, 2015	Field reviewed
18	Chuckwalla Valley Raceway	Desert Center / Riverside	October 30, 2015	Field reviewed
19	Glenn Helen Raceway	San Bernardino / San Bernardino	February 15, 2016	Field reviewed
20	Prairie City SVRA	Sacramento / Sacramento	N/A	Computer analysis only
21	Petaluma Speedway	Petaluma / Sonoma	N/A	Computer analysis only
22	Calistoga Speedway	Calistoga / Napa	N/A	Computer analysis only
23	Santa Maria Raceway	Santa Maria / Santa Barbara	N/A	Computer analysis only
24	Bakersfield Speedway	Bakersfield / Kern	N/A	Computer analysis only
25	Thunderbowl Speedway	Tulare / Tulare	N/A	Computer analysis only
26	Keller Auto Raceway at Plaza Park	Visalia / Tulare	N/A	Computer analysis only
27	Madera Speedway	Madera / Madera	N/A	Computer analysis only
28	Keller Auto Speedway	Hanford / Kings	N/A	Computer analysis only
29	Ventura Raceway	Ventura / Ventura	N/A	Computer analysis only
30	Lucas Oil I-10 Speedway	Blythe / Riverside	N/A	Computer analysis only
31	Crows Landing Air Facility	Crows Landing / Stanislaus	N/A	Computer analysis only
32	Lemoore Raceway	Lemoore / Kings	N/A	Computer analysis only
33	Coronado Speed Festival	San Diego / San Diego	N/A	Computer analysis only

Table 2 – Racetrack Locations (continued)

#	LOCATION	CITY / COUNTY	DATE(S) OF FIELD VISIT(S)	TYPE OF ANALYSIS
34	Qualcomm Stadium	San Diego / San Diego	N/A	Computer analysis only

*Non-ACCUS affiliated racetrack or truck stop

Test Vehicles

The test vehicles used for the field tests were based on the interstate truck. The truck tractor typically has a 23-foot wheelbase that is commonly seen at racing events, as verified by field reviews. The measurements of the test vehicle combinations used are shown in Table 3 and Appendix G. Row (a) shows the dimensions of the test vehicle combinations used at Pomona and Sonoma. Row (b) shows the dimensions of the test vehicle combinations used at Fontana.

Table 3 – Test Vehicle Dimensions

	Truck Tractor Wheelbase (measured from center of steer axle to center of drive axle group) (ft)	KPRA (ft)	Semitrailer Length (ft)	Overall Length (ft)
a	23	46	56	81
b	23	46	56	79

Field Test Pass/Fail Criteria

The criteria used to determine whether the test vehicle passed or failed at each transition route were based on guidelines listed in Topic 404.2, Caltrans HDM Design Considerations referenced in Appendix H. In the Caltrans Highway Design Manual (HDM), the terms “must,” “must not,” and “may not” indicate an absolute standard and must be followed. The terms “should,” “may,” or “can” indicate a permissive standard. The term “shall” when not in bold is also a permissive standard. Engineering judgment may override permissive standards when justified. However, “**shall**” when in bold is mandatory. Table 4 lists the guidelines in the HDM that were pertinent to the field tests.

-Table 4 – Guidelines in HDM Topic 404.2

#	Geometry	Guideline	Requirement
1a	Traveled Way	At intersections, the tires and/or body of the vehicle should “not cross into any portion of the lane for opposing traffic.”	“Should” is permissive subject to engineering judgment.

-Table 4 – Guidelines in HDM Topic 404.2

#	Geometry	Guideline	Requirement
1b	Traveled Way	“Along the portion of roadway where there are no turning options, vehicles are required to stay within the lane lines.” The body and tires “shall stay within the lane...”	“Shall” when in bold is mandatory.
2	Shoulders	Both tracking width and swept width lines may encroach onto paved shoulders to accommodate turning. “...the shoulder pavement structure should be engineered to sustain the weight of the design vehicle.”	“May” is permissive. “Should” is permissive, subject to engineering judgment.
3	Curbs and Gutters	“Tires may not mount curbs. If curb and gutter are present and any portion of the gutter pan is likewise encroached, the gutter pan must be engineered to match the adjacent shoulder pavement structure.”	“May not” and “must” are absolute, and must be followed.
4	Edge of Pavement	“To accommodate a turn,” the body “may cross beyond the edge of pavement provided there are no obstructions.” However, the tires “shall remain on the pavement structure, including the shoulder, provided that the shoulder is designed to support vehicular traffic.”	“May” is permissive. “Shall” which is not bold is permissive, subject to engineering judgment. However, no tires would be allowed to leave the pavement.
5	Bicycle Lanes	“Vehicles are permitted to cross a bicycle lane to initiate or complete a turning movement.” “To accommodate turn movements, e.g., at intersections,” both the tires and the vehicle body “may cross over the broken white painted bicycle lane striping in advance of the right-turn, entering the bicycle lane when clear to do so.”	“May” is permissive.
6	Sidewalk	The vehicle body and tires “must not encroach onto sidewalks or any area where pedestrians are expected.”	“Must not” is absolute, and must be followed.
7	Obstacles	The body “vehicle may not encroach upon obstacles including, but not limited to, curbs, islands, sign structures, traffic delineators/ channelizers, traffic signals, lighting poles, guardrails, trees, cut slopes, and rock outcrops.”	“May not” is absolute, and must be followed.
8	Appurtenances	Appurtenances, such as side mirrors, “should be considered.”	“Should” is permissive, subject to engineering judgment.

-Table 4 – Guidelines in HDM Topic 404.2

#	Geometry	Guideline	Requirement
9	Multiple Turn Lanes*	“When multiple turn lanes are proposed, the appropriate design vehicle template in the Caltrans Highway Design Manual should be used to ensure adequate lane width. The template should be applied to all turn lanes.” Both the body and the tires “of the design vehicle should stay within each lane, and should not encroach into the adjacent turn lane(s).”	“Should” is permissive, subject to engineering judgment.

*This guideline for multiple turn lanes is pending inclusion in the HDM.

Field Tests

The California Highway Patrol reviewed the pass/fail criteria and the field test results, and their recommendations are incorporated into this report.

Field Test #1 – Pomona Auto Club Raceway – National Hot Rod Association (NHRA) Event

The field test was performed on the transition route leading to and from the Pomona Auto Club Raceway on February 12, 2013. Table 5 lists the curves where the test vehicle was observed and videotaped, and the pass/fail test results. The numbers in parentheses in the pass/fail column in Table 5 reference the numbered guidelines from Table 4 that are applicable to each test result (see Appendix I for location maps).

Table 5 – Pomona Auto Club Raceway Curves and Test Results

#	CURVE		PASS/FAIL (HDM Guideline # from Table 4)	COMMENTS
	FROM	TO		
1	NB Fairplex Drive	Pomona Auto Club Raceway Entrance	PASS (1a) FAIL (1a) Private Property	Traveled Way: Vehicle cleared the intersection. Traveled Way: When entering into the raceway, the vehicle encroached into adjacent lanes over yellow lane lines. Failure by encroaching across the yellow lane lines at this location is outside state or local government jurisdiction.

Table 5 – Pomona Auto Club Raceway Curves and Test Results (continued)

#	CURVE		PASS/FAIL (HDM Guideline # from Table 4)	COMMENTS
	FROM	TO		
2	EB I-10	NB Fairplex Drive	PASS (9)	Multiple Turn Lanes: The vehicle occupied two of the three turn lanes during and after the turn. Though the vehicle should not encroach into the adjacent turn lane, this is not a mandatory standard; using two lanes is acceptable at this intersection if done safely.
3	SB Fairplex Drive	EB I-10	FAIL (1a) PASS (1a)	Traveled Way: Before the turn, on a single-turn lane, the vehicle occupied about 12 inches of the adjacent through lane. Encroaching into an adjacent lane before the turn is not acceptable. It is recommended that more space be provided for trucks turning left by widening the single left-turn lane. Traveled Way: After the turn, the vehicle occupied two lanes, including the merging lane from NB Fairplex Drive to EB I-10. However, encroaching into adjacent lanes during and after the turn is acceptable at this intersection if done safely.
4	SB Fairplex Drive	WB I-10	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
5	WB I-10	NB Fairplex Drive	FAIL (1a) FAIL (9)	Traveled Way: After the turn, the vehicle's left front tire crossed the double yellow line by about four inches. An improvement project is recommended at this location to widen the lane. Multiple Turn Lanes: The vehicle used the left-most lane for the right-turn. The right rear tire encroached into the corner of the adjacent lane by about one foot. An improvement project on this curve will improve this turn movement.
6	Pomona Auto Club Raceway Exit	SB Fairplex Drive	PASS (1a)	Traveled Way: The vehicle stayed within its lane.

Discussion

The test vehicle passed the field tests on the straight segments of the route where there are no turning options (see Table 4 #1b, "Traveled Way"), and on three of the six curves.

The failed curves were curves #1, #3, and #5. On curve #1, from northbound Fairplex Drive to the raceway entrance, the vehicle encroached into adjacent lanes over yellow lane lines. However, the encroachment across yellow lane lines at that location are on private property.

On curve #3, from southbound Fairplex Drive to eastbound I-10, the test vehicle occupied about 12 inches of the adjacent through lane before the turn; improvements are recommended at curve #3 to widen the single left-turn lane before the turn, and also relocate a sidewalk curb at the eastbound I-10 ramp entrance.

On curve #5, from westbound I-10 to northbound Fairplex Drive, the test vehicle crossed a double yellow line by approximately four inches when completing the turn. A ramp alteration at curve #5 is recommended to increase the width of the turning lanes before and after the turn.

Field Test #2 – Sonoma Raceway* – NHRA Event

On July 24, 2013, the field test was performed on the transition route, which included the State Route (SR)-121 and SR-37 interchange, leading to and from the Sonoma Raceway. The test vehicle dimensions were identical to the test vehicle dimensions used at the Pomona Auto Club Raceway, and the dimensions are described in Table 3. Table 6 lists the curves where the test vehicle was observed and videotaped, and the pass/fail test results. The numbers in parenthesis in the pass/fail column in Table 6 reference the numbered guidelines from Table 4 that are applicable to each test result (see Appendix J for location maps).

*formerly called Sears Point Raceway and Infineon Raceway.

Table 6 – Sonoma Raceway Curves and Test Results

#	CURVE		PASS/FAIL (HDM Guideline # from Table 4)	COMMENTS
	FROM	TO		
1	WB-37	NB 121	PASS (2)	Shoulders: The vehicle’s right rear tires encroached onto four out of five feet of shoulder. Use of paved shoulder is allowed.
2	NB-121	Sonoma Raceway Entrance	PASS (1a)	Traveled Way: The vehicle stayed within its lane.

Table 6 – Sonoma Raceway Curves and Test Results (continued)

#	CURVE		PASS/FAIL (HDM Guideline # from Table 4)	COMMENTS
	FROM	TO		
3	Sonoma Raceway Exit	SB 121	FAIL (1a) Private Property PASS (9)	Traveled Way: The vehicle occupied both turn lanes before making the turn. Encroaching into adjacent lanes before the turn is not acceptable. However, the failure is on private property and is outside State and local government jurisdiction. Multiple Turn Lanes: The vehicle occupied both turn lanes during and after the turn, while also using the entire right shoulder. Though the vehicle should not encroach into the adjacent turn lane, this is not a mandatory standard; using two lanes at this intersection is acceptable if done safely.
4	SB 121	WB 37	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
5	EB 37	NB 121	PASS (2)	Shoulders: The vehicle’s right rear tires encroached onto the paved shoulder. Use of paved shoulder is allowed.
6	SB 121	EB 37	FAIL (9) PASS (2)	Multiple Turn Lanes: The vehicle occupied both turn lanes before the turn. Encroaching into an adjacent lane before the turn is not acceptable. An improvement project is recommended at this location to widen the turn lane. Shoulders: After the turn, the vehicle encroached onto the shoulder. Use of paved shoulder is allowed.

Discussion

The test vehicle passed the field tests on the straight segments of the route where there are no turning options (see Table 4, #1b, “Traveled Way”), and on four of the six curves. The failed curves were curves #3 and #6. On curve #3, from the track exit to southbound SR-121, the test vehicle occupied both lanes of the two-lane, right turn lanes before the turn. These two lanes are on private property.

On curve #6, from southbound SR-121 to eastbound SR-37, the test vehicle occupied both lanes of the two-lane, left-turn lanes before the turn. The recommended improvement to reduce encroachment into adjacent left-turn lanes is to consolidate the two left-turn lanes into one single turn lane, provided that the lane consolidation does not interfere with the left-turn movement operationally.

Field Test #3 – Fontana Auto Club Speedway

The field test was performed on the transition route leading to and from the Fontana Auto Club Speedway on February 7, 2015. Due to construction activities at the intersection of Cherry Avenue and I-10, an additional field test was necessary at the junction of I-10 and Cherry Avenue on February 15, 2016. The test vehicle used at the Fontana Auto Club Speedway is described in Table 3. Table 7 lists the curves where the test vehicle was observed and videotaped, and the pass/fail test results. The numbers in parenthesis in the pass/fail column in Table 7 reference the numbered guidelines from Table 4 that are applicable to each test result (see Appendix K for location maps).

Table 7 – Fontana Auto Club Speedway Curves and Test Results

#	CURVE		PASS/FAIL (HDM Guideline # from Table 4)	COMMENTS
	FROM	TO		
1	EB I-10	NB Cherry Ave	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
2	SB Cherry Ave	EB I-10	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
3	SB Cherry Ave	WB I-10	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
4	WB I-10	NB Cherry Ave	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
5	NB Cherry Ave	WB I-10	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
6	SB Cherry Ave	WB San Bernardino Ave	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
7	NB Cherry Ave	WB San Bernardino Ave	PASS (1a)	Traveled Way: The vehicle stayed within its lane.

Table 7 – Fontana Auto Club Speedway Curves and Test Results (continued)

#	CURVE		PASS/FAIL (HDM Guideline # from Table 4)	COMMENTS
	FROM	TO		
8	EB San Bernardino Ave	SB Cherry Ave	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
9	NB Cherry Ave	Speedway Front Gate Entrance	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
10	Speedway Front Gate Exit	SB Cherry Ave	PASS (1a)	Traveled Way: The vehicle stayed within its lane.
11	WB San Bernardino Ave	Speedway Gate 7 entrance	FAIL (7)	Obstacles: Due to a power pole and a Speedway Gate 7 sign on the inside of the curve, the vehicle occupied both lanes in the westbound direction before making the right-turn into the Speedway Gate 7 entrance. Encroaching into an adjacent lane before the turn is not acceptable.
12	Speedway Gate 7 Exit	EB San Bernardino Ave	FAIL (7)	Obstacles: When making the left-turn exiting from the Speedway Gate 7 exit, the vehicle crossed two sets of double yellow lines that are spaced two feet or more apart. Encroaching upon obstacles such as a barrier is not acceptable.

Discussion

The test vehicle passed the field tests on the straight segments of the route where there are no turning options (see Table 4, #1b, “Traveled Way”), and on ten of the twelve curves.

The failed curves were curves #11 and #12 at the Speedway Gate 7 entrance/exit. On curve #11, to avoid clipping a power pole and the Speedway Gate 7 sign on the inside of the curve, the test vehicle occupied both lanes in the westbound direction on San Bernardino Avenue before turning right into the Speedway Gate 7 entrance. It is recommended to relocate the power pole and the sign, and also relocate a sidewalk curb at the Speedway Gate 7 entrance.

On curve #12, after making the left-turn from the Gate 7 exit to eastbound San Bernardino Avenue, the test vehicle crossed two sets of double yellow lines that are spaced two feet or more apart. Restriping the island is recommended to accommodate a truck turn.

Field Reviews

Pomona Auto Club Raceway – NHRA Event

On February 12, 2013, a field test was performed on the transition route leading to and from the Pomona Auto Club Raceway (see Appendix I for location map). During that test, Caltrans staff also performed a field review and measured the trucks at the Pomona Auto Club Raceway (Appendix L, Table 1, “Vehicle Dimensions at Pomona Auto Club Raceway”).

Most of the trucks measured at this NHRA event had 56-foot semitrailers and 46-foot KPRA length, so motorsports permits were required. However, several semitrailers exceeded the 56-foot motorsports semitrailer exemption limit.

Grand Prix of Long Beach

On April 18, 2013, a field review was conducted at the Grand Prix racetrack in Long Beach to verify the types and sizes of truck combinations that attended this racing event (see Appendix M for location map). A field test was not performed at this event because the transition route from I-710 to the racetrack is a major local arterial, and the on-ramps and off-ramps on I-710 can easily accommodate the motorsports truck combinations (Appendix L, Table 2, “Vehicle Dimensions at Grand Prix Race Track”).

The trucks measured at this Grand Prix event had 53-foot semitrailers and 46-foot KPRA lengths, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event.

49'er Truck Stop – NASCAR (National Association for Stock Car Auto Racing) Parade

On June 19, 2013, a caravan of motorsports truck combinations traveled from the State of Nevada to the City of Sacramento en route to a race at the Sonoma Raceway. The trucks in the caravan stayed overnight at the 49'er Truck Stop. No truck testing was performed at this site since it is not a racetrack. Caltrans staff measured three trucks at the 49'er Truck Stop (Appendix L, Table 3, “Vehicle Dimensions at 49'er Truck Stop”). On June 20, 2013, more than twenty (20) motorsports truck combinations paraded through downtown Sacramento and around the State Capitol building. The parade route from the 49'er Truck Stop to downtown Sacramento and around the State Capitol is not an authorized motorsports transition route.

All three trucks measured at the 49'er Truck Stop had 53-foot semitrailers. The KPRA lengths were 46-feet or less, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event.

Sonoma Raceway – NASCAR Event

On June 20, 2013, Caltrans staff measured the vehicles at the Sonoma Raceway (Appendix L, Table 4, “Vehicle Dimensions at Sonoma Raceway – NASCAR Event”) (see Appendix J for location map).

The trucks attending this NASCAR event had 53-foot semitrailers and 46-foot KPRA lengths, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event.

Sonoma Raceway – NHRA Event

On July 24, 2013, a field test was performed on the transition route leading to and from the Sonoma Raceway (see Appendix J for location map). During this visit, Caltrans staff also measured the trucks at the Sonoma Raceway (Appendix L, Table 5, “Vehicle Dimensions at Sonoma Raceway - NHRA Event”).

Most of the trucks measured at this NHRA event had 56-foot semitrailers and 46-foot KPRA lengths, so motorsports permits were required to legally travel to this event. One truck exceeded the 56-foot semitrailer length limit. Six of the eleven vehicle combinations measured at the event were toterhome combinations, and two were RV’s or motorhomes with trailers.

Auto Club Famoso Raceway

On March 6, 2014, a field review was conducted at the Auto Club Famoso Raceway in McFarland to verify the types and sizes of truck combinations that attended the Bakersfield March Meet event (see Appendix N for location map). Many of the truck combinations in the field were toterhome combinations and RV combinations. There were no combinations with semitrailers and trailers over 53 feet and 46-foot KPRA lengths observed.

Fontana Auto Club Speedway

On March 19, 2014, a field review was conducted at the Fontana Auto Club Speedway to verify the types and sizes of truck combinations that attended the NASCAR – Auto Club 400 weekend event (see Appendix K for location map). Motorsports truck combinations at the event were mostly 53-foot semitrailers with KPRA lengths less than 46 feet, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event.

Mazda Raceway Laguna Seca

On April 30, 2014, a field review was conducted at Mazda Raceway Laguna Seca to verify the types and sizes of truck combinations that attended the Continental Tire Monterey Grand Prix (see Appendix AA for location map). Motorsports truck combinations at the event were mostly 53-foot semitrailer with KPRA lengths less than 46 feet, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event.

During the site investigation, Caltrans staff discovered the transition route leading to and from the current track entrance is very different from the known transition route to this location.

Willow Springs International Raceway

On September 24, 2014, a field review was conducted at the Willow Springs International Raceway to verify the types and sizes of truck combinations that attended a Porsche Club event (see Appendix BB for location map). Motorsports truck combinations at the event were typically combinations with 53-foot semitrailers with KPRA lengths less than 46 feet, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event location.

Buttonwillow Raceway

On August 21, 2015, a field review was conducted at the Buttonwillow Raceway to verify the types and sizes of truck combinations that attended an event at the raceway in Kern County (see Appendix Z for location map). There were no truck combinations with semitrailers over 53 feet with 46-foot KPRA lengths observed, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event.

Kern County Raceway

On August 22, 2015, a field review was conducted at the Kern County Raceway in Bakersfield to verify the types and sizes of truck combinations attending an event at the raceway park (see Appendix O for location map). There were no truck combinations with trailers over 53 feet and 46-foot KPRA lengths observed, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require permits to legally travel on other route designations to this event. Computer analysis demonstrated that a motorsports permit is not required when traveling to the raceway on the suggested transition route to this location.

All American Raceway

The All American Raceway is not a member of the ACCUS. On September 10, 2015, a field review was conducted at the All American Raceway to verify the types and sizes of truck combinations that attended an event at this raceway (see Appendix CC for location map). Although 56-foot semitrailer combinations were not seen at the event, semitrailers greater than 53 feet long were present. If the raceway became a member of ACCUS, computer analysis demonstrated that a motorsports permit would be required on the suggested transition route to this location.

Sacramento Raceway

The Sacramento Raceway is not a member of the ACCUS. On September 10, 2015, a field review was conducted at the Sacramento Raceway to verify the types and sizes of truck combinations that attended an event at this raceway (see Appendix DD for location map). Although 56-foot semitrailer combinations were not observed at the event, semitrailers greater

than 53 feet were present. If the raceway became a member of ACCUS, computer analysis demonstrated that a motorsports permit would be required on the suggested transition route to this location.

Irwindale Event Center

The Irwindale Event Center is not a member of the ACCUS. On September 16, 2015, a field review was conducted at the event center in Irwindale to verify the types and sizes of truck combinations that attended an event at this center (see Appendix EE for location map). There were not any combinations with semitrailers over 53 feet and 46-foot KPRA lengths observed, so motorsports permits were not required on NN and TA routes. However, these truck combinations still require motorsports permits to legally travel on other route designations to this event center.

Silver Dollar Speedway

On October 22, 2015, a field review was conducted at the Silver Dollar Speedway in Chico to verify the types and sizes of truck combinations that attend events during the year (see Appendix P for location map). An appropriate transition route was determined during the field review and from computer analysis. The analysis demonstrated that a motorsports permit is not required when traveling on the transition route to this location.

Thunderhill Raceway Park

On October 23, 2015, a field review was conducted at the Thunderhill Raceway Park in Willows to verify the types and sizes of truck combinations that attended an event at the park (see Appendix FF for location map). The state route to the event currently allows a maximum 65-foot overall combination length with a 40-foot KPRA. Truck combinations at this event consisted mainly of 53-foot semitrailers and a few combinations having KPRA lengths exceeding 40 feet. Therefore, motorsports permits are required to legally travel on the transition route to this location.

Perris Auto Speedway

On October 28, 2015, a field review was conducted at the Perris Auto Speedway in Riverside County to verify the types and sizes of truck combinations that attend events during the year (see Appendix Q for location map). An appropriate transition route was determined during the field review and from computer analysis. Although 56-foot semitrailers were not observed at the speedway, the analysis demonstrated that a permit would not be required when traveling on the transition route to this location.

El Toro Airfield

On October 29, 2015, a field review was conducted at the El Toro Airfield in Irvine to verify the types and sizes of truck combinations that attend events throughout the year (See Appendix R for location map). The airfield is undergoing major construction to demolish the remaining runway, therefore, eliminating any future autocross/motorsports events. Although 56-foot

semitrailers do not attend events at the airfield, the analysis demonstrated that a motorsports permit would not be required when traveling on the transition route to this location.

Chuckwalla Valley Raceway

On October 30, 2015, a field review was conducted at the Chuckwalla Valley Raceway in Riverside County (see Appendix S for location map). The appropriate transition route was verified during the field review and from computer analysis. The analysis demonstrated that a motorsports permit is required only if the entrance has truck combinations that are entering and exiting simultaneously.

Glen Helen Raceway

On February 15, 2016, a field review was conducted at the Glenn Helen Raceway (see Appendix GG for location map). The appropriate transition route was verified during the field review and from computer analysis. The analysis demonstrated that motorsports permits are required until various improvements are completed on local streets near the raceway entrance.

Computer Analysis

The AutoTurn computer software was used to analyze the transition routes on the remaining sanctioned racetracks that had not been field tested or field reviewed. The software was used to determine how a test vehicle would have performed on those transition routes. A motorsports truck combination with a 53-foot trailer and 46-foot KPRA length was used as the design vehicle for these simulations.

Conclusion

Caltrans performed field tests at the three mandated racetracks: Fontana Auto Club Speedway, Pomona Auto Club Raceway, and Sonoma Raceway. All three racetracks have transition route segments that failed to meet HDM criteria.

Roadway improvements, such as re-striping, lane widening, and installing dotted intersection turn markings (known as “cat tracks”), would correct the lane encroachment issues at the Pomona Auto Club Raceway and Sonoma Raceway. Other improvements, such as relocating a power pole, Speedway Gate 7 sign, and a sidewalk are required at the Fontana Auto Club Speedway.

The permit requirement for motorsports truck combinations on transition routes to a racetrack was determined using the results of the field tests, field reviews, and computer analyses. If a transition route passed the HDM criteria, a motorsports permit will not be required for trucks traveling on the route. Conversely, if a transition route did not pass the HDM criteria, a permit will be required for trucks traveling on the route. These permits will be required until improvements to correct the failing criteria are completed along the route. Determining whether a permit is required for trucks traveling on a transition route is strictly based on vehicle performance along the route from a geometric standpoint. The transition routes traveled that passed the HDM criteria and do not require motorsports permits are shown in Table 8. The transition routes to racetracks that failed the HDM criteria and will continue to require a motorsports permit are shown in Table 9.

Table 8 – Racetracks NOT Requiring Permits on Transition Routes

#	Location	Required Transition Routes To and From Racetrack
1	Grand Prix of Long Beach	SB I-710 to W Shoreline Dr., left turn on Linden Ave. to parking lot.
2	Auto Club Famoso Raceway	SR-99 to EB SR-46 to EB Famoso Rd. to track; Alternatively SR-99 to EB Merle Haggard Dr. to NB SR-65 to WB Famoso Rd. to track.
3	Kern County Raceway Park	I-5 to SB SR-43 (Enos Ln.), right turn on Raceway Blvd. to track.
4	Silver Dollar Speedway	SR-99 to WB E. 20th St. to SB Fair St. to track.
5	Perris Auto Speedway	I-215 to EB Ramona Expressway to NB Lake Perris Dr. to track.
6	El Toro Airfield	I-5 to Sand Canyon Ave., SB on Marine Way to field entrance.
7	Chuckwalla Valley Raceway	I-10 to NB SR-177, right turn at track entrance.
8	Prairie City SVRA	US-50 to SB Prairie City Rd. to WB White Rock Rd. to SB Aerojet Rd. to track.

Table 8 – Racetracks Not Requiring Permits on Transition Routes (continued)

#	Location	Required Transition Routes To and From Racetrack
9	Bakersfield Speedway	SR-99 to EB 7 th Standard Rd. to EB Merle Haggard Dr., NB on N. Chester Ave., right turn at S. Granite Rd. and continue on NB N. Chester Ave. Ext. to track.
10	Madera Speedway	SR-99 to WB W. Cleveland Ave. to track.
11	Keller Auto Speedway	EB SR-198 to EB W. 3 rd St. to SB S. 10 th Ave.; WB SR-198 to SB S. 10 th Ave.; continue SB S. 10 th Ave. to track. Leaving track to NB S. 10 th Ave. to EB E. 3 rd St. to SR-198 EB On-Ramp; or continue NB S. 10 th Ave. to WB E. 4 th St. to SR-198 WB On-Ramp.
12	Lemoore Raceway	SR-198 to SB SR-41 to EB Idaho Ave. to track.
13	Coronado Speed Festival	I-5 to WB SR-75 to track.

_Table 9 – Racetracks Requiring Permits on Transition Routes

#	Location	Required Transition Routes To and From Racetrack	Comments
1	Pomona Auto Club Raceway	I-10 to NB Fairplex Dr. to track.	After the turn, the vehicle's left front tire crossed the double yellow line. The vehicle used the left-most lane for the right-turn. The right rear tire encroached into the corner of the adjacent lane.
2	Sonoma Raceway	I-80 to WB SR-37, or US-101 to EB SR-37 to NB SR-121 to track.	The vehicle occupied both turn lanes before the turn.
3	Fontana Auto Club Speedway	I-10 to NB Cherry Ave., left on Entry Rd. to track. Alternatively, I-10 to NB Cherry Ave., left on San Bernardino Ave., right on VIP Rd.	The vehicle occupied both lanes in the westbound direction before making the right-turn into the Speedway Gate 7 entrance to avoid a light pole and a Gate 7 sign. The vehicle crossed two sets of double yellow lines that are spaced two feet or more apart when making the left-turn coming out of the Gate 7 exit.

Table 9 – Racetracks Requiring Permits on Transition Routes (continued)

#	Location	Required Transition Routes To and From Racetrack	Comments
4	Mazda Raceway Laguna Seca	US-101 to SB S. Sanborn Rd. to WB E. Blanco Rd., left on SR-68, right on SR-218, right on General Jim Moore Blvd., right on S. Boundary Rd. to track.	The vehicle offtracked pavement at various on-ramps and off-ramps when making the turns.
5	Willow Springs International Raceway	SR-14 to WB Rosamond Blvd., right turn on 75 th St. W. to track.	The vehicle offtracked pavement into an island when turning from EB Rosamond Blvd. to the SR-14 NB on-ramp.
6	Buttonwillow Raceway	I-5 to WB W. Lerdo Hwy., left turn on Cal Club Rd. to track.	Staying within the lane, the vehicle would run into an electric pole when turning right from Cal Club Rd. to EB W. Lerdo Hwy. to get back to I-5.
7	All American Raceway	I-80 to NB Riverside Ave. to WB Cirby Way to NB Foothills Blvd. to EB Junction Blvd. to SB Washington Blvd. to WB All America City Blvd. to track.	The vehicle offtracked pavement at the turn from NB Foothills Blvd. to EB Junction Blvd. The vehicle also crossed into oncoming traffic when making the turn from SB Washington Blvd. to WB All America City Blvd.
8	Sacramento Raceway	SR-16 to NB Excelsior Rd. to track.	The vehicle offtracked pavement when making the turn from EB SR-16 to NB Excelsior Rd.
9	Irwindale Event Center	NB I-605 to WB Live Oak Ave. to track; SB I-605 to WB Arrow Hwy to EB Live Oak Ave. to track; leaving track to WB Live Oak Ave. to EB Arrow Hwy. to NB I-605; leaving track to EB Live Oak Ave. to SB I-605.	The vehicle offtracked pavement when making the turn from WB Live Oak Ave. to EB Arrow Hwy. to get back on NB I-605.
10	Thunderhill Raceway Park	I-5 to WB SR-162, right turn at track entrance.	The vehicle failed various curves entering and exiting I-5 and SR-162 ramps.

Table 9 – Racetracks Requiring Permits on Transition Routes (continued)

#	Location	Required Transition Routes To and From Racetrack	Comments
11	Glenn Helen Raceway	I-215 to WB Palm Ave. to WB Institution Rd. to NB Verdemont Ranch Rd. to track.	The vehicle offtracked pavement on WB Palm Ave. on-ramps and off-ramps. The vehicle also offtracked pavement at the Institution Rd. and Verdemont Ranch Rd. intersection when making turns.
12	Petaluma Speedway	US-101 to WB E. Washington St., left turn on Johnson St. to track.	The vehicle occupied both turn lanes coming from SR-99 NB off-ramp to WB E. Washington St. before making the turn.
13	Calistoga Speedway	US-101 to EB SR-128 to NB SR-29 (Lincoln Ave.), to WB Fair Way to track.	The vehicle offtracked pavement at various turns leading to the track.
14	Santa Maria Raceway	US-101 to WB Cuyama Ln. to NB Hutton Rd. to track.	The vehicle offtracked pavement on the US-101 SB off-ramp to WB Cuyama Ln., and on the NB on-ramp from EB Cuyama Ln.
15	Thunderbowl Speedway	SB SR-99 to WB E. Rankin Rd. to left turn of S. K St. to EB E. Rankin Rd. to NB Leonard Noel Dr. to track; NB SR-99 to EB S. K St. to EB E. Rankin Rd. to NB Leonard Noel Dr. to track. Leaving track to SB Leonard Noel Dr. to WB E. Rankin Rd. to WB S. K St. to SR-99 NB on-ramp; leaving track to SB Leonard Noel Dr. to WB E. Rankin Rd. to WB S. K St. to EB E. Rankin Rd. to SR-99 SB on-ramp.	The vehicle offtracked pavement on various turns going to and from the racetrack.
16	Keller Auto Raceway at Plaza Park	SR-198 to SB Plaza Dr. to EB W. Airport Dr. to track.	The vehicle encroached oncoming traffic when turning left from SB Plaza Dr. to EB W. Airport Dr.

Table 9 – Racetracks Requiring Permits on Transition Routes (continued)

#	Location	Required Transition Routes To and From Racetrack	Comments
17	Ventura Raceway	SB US-101 to EB E. Thompson Blvd. to SB S. California St.; NB US-101 to SB S. California St.; continue SB S. California St. to WB E. Harbor Blvd. to SB Ventura Ave. to track. Leaving track to NB Ventura Ave. to EB E. Harbor Blvd. to US-101 SB on-ramp, or to NB S. California St. to WB E. Thompson Blvd. to US-101 NB on-ramp.	The vehicle offtracked pavement making a right turn from EB E. Thompson Blvd. to US-101 NB on-ramp. Vehicle also offtracked pavement turning right from EB E. Thompson to SB S. California St.
18	Lucas Oil I-10 Speedway	I-10 to NB SR-95 to EB E. Chanslor Way to NB Olive Lake Blvd. to track.	The vehicle offtracked pavement at various turns on the transition route.
19	Crows Landing Air Facility	I-5 to EB Fink Rd. to NB Bell Rd. to WB W. Ike Crow Rd. to track; or alternatively SR-33 to WB W. Ike Crow Rd. to track.	The vehicle offtracked pavement and crossed into opposite ongoing traffic when making turns.
20	Qualcomm Stadium	I-15 to WB Friars Rd. to SB Mission Village to track; Alternatively I-8 to NB Fairmount Ave. to WB Camino Del Rio N. to NB Ward Rd. to NB Rancho Mission Rd. to WB San Diego Mission Rd. to SB Mission Village Dr. to track.	The vehicle offtracked pavement at the turn from WB Camino Del Rio N. to NB Ward Rd.

Recommendations

Caltrans recommends that the maximum 56-foot semitrailer length be reauthorized to allow motorsports truck combinations continued access to California motorsports events. The following items are also recommended:

- 1. Field Testing All Transition Routes:** Field testing has been completed for the transition routes at three racetracks. In the future, longer semitrailers can be expected to appear at all racetracks. Therefore, the transition routes to all sanctioned racetracks in California should be field tested using the HDM guidelines in Table 4. The estimated one-time cost to evaluate the remaining 26 transition routes is \$600,000 (excluding the cost of the motorsports truck and driver).
- 2. Roadway Improvements:** Roadway improvement projects should be planned on the transition routes as follows: (1) Pomona Auto Club Raceway - re-stripe a lane and move a curb; (2) Sonoma Raceway - re-stripe and/or widen the pavement on a turn lane; and (3) Fontana Auto Club Speedway - move a power pole blocking a clear entrance to the gate at the back entrance, and re-stripe the lane after the gate exit. The improvements at the Fontana Auto Club Speedway should be zero cost to the State as the obstacles are located at facilities outside state jurisdiction. The suggested improvements are listed under "FIELD TESTS." Caltrans estimates the cost of these roadway improvements to be \$2.8 million.
- 3. Development of New Transition Routes:** Resources should be allocated to Caltrans to re-examine and develop new transition routes, if necessary, to the racetracks once every five years. These resources should be included in any reauthorization of Vehicle Code section 35401.5(g). The estimated cost to re-evaluate the transition routes once every five years is \$600,000.

Related Issue – Recreational Vehicles, Motorhomes, and Toterhomes

During the various field tests and field reviews, Caltrans staff observed recreational vehicles (RV's) and motorhomes towing trailers that had a total combination length greater than the 65-foot California legal limit. There were also a significant number of toterhome combinations with an overall length greater than 65 feet attending these events. The legal status of RV's, motorhomes, toterhomes, and their trailers are beyond the scope of this report. Because of their presence at the motorsports events, these vehicles should be evaluated in the future.

Recreational Vehicles and Motorhomes

Other states allow truck tractor semitrailer combinations with sleeper berths to legally register as recreational vehicles. However, once these vehicles leave their home state, they operate under the auspices of the International Registration Plan (IRP). The IRP is an agreement between states to uniformly administer registration laws for commercial vehicles that travel interstate. The IRP defines a recreational vehicle as being exempt from commercial registration when used for recreational purposes. Vehicles being used for business purposes do not meet the recreational intent and cannot be considered as recreational vehicles. Consequently, when these "out of state, recreational vehicles" enter California, they are considered commercial vehicles and are subject to all motor carrier regulations including, log book, alcohol/controlled substance testing, fuel tax permit, etc.

If a vehicle is registered as a recreational vehicle in another state and is not used for business purposes, it can legally enter the state, however it cannot exceed the California legal maximum overall length of 65 feet with a 38-foot maximum KPRA (40 feet with dual rear axles). To be a motorsports truck with the associated length exemptions, the vehicle must be a commercial vehicle. There are temporary commercial registration options available, provided the driver has the appropriate class driver's license.

A motorhome has been defined as a house car. These vehicles are typically built on a bus chassis and are registered as recreational vehicles. These vehicles cannot exceed a single vehicle length of 45 feet and a combined length of 65 feet when operated in California.

Toterhome Lengths

Many participants at the racing events travel in toterhomes. These can legally be up to 40 feet in length and can have a 30-foot or longer wheelbase. If the toterhome tows a semitrailer, the maximum allowable vehicle combination length is 65 feet. Similar to the truck tractor and semitrailer combinations, toterhome combinations with a 56-foot semitrailer and 46-foot KPRA attending motorsports events must have a commercial registration.

Toterhomes as Test Vehicles

The test vehicle selected for the field tests has a 23-foot wheelbase tractor. This is the standard truck tractor wheelbase for the interstate or STAA design truck in the HDM, and is also the most common truck tractor wheelbase at the racing events. Toterhomes are usually custom made and vary widely in length. Toterhome combinations are longer than most interstate truck tractor semitrailer combinations. Using a 30-foot wheelbase that is more commonly seen on a

toterhome, computer analysis shows a larger swept width when compared to test vehicles studied in this report. Therefore, it is recommended that toterhome lengths be considered in future testing of transition routes to racing events.

Recommended Further Studies

1. **RV/ Motorhome Study:** Vehicle measurements and observations at racing events indicate that a significant number of RV/Motorhome combinations at the events are longer than 65 feet. If the combination length is over 65 feet, a permit is now required when attending these events, under Vehicle Code section 35401.5(g) requirements.

Caltrans, the CHP, and the Department of Motor Vehicles (DMV) should study RV's and motorhomes to determine the following:

- Should RV's and motorhomes be allowed to exceed their 65-foot combination length limit when attending racing events, and should they be allowed access on other state and local routes?
- Are RVs and motorhomes required to stop at weigh stations, and if so, do they usually stop?
- If RVs and motorhomes are not required to stop at weigh stations, how would the CHP enforce the length limits?
- What type of driver license is required, or should be required, for driving a 65-foot RV combination?

2. **Toterhome Study:** Caltrans, the CHP, and the DMV should study the toterhome issues because the recent field measurements indicate that the average toterhome combination can be up to six feet longer than motorsports trucks. The study should address the following issues:

- Does the DMV need to define toterhomes in the Vehicle Code section?
- Should toterhomes be considered commercial or recreational vehicles, and if so, what type of driver license should be required?
- Should a reauthorized motorsports exception impose a maximum length on toterhomes or toterhome combinations?
- Should a toterhome be used as a test vehicle when approving transition routes to racing events, since toterhomes tend to be longer than the typical motorsports truck?

References

January 2014 Report to the Legislature, "Motorsports Exemption Vehicle Field Test," prepared by the California Department of Transportation, Division of Traffic Operations, Office of Traffic Engineering.

http://www.dot.ca.gov/docs/Motorsports_Exemption_Vehicle_Field_Test_Report_to_the_Legislature.pdf

CHP Information Bulletin, "Issues Concerning Motorsports Vehicle Combination Length and the Use of Recreational Vehicles for Motorsports," by the Department of California Highway Patrol, Enforcement Services Division. Effective January 1997.

Appendix A. Motorsports Exemption – Current and Previous

Current Motorsports Exemption

Vehicle Code section 35401.5(g) became effective January 1, 2015, per SB 1175 (Walters, Chapter 786, Statutes of 2014).

(g) (1) Notwithstanding Sections 35400 and 35401, a combination of vehicles consisting solely of a truck tractor semitrailer combination with a kingpin to rearmost axle measurement limit of not more than 46 feet, a trailer length of not more than 56 feet, and used exclusively or primarily in connection with motorsports, may operate on the routes identified in subdivision (a) as well as on any other routes authorized for that purpose by the Department of Transportation in consultation with the Department of the California Highway Patrol, when issued a permit as set forth in paragraph (3). As used in this subdivision, “motorsports” means an event, and all activities leading up to that event, including, but not limited to, administration, testing, practice, promotion, and merchandising, that is sanctioned under the auspices of the member organizations of the Automobile Competition Committee for the United States.

(2) (A) The Department of Transportation shall conduct field tests of the truck tractor semitrailer combination authorized under paragraph (1) for motorsport trucks with a trailer length of not more than 56 feet to evaluate their performance on transition routes connecting to the Auto Club Speedway in Fontana.

(B) (i) The Legislature finds and declares that the Department of Transportation established the existing transition routes described in subparagraph (A) based on records from the 1990s.

(ii) The Department of Transportation shall update the transition routes to reflect road projects completed since the 1990s and shall update the transition routes every five years thereafter.

(iii) The Department of Transportation shall develop new transition routes, as necessary, for the truck tractor semitrailer combination authorized under paragraph (1) for motorsport trucks with a trailer length of not more than 56 feet.

(C) The Department of Transportation shall, no later than January 1, 2017, submit a report to the Legislature, in compliance with Section 9795 of the Government Code, that includes the results of the field tests for the Auto Club Raceway in Pomona, the Sonoma Raceway, and the Auto Club Speedway in Fontana, an overview of the related roadway improvements identified and made, and, in consultation with the Department of the California Highway Patrol, a recommendation as to whether the maximum 56 foot trailer length should be reauthorized.

(D) Notwithstanding Section 10231.5 of the Government Code, the requirement for submitting a report under this paragraph is inoperative on January 1, 2019.

(3) Permits for a combination of vehicles consisting solely of a truck tractor semitrailer combination with a kingpin to rearmost axle measurement limit of not more than 46 feet, a trailer length of not more than 56 feet, for use exclusively or primarily in connection with motorsports, to operate on the routes identified in subdivision (a) as well as on any other routes authorized for that purpose, as provided in paragraph (1), shall be issued by the Department of Transportation, pursuant to Article 6 (commencing with Section 35780) of Chapter 5. The permit requirement for travel on a specific route to or from the Auto Club Raceway in Pomona, the Sonoma Raceway, or the Auto Club Speedway in Fontana, shall apply only until field tests for each of those raceways by the Department of Transportation determine that no additional projects need to be performed on the specific route, or, if projects are required to be performed on the specific route, until those projects are completed.

Previous Motorsports Exemption

Vehicle Code section 35401.5(g) was in effect prior to January 1, 2015, per SB 1174 (Walters, Chapter 292, Statutes of 2012).

35401.5. (g)(1) Notwithstanding Sections 35400 and 35401, a combination of vehicles consisting of a truck tractor semitrailer combination with a kingpin to rearmost axle measurement limit of not more than 46 feet, a trailer length of not more than 56 feet, and used exclusively or primarily in connection with motorsports, may operate on the routes identified in subdivision (a) as well as on any other routes authorized for that purpose by the Department of Transportation in consultation with the Department of the California Highway Patrol. As used in this subdivision, "motorsports" means an event, and all activities leading up to that event, including, but not limited to, administration, testing, practice, promotion, and merchandising, that is sanctioned under the auspices of the member organizations of the Automobile Competition Committee for the United States.

(2) (A) The Department of Transportation shall conduct a field test of the truck tractor semitrailer combination authorized under paragraph (1) for motorsport trucks with a trailer length of 56 feet to evaluate their performance on various segments of the National Network and transition routes. The Department of Transportation shall, no later than January 1, 2014, submit a report to the Legislature in compliance with Section 9795 of the Government Code that includes the results of the field test and a recommendation, in consultation with the Department of the California Highway Patrol, as to whether the 56 foot trailer length should be reauthorized.

(B) Notwithstanding Section 10231.5 of the Government Code, the requirement for submitting a report under this paragraph is inoperative on January 1, 2018.

(3) This subdivision shall remain in effect only until January 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2016, deletes or extends that date.

Vehicle Code Section 35401.5(g)(1) was in effect prior to January 1, 2013.

35401.5(g)(1) Notwithstanding Sections 35400 and 35401, the Department of Transportation or local authorities, with regard to highways under their respective jurisdictions, may, upon application, issue a special permit authorizing the applicant to operate a combination of vehicles consisting of a truck tractor semitrailer combination operated pursuant to subdivision (a) with a kingpin to rearmost axle measurement limit of not more than 46 feet on trailers used exclusively or primarily in connection with motorsports. As used in this paragraph, "motorsports" means any event, and all activities leading up to that event, including, but not limited to, administration, testing, practice, promotion, and merchandising, that is sanctioned under the auspices of the member organizations of the Automobile Competition Committee for the United States.

Appendix B. Truck Map Legend

TRUCK MAP LEGEND TRUCK LENGTHS & ROUTES

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION



Click here for the [Truck Network Map](#)

■■■■■■■■■■ CALIFORNIA LEGAL ROUTES California Legal trucks (black trucks) can travel on STAA routes (green and blue routes), CA Legal routes (black routes), and Advisory routes (yellow routes). CA Legal trucks have access to the entire State highway system except where prohibited (some red routes).



California Legal Truck Tractor - Semitrailer

Semitrailer length : no limit
KPRAs* : 40 feet maximum for two or more axles,
38 feet maximum for single-axle trailers
Overall length : 65 feet maximum *(KPRAs = kingpin-to-rear-axle)



California Legal Truck Tractor - Semitrailer - Trailer (Doubles)

Option A
Trailer length : 28 feet 6 inches maximum (each trailer)
Overall length : 75 feet maximum
Option B
Trailer length : one trailer 28 feet 6 inches maximum
other trailer may be longer than 28 feet 6 inches
Overall length : 65 feet maximum



CA LEGAL ADVISORY ROUTES - CA Legal trucks only; however, *travel not advised* if KPRAs length is over posted value. KPRAs advisories range from 30 to 38 feet.

■■■■ STAA ROUTES The STAA Network allows the "interstate" STAA trucks which are the green trucks shown below. The STAA Network consists of the National Network (green routes, primarily interstates) and Terminal Access routes (blue, primarily State routes). ("STAA" = federal Surface Transportation Assistance Act of 1982.)

(Click here for the [Truck Network Map](#).)



Interstate "STAA" Truck Tractor - Semitrailer

Semitrailer length : 48 feet maximum
KPRAs* : no limit
Overall length : no limit *(KPRAs = kingpin-to-rear-axle)



Semitrailer length : over 48 feet up to 53 feet maximum
KPRAs : 40 feet maximum for two or more axles,
38 feet maximum for single-axle trailers
Overall length : no limit



Interstate "STAA" Truck Tractor - Semitrailer - Trailer (Doubles)

Trailer length : 28 feet 6 inches maximum (each trailer)
Overall length : no limit



Terminal Access - Interstate "STAA" trucks may travel on State highways that exhibit this sign.



Service Access - Interstate "STAA" trucks may travel up to one road mile from the off ramp to obtain services (food, fuel, lodging, repairs), provided the route displays this sign.

●●●●●● SPECIAL RESTRICTIONS - Route restricted for vehicle length or weight, cargo type, or number of axles. Click here for the list of [Special Route Restrictions](#).

Appendix C. “Truck” Signs

“Interstate Truck” Signs for “Interstate Trucks” to Enter or Exit from Terminal Access Routes

Terminal Access



(#G66-56)

Service Access



(#G66-55)

Truck Route Sign for California Legal Trucks on Local Streets



(#R14-1)

Appendix D. Definitions in California Code

Motorhomes and House Cars

Vehicle Code section 362. A "house car" is a motor vehicle originally designed, or permanently altered, and equipped for human habitation, or to which a camper has been permanently attached. A motor vehicle to which a camper has been temporarily attached is not a house car except that, for the purposes of Division 11 (commencing with Section 21000) and Division 12 (commencing with Section 24000), a motor vehicle equipped with a camper having an axle that is designed to support a portion of the weight of the camper unit shall be considered a three-axle house car regardless of the method of attachment or manner of registration. A house car shall not be deemed to be a motortruck.

Recreational Vehicle

Health and Safety Code section 18010. "Recreational vehicle" means both of the following:
(a) A motor home, travel trailer, truck camper, or camping trailer, with or without motive power, designed for human habitation for recreational, emergency, or other occupancy that meets all of the following criteria:

- (1) It contains less than 320 square feet of internal living room area, excluding built-in equipment, including, but not limited to, wardrobe, closets, cabinets, kitchen units or fixtures, and bath or toilet rooms.
 - (2) It contains 400 square feet or less of gross area measured at maximum horizontal projections.
 - (3) It is built on a single chassis.
 - (4) It is either self-propelled, truck-mounted, or permanently towable on the highways without a permit.
- (b) A park trailer, as defined in section 18009.3.

Appendix E. Photos of Toterhomes

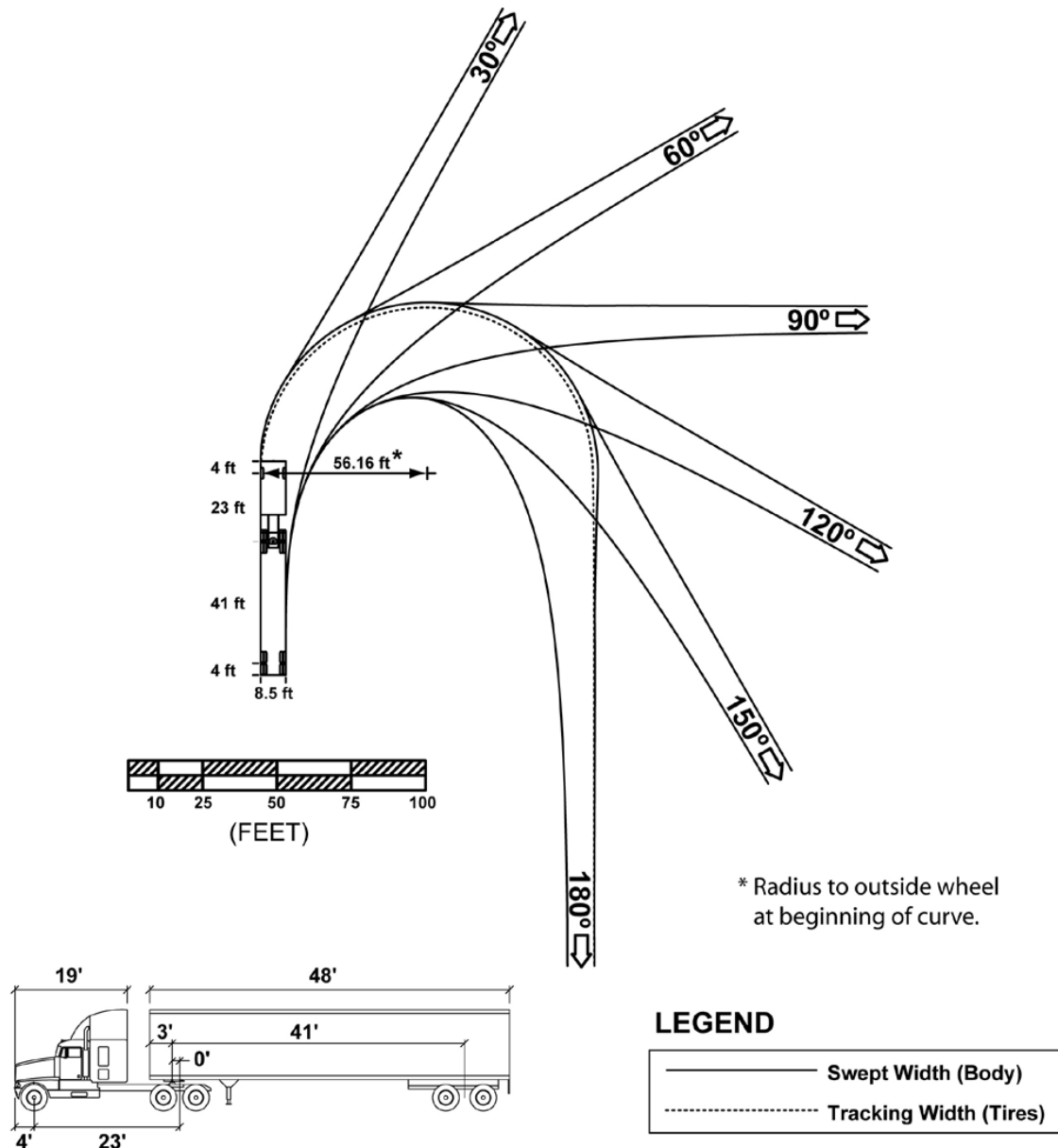


Appendix F. Caltrans HDM STAA Design Vehicle

Figure 404.5A

STAA Design Vehicle

56-Foot Radius



* Radius to outside wheel at beginning of curve.

LEGEND

	Swept Width (Body)
	Tracking Width (Tires)

STAA - STANDARD

Tractor Width	: 8.5'	Lock to Lock Time	: 6 seconds
Trailer Width	: 8.5'	Steering Lock Angle	: 26.3 degrees
Tractor Track	: 8.5'	Articulating Angle	: 70 degrees
Trailer Track	: 8.5'		

Note: For definitions, see Indexes 404.1 and 404.5.

Appendix G. Photos of Field Test Vehicles



Pomona Field Test Vehicle



Sonoma Field Test Vehicle



Fontana Field Test Vehicle

Appendix H. Caltrans HDM Design Considerations

404.2 Design Considerations

It may not be necessary to provide for design vehicle turning movements at all intersections along the State route if the design vehicle's route is restricted or it is not expected to use the cross street frequently. Discuss with Traffic Operations and the local agency before a turning movement is not provided. The goal is to minimize possible conflicts between vehicles, bicycles, pedestrians, and other users of the roadway, while providing the minimum curb radii appropriate for the given situation.

Both the tracking width and swept width should be considered in the design of roadways for use of the roadway by design vehicles.

Tracking width lines delineate the path of the vehicle tires as the vehicle moves through the turn.

Swept width lines delineate the path of the vehicle body as the vehicle moves through the turn and will therefore always exceed the tracking width. The following list of criteria is to be used to determine whether the roadway can accommodate the design vehicle.

(1) Traveled way.

(a) To accommodate turn movements (e.g., at intersections, driveways, alleys, etc.), the travel way width and intersection design should be such that tracking width and swept width lines for the design vehicle do not cross into any portion of the lane for opposing traffic. Encroachment into the shoulder and bike lane is permitted.

(b) Along the portion of roadway where there are no turning options, vehicles are required to stay within the lane lines. The tracking and swept widths lines for the design vehicle shall stay within the lane as defined in Index 301.1 and Table 504.3A. This includes no encroachment into Class II bike lanes.

(2) Shoulders. Both tracking width and swept width lines may encroach onto paved shoulders to accommodate turning. For design projects where the tracking width lines are shown to encroach onto paved shoulders, the shoulder pavement structure should be engineered to sustain the weight of the design vehicle. See Index 613 for general traffic loading considerations and Index 626 for tied rigid shoulder guidance. At corners where no sidewalks are provided and pedestrians are using the shoulder, a paved refuge area may be provided outside the swept width of turning vehicle.

(3) Curbs and Gutters. Tires may not mount curbs. If curb and gutter are present and any portion of the gutter pan is likewise encroached, the gutter pan must be engineered to match the adjacent shoulder pavement structure. See Index 613.5(2)(c) for gutter pan design guidance.

(4) Edge of Pavement. To accommodate a turn, the swept width lines may cross the edge of pavement provided there are no obstructions. The tracking width lines shall remain on the pavement structure, including the shoulder, provided that the shoulder is designed to support vehicular traffic. If truck volumes are high, consideration of a wider shoulder is encouraged in order to preserve the pavement edge.

(5) Bicycle Lanes. Where bicycle lanes are considered, the design guidance noted above applies. Vehicles are permitted to cross a bicycle lane to initiate or complete a turning movement or for emergency parking on the shoulder. See the California MUTCD for Class II bike lane markings. To accommodate turn movements (e.g., intersections, driveways, alleys, etc. are present), both tracking width and swept width lines may cross the broken white painted bicycle lane striping in advance of the right-turn, entering the bicycle lane when clear to do so.

(6) Sidewalks. Tracking width and swept width lines must not encroach onto sidewalks or pedestrian refuge areas, without exception.

(7) Obstacles. Swept width lines may not encroach upon obstacles including, but not limited to, curbs, islands, sign structures, traffic delineators/channelizers, traffic signals, lighting poles, guardrails, trees, cut slopes, and rock outcrops.

(8) Appurtenances. Swept width lines do not include side mirrors or other appurtenances allowed by the California Vehicle Code, thus, accommodation for non-motorized users of the facility and appurtenances should be considered.

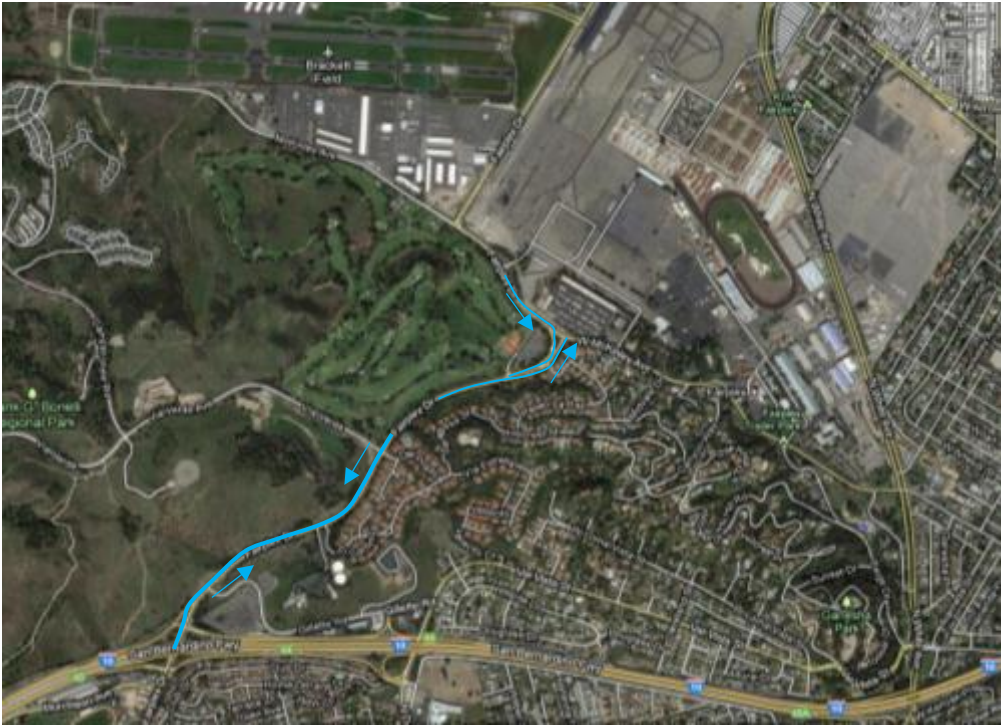
If both the tracking width and swept width lines meet the design guidance listed above, then the geometry is adequate for that design vehicle. Consideration should be given to pedestrian crossing distance, motor vehicle speeds, truck volumes, alignment, bicycle lane width, sight distance, and the presence of on-street parking.

Note that the STAA Design Vehicle has a template with a 56-foot (minimum) and a 67-foot (longer) radius and the California Legal Design Vehicle has a template with 50-foot (minimum) and 60-foot (longer) radii. The longer radius templates are more conservative. The longer radius templates develop less swept width and leave a margin of error for the truck driver. These templates should be used for conditions where the vehicle may not be required to stop before entering the intersection.

The minimum radius template can be used if the longer radius template does not clear all obstacles. The minimum radius templates demonstrate the tightest turn that the vehicles can navigate, assuming a speed of less than 10 miles per hour.

For offtracking lane width requirements on freeway ramps, see Topic 504.

Appendix I. Map and Transition Route to Pomona Auto Club Raceway



Map of Pomona Auto Club Raceway - Test Curves

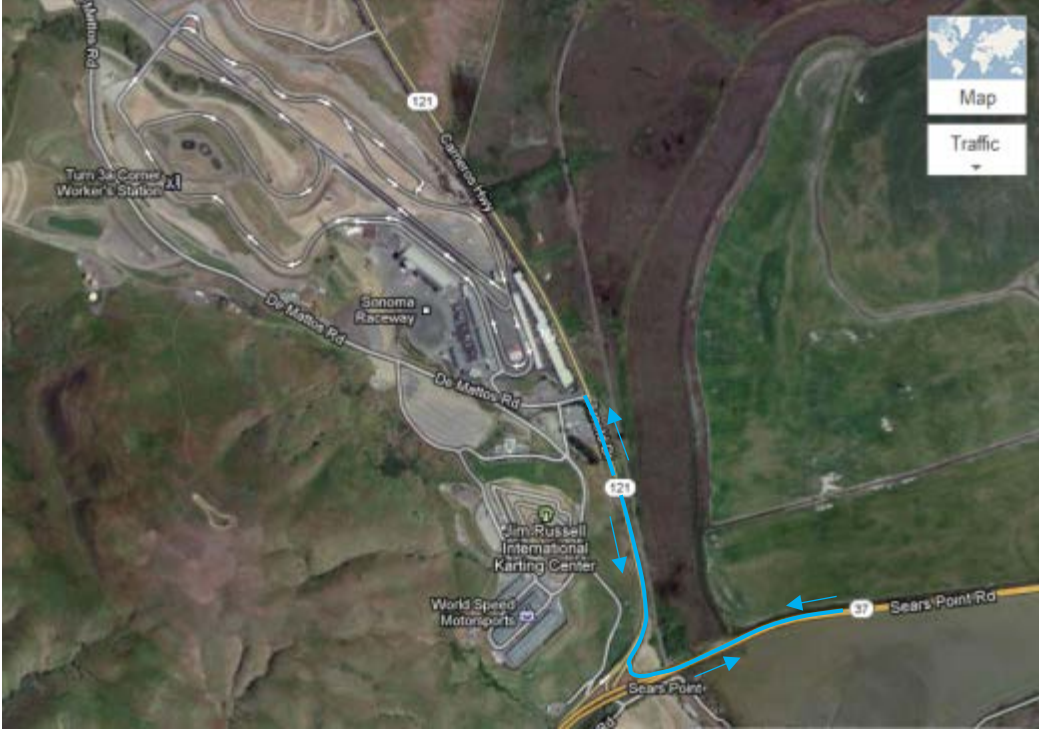


Ramps at I-10 and Fairplex Dr. (Curve #2-5)

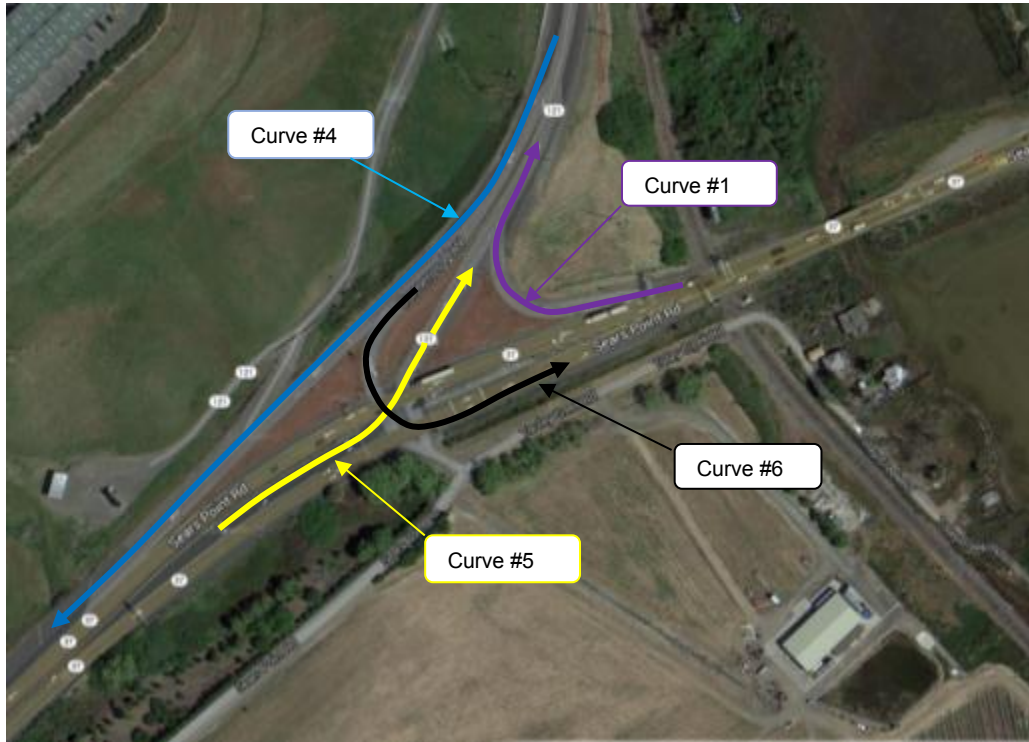


Curves at Entrance and Exit of Racetrack on Fairplex Dr. (Curve #1 & #6)

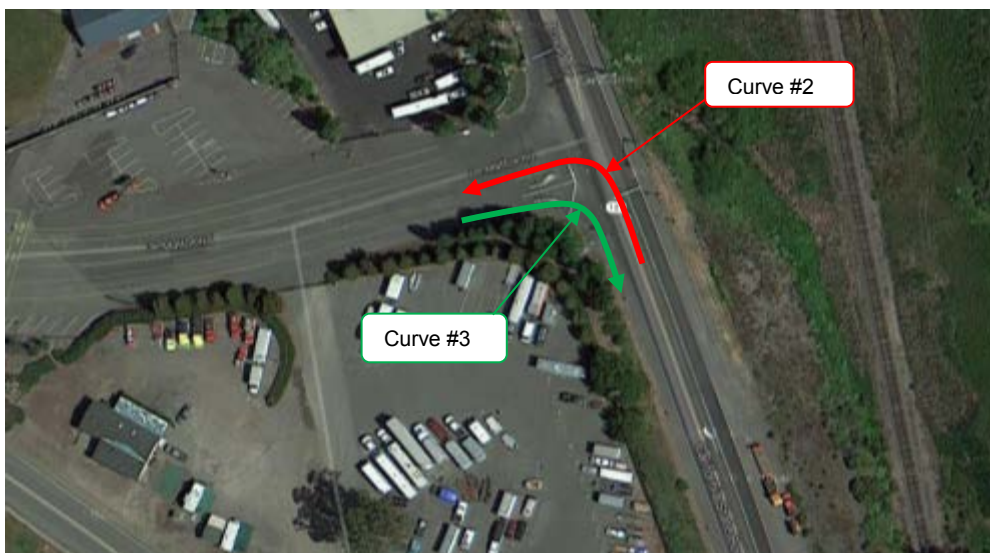
Appendix J. Map and Transition Route to Sonoma Raceway



Map of Sonoma Raceway - Test Curves



Ramps at SR-37 and SR-121 (Curve# 1 & #4-6)

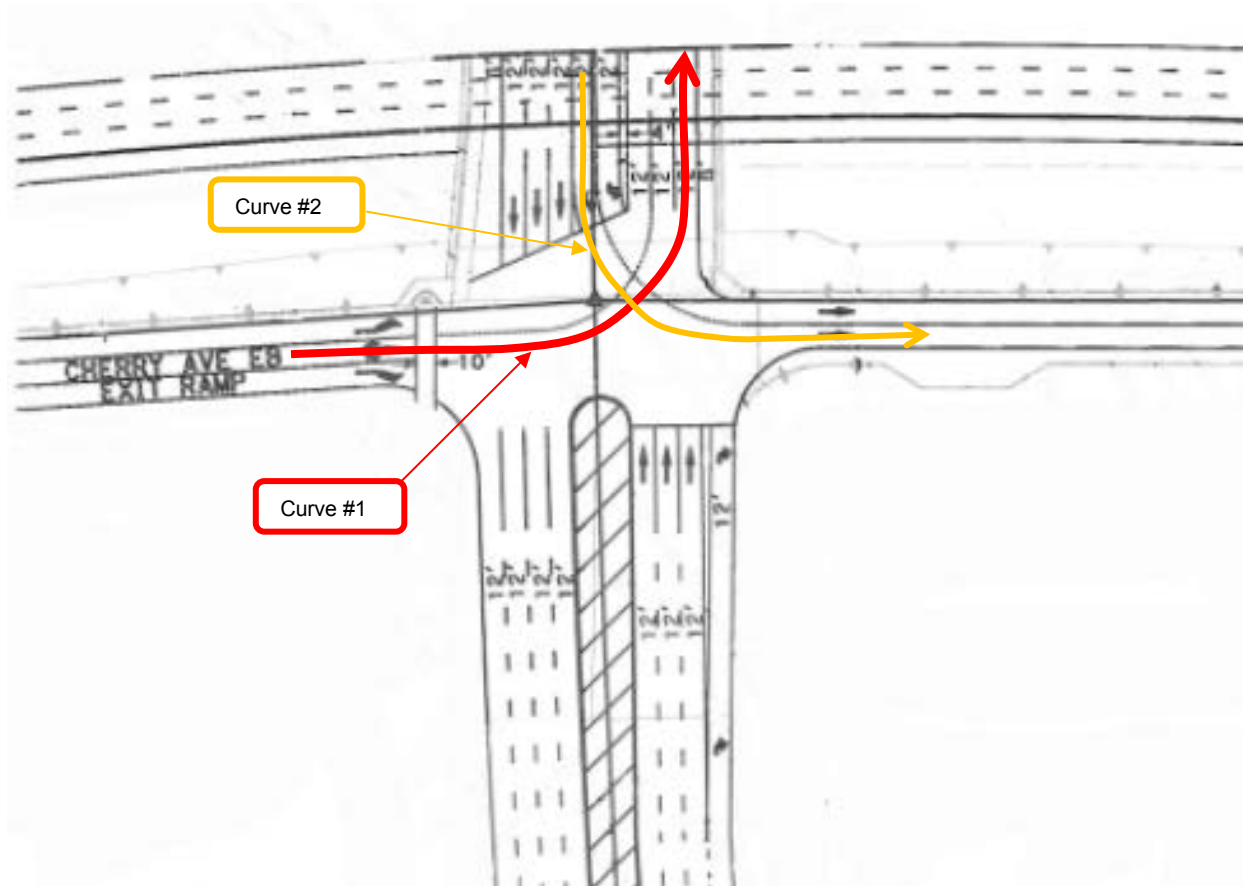


Curves at SR-121 and Track Entrance (Curve #2 & #3)

Appendix K. Map and Transition Route to Fontana Auto Club Speedway

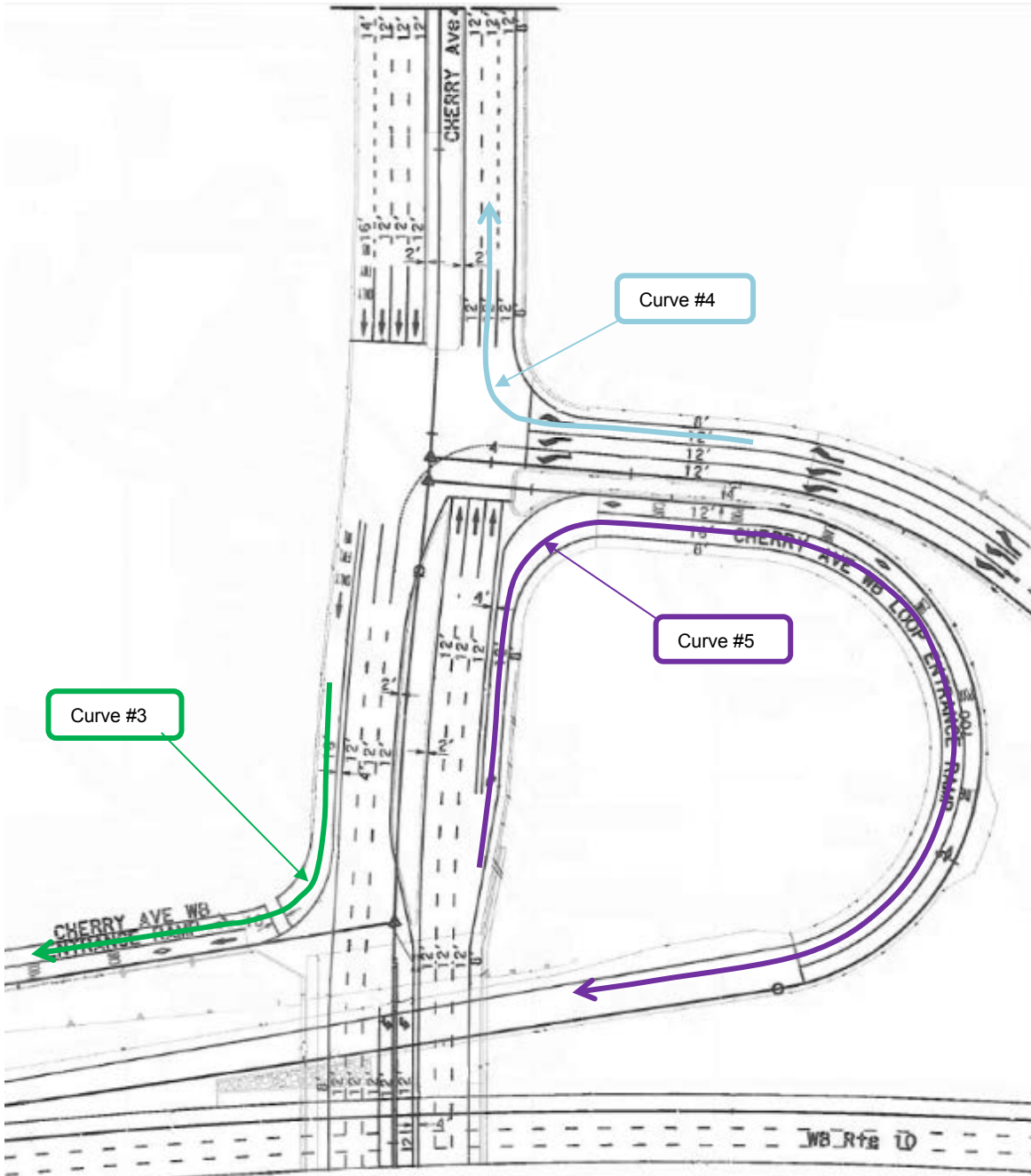


Map of Fontana Auto Club Speedway - Test Curves



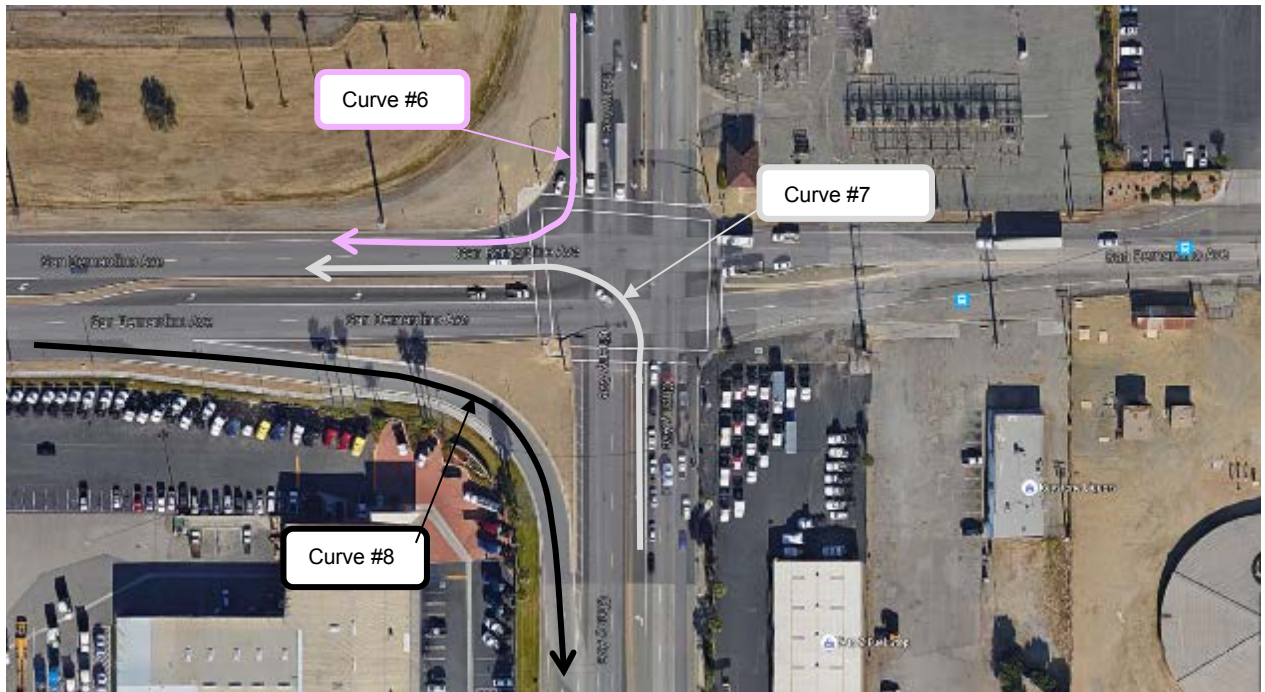
Ramps at I-10 and Cherry Ave. (Curve #1 & #2)

Map of Fontana Auto Club Speedway - Test Curves



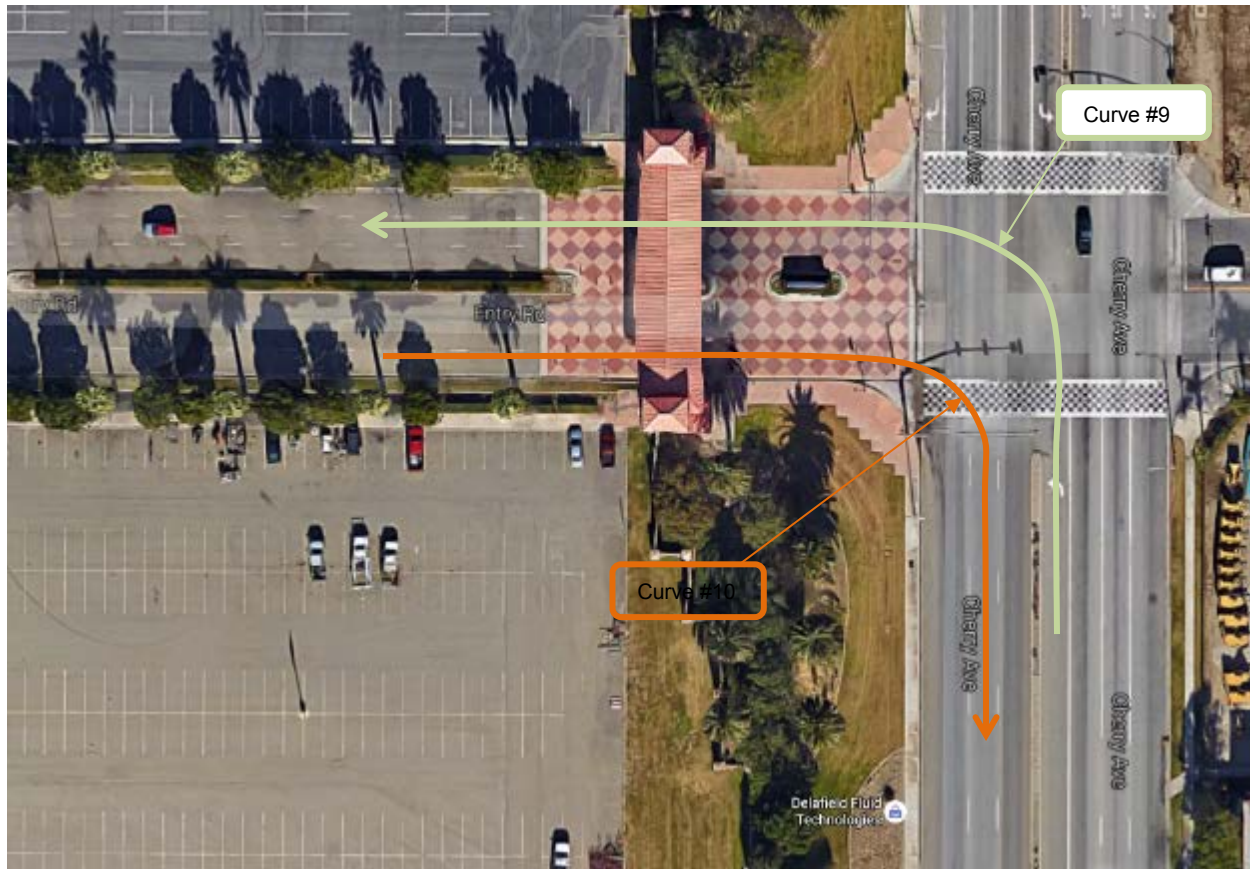
Ramps at I-10 and Cherry Ave. (Curve #3-5)

Map of Fontana Auto Club Speedway - Test Curves



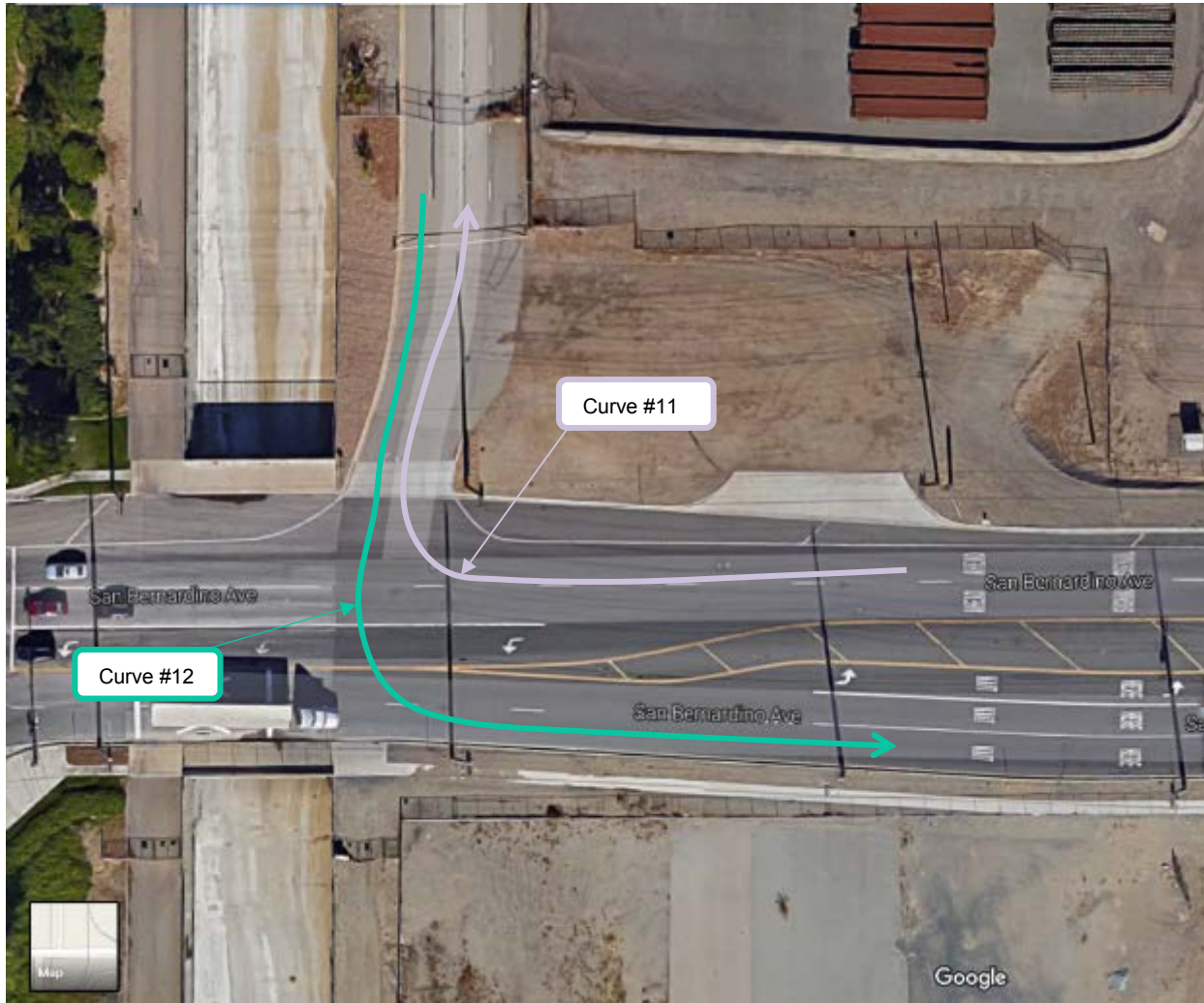
Curves at San Bernardino Ave. and Cherry Ave. (Curve #6-8)

Map of Fontana Auto Club Speedway - Test Curves



Curves at Cherry Ave. and Main Entrance (Curve #9 & #10)

Map of Fontana Auto Club Speedway - Test Curves



Curves at San Bernardino Ave. and Gate 7 Entrance (Curve #11 & #12)

APPENDIX L. VEHICLE DIMENSIONS

Table 1. Vehicle Dimensions at Pomona Auto Club Raceway

#	TRACTOR Length (ft)	TRACTOR WHEELBASE (WB) (ft)	SEMITRAILER Length (ft)	KPRA (ft)	OVERALL LENGTH (ft)
1	29	20.5	55	42.5	73.5
2	28	23	56	47	78
3	30	21	60	47.5	80.5
4	31	23	56	46	81
5	31	24	57	46	81
6*	30	24.5	44	36	74
7*	37	31	37	38.5	83.5

*Toterhome

Table 2. Vehicle Dimensions at Grand Prix of Long Beach Racetrack

#	TRACTOR (ft)	TRACTOR WB (ft)	SEMITRAILER (ft)	KPRA (ft)	OVERALL LENGTH (ft)
1	28.5	20.5	53	44	75
2	26.5	19.5	53	44.5	73.5
3	27	20.5	53	41	73
4	28	20.5	53	43	74
5*	29	23	40	31	65

*Toterhome

Table 3. Vehicle Dimensions at 49'er Truck Stop

#	TRACTOR (ft)	TRACTOR WB (ft)	SEMITRAILER (ft)	KPRA (ft)	OVERALL LENGTH (ft)
1	33	26	53	45	79
2	30	21	53	46	75
3	31	24.5	53	45	77

Table 4. Vehicle Dimensions at Sonoma Raceway – NASCAR Event

#	TRACTOR (ft)	TRACTOR WB (ft)	SEMITRAILER (ft)	KPRA (ft)	OVERALL LENGTH (ft)
1	30	22.5	53	42	75
2	29	20.5	53	46	75
3	33	25.5	53	46	79
4	30	23	53	44.5	75
5	29	22.5	53	45	75
6	30	23	53	45	75.5
7	30	22.5	53	44.5	76
8*	33	27	40.5	31.5	71.5

*Toterhome

Table 5. Vehicle Dimensions at Sonoma Raceway – NHRA Event

#	TRACTOR (ft)	TRACTOR WB (ft)	SEMITRAILER (ft)	KPRA (ft)	OVERALL LENGTH (ft)
1	29	22	57	46	79.5
2	31	23	54	45	79
3	30.5	22	53.5	46	76
4*	38	27	34	25	72
5*	41	26	30.5	21	71.5
6*	34	28.5	40	30.5	71.5
7*	34	28.5	42	30.5	73
8*	45	29.5	41	29	86
9*	42	29	38	28	80
10**	34	18	32.5	22	67.5
11**	43	25	28	20	71

*Toterhome

**Recreational Vehicle

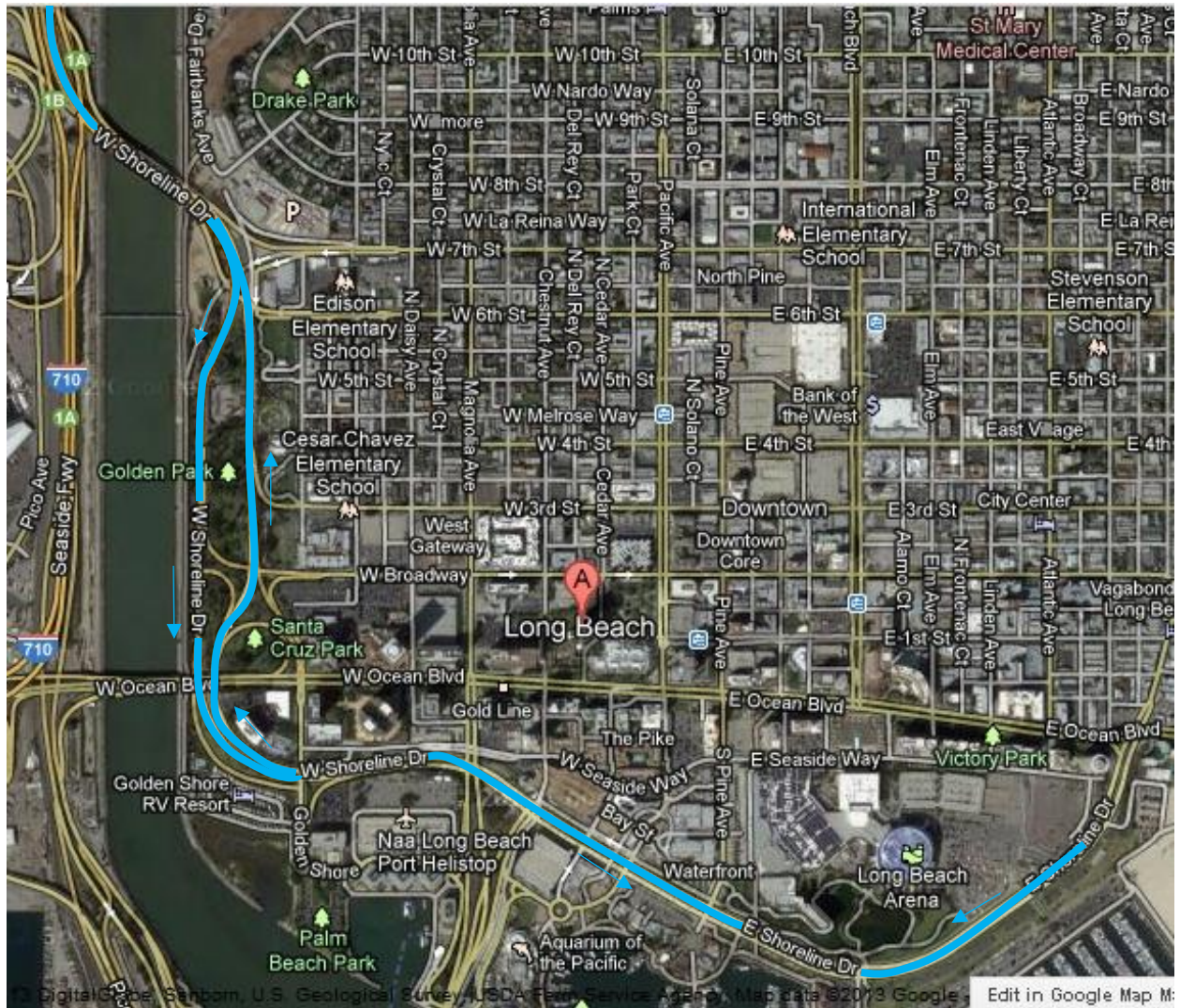
Table 6. Vehicle Dimensions at Fontana Auto Club Speedway – NASCAR Event

#	TRACTOR (ft)	TRACTOR WB (ft)	SEMITRAILER (ft)	KPRA (ft)	OVERALL LENGTH (ft)
1	34	27	53	44.5	81
2	31	23.75	53	45	77
3	29	21.75	53	45	74
4	28	20	-	35.5	67
5	28	20	53	45.5	73.5
6	29	20	53	45	74
7	32	25.25	53	45	79
8	32	25.25	53	45	79
9	30	23.25	53	45	76
10	35	27	54	45	81
11*	22	17.5	46	35	68
12**	45	28.5	28	-	73
13**	45	28.5	33	-	78

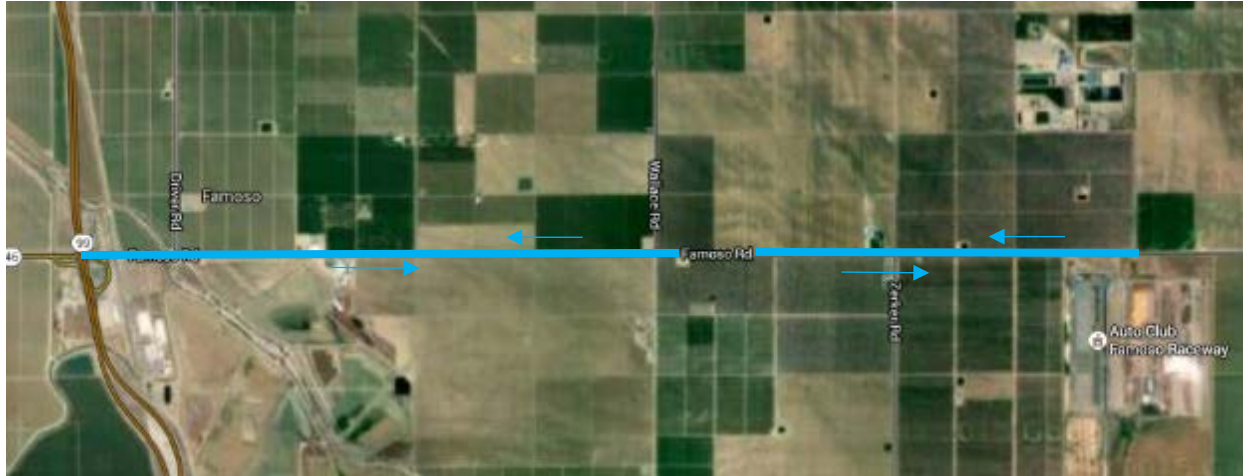
*Toterhome

**Recreational Vehicle

Appendix M. Map and Transition Route to Grand Prix of Long Beach Racetrack



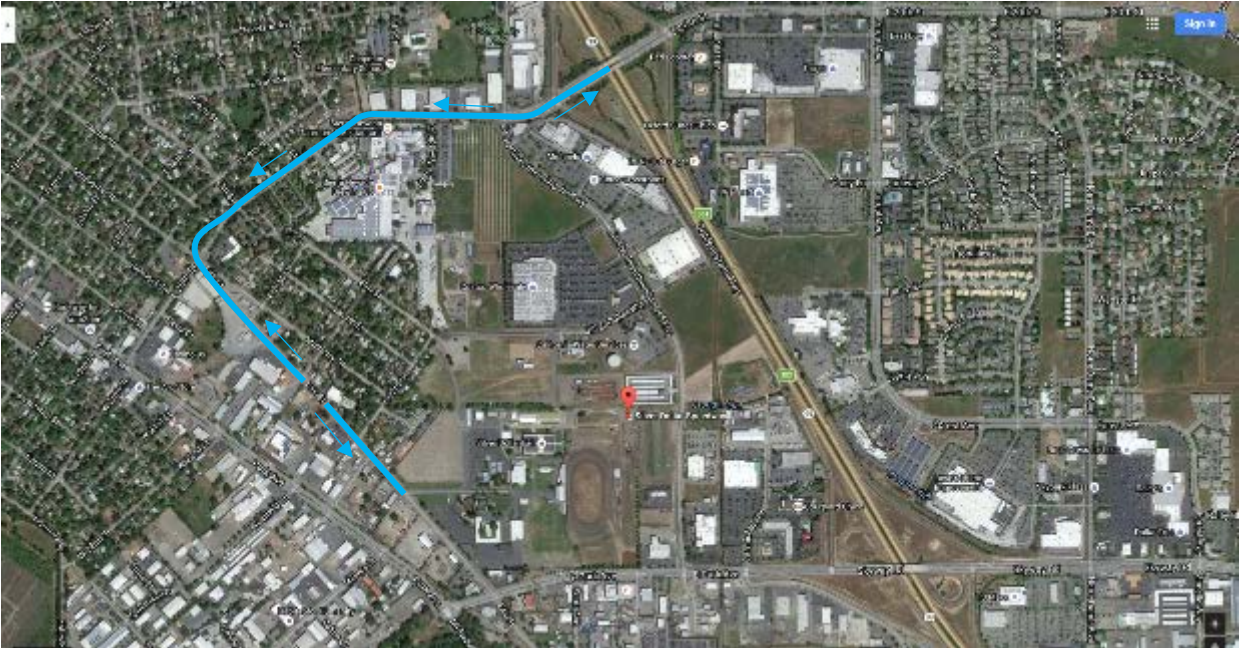
Appendix N. Map and Transition Route to Auto Club Famoso Raceway



Appendix O. Map and Transition Route to Kern County Raceway Park



Appendix P. Map and Transition Route to Silver Dollar Speedway



Appendix Q. Map and Transition Route to Perris Auto Speedway



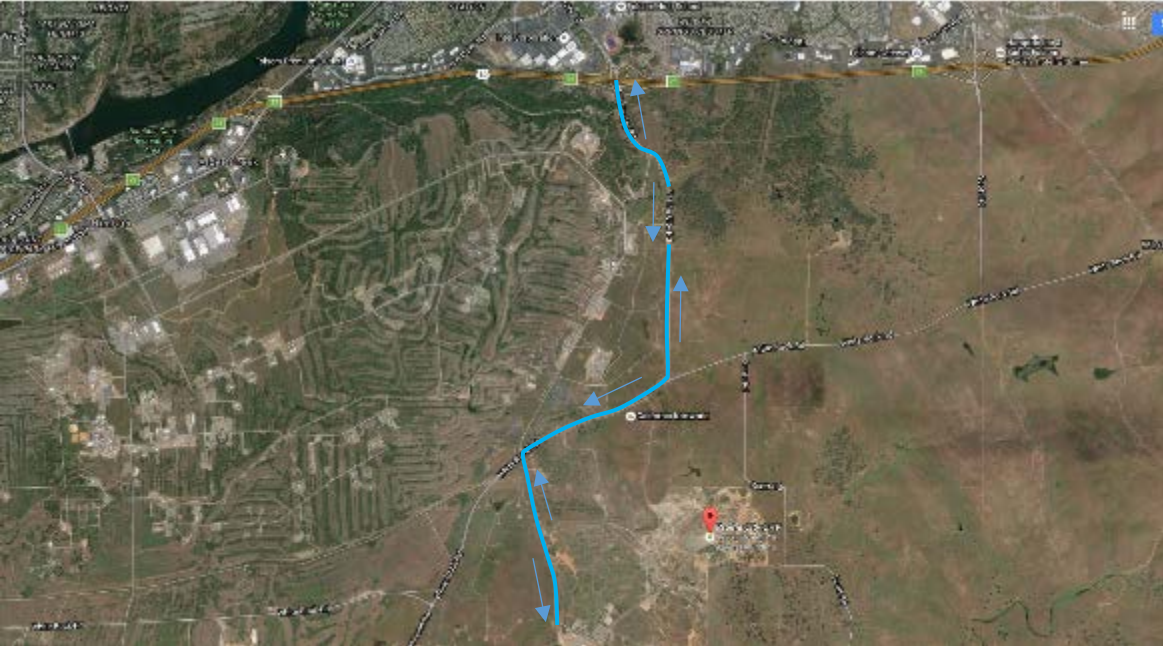
Appendix R. Map and Transition Route to El Toro Airfield



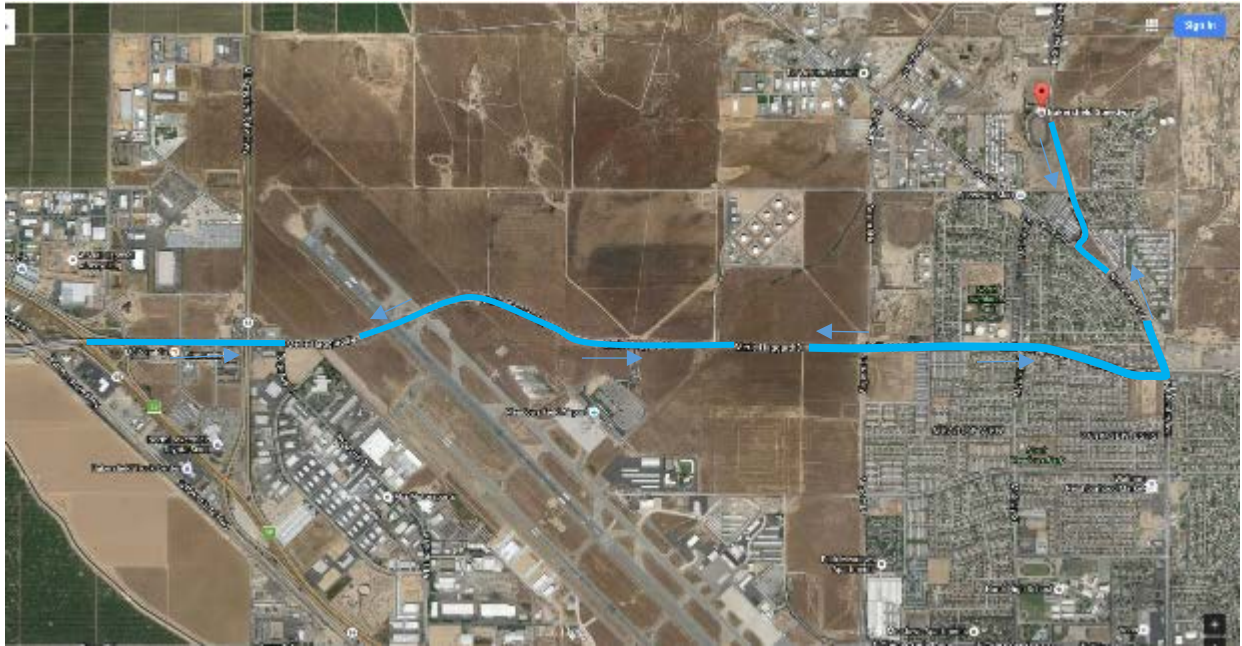
Appendix S. Map and Transition Route to Chuckwalla Valley Raceway



Appendix T. Map and Transition Route to Prairie City SVRA



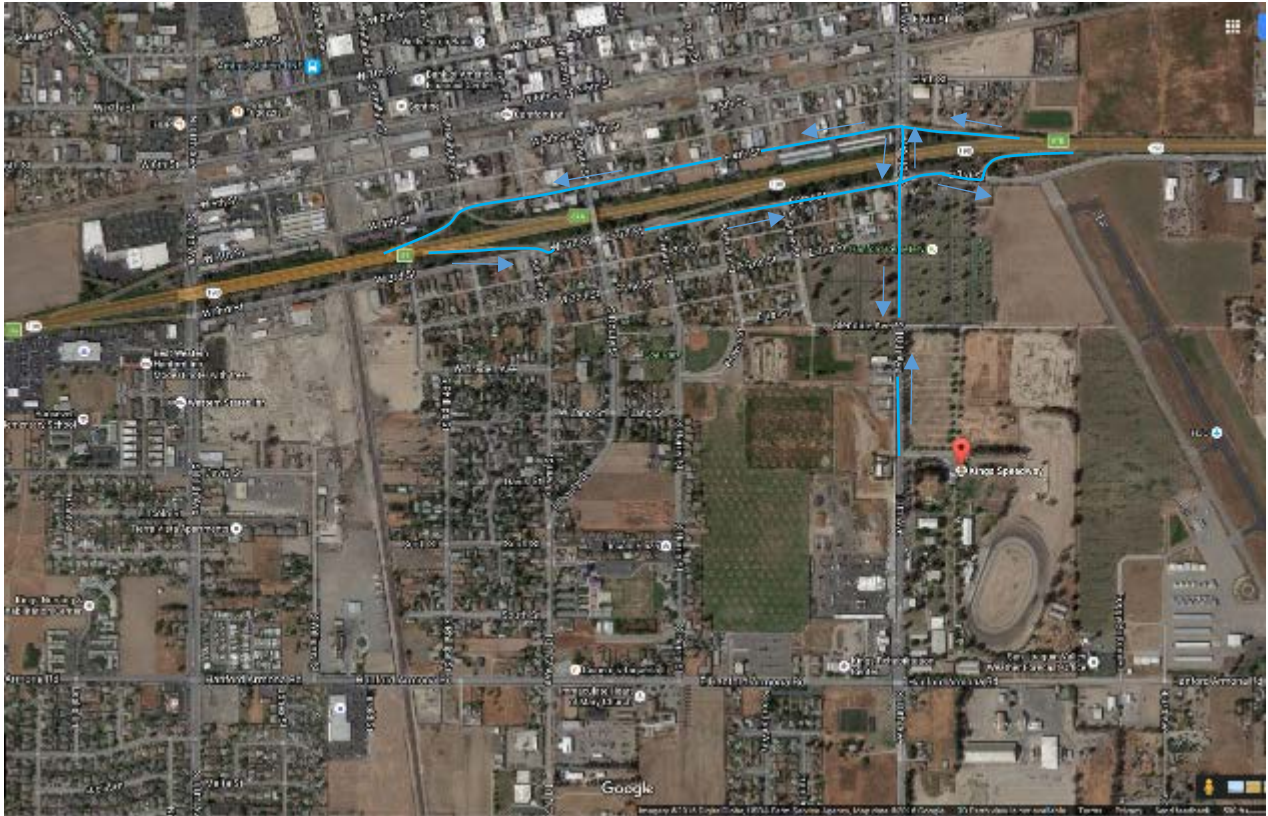
Appendix U. Map and Transition Route to Bakersfield Speedway



Appendix V. Map and Transition Route to Madera Speedway



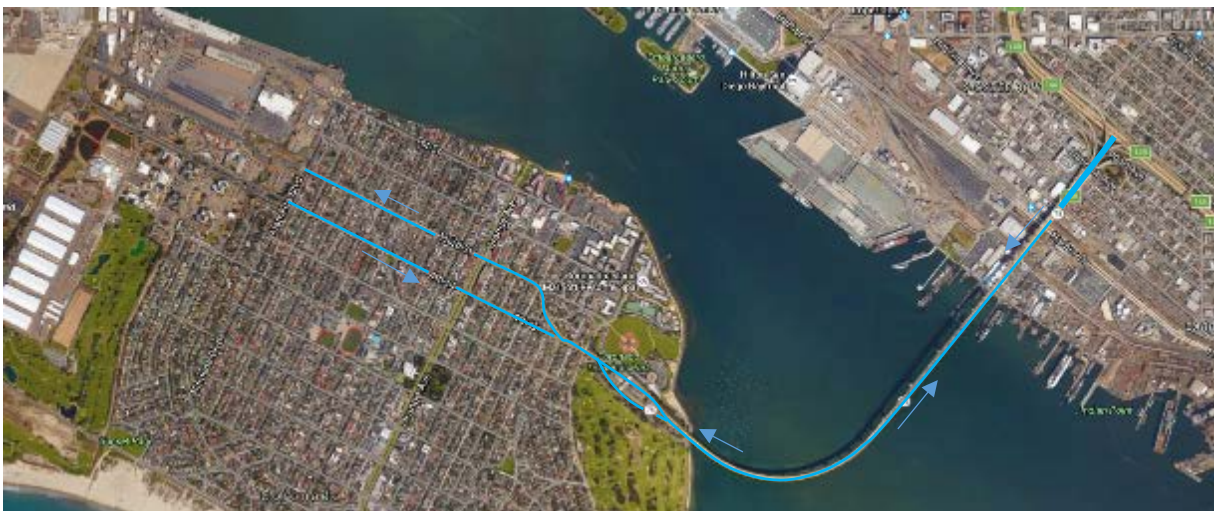
Appendix W. Map and Transition Route to Keller Auto Speedway



Appendix X. Map and Transition Route to Lemoore Raceway



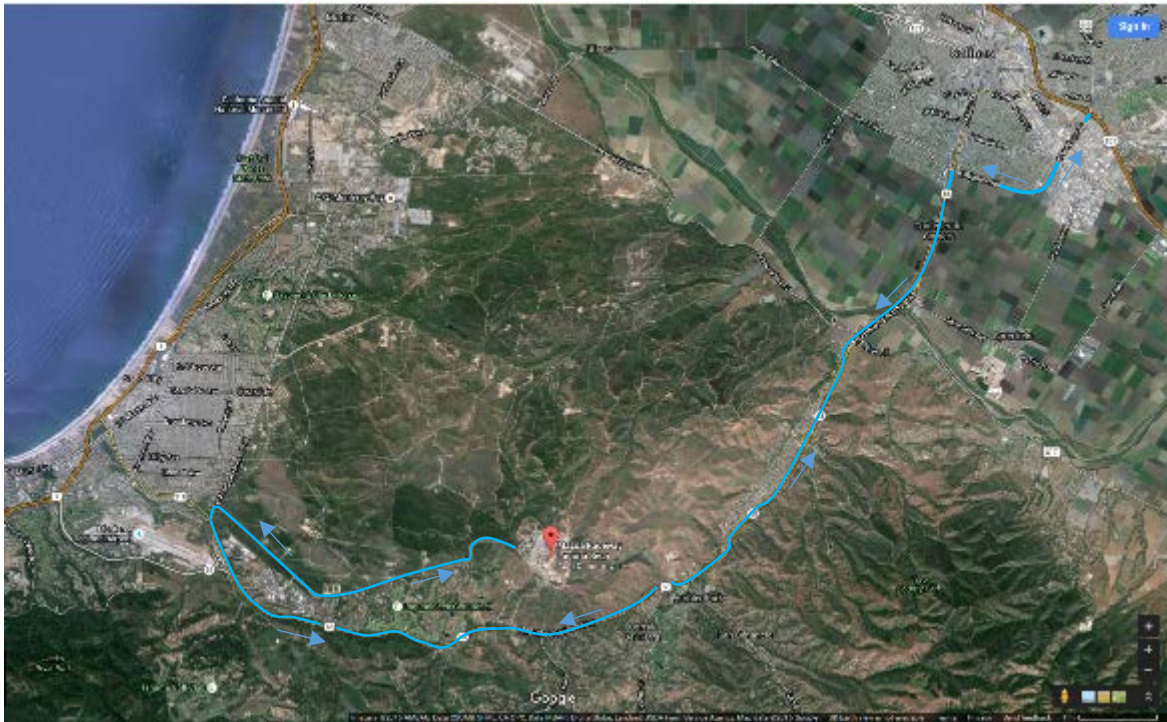
Appendix Y. Map and Transition Route to Coronado Speed Festival



Appendix Z. Map and Transition Route to Buttonwillow Raceway Park



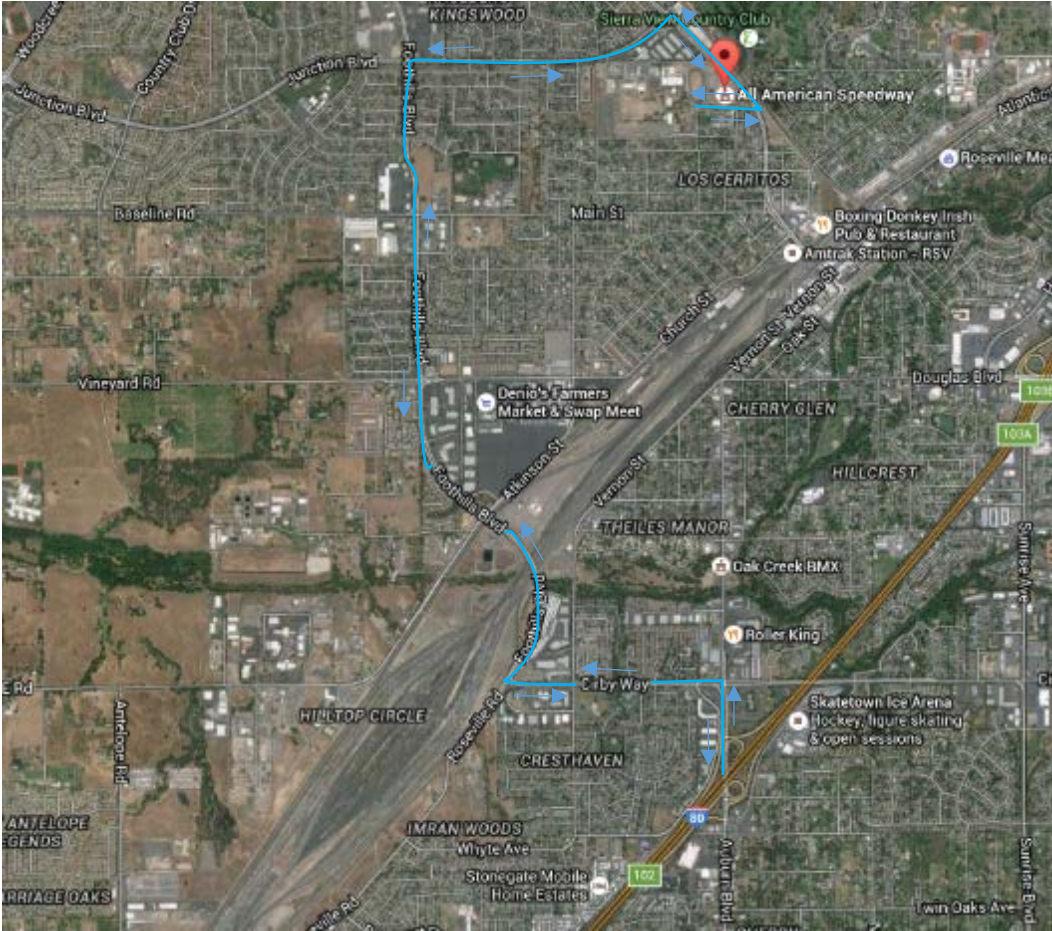
Appendix AA. Map and Transition Route to Mazda Raceway Laguna Seca



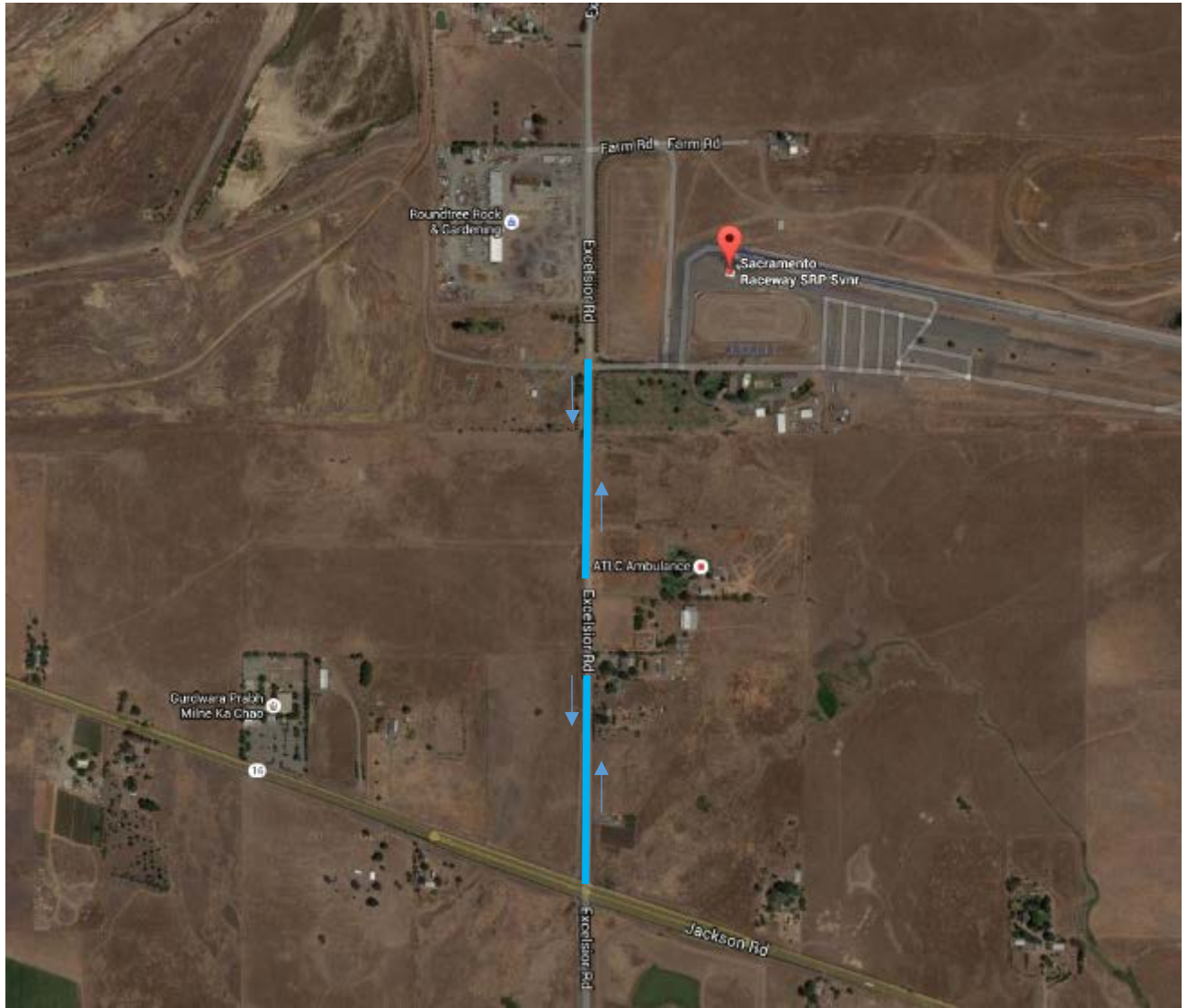
Appendix BB. Map and Transition Route to Willow Springs International Raceway



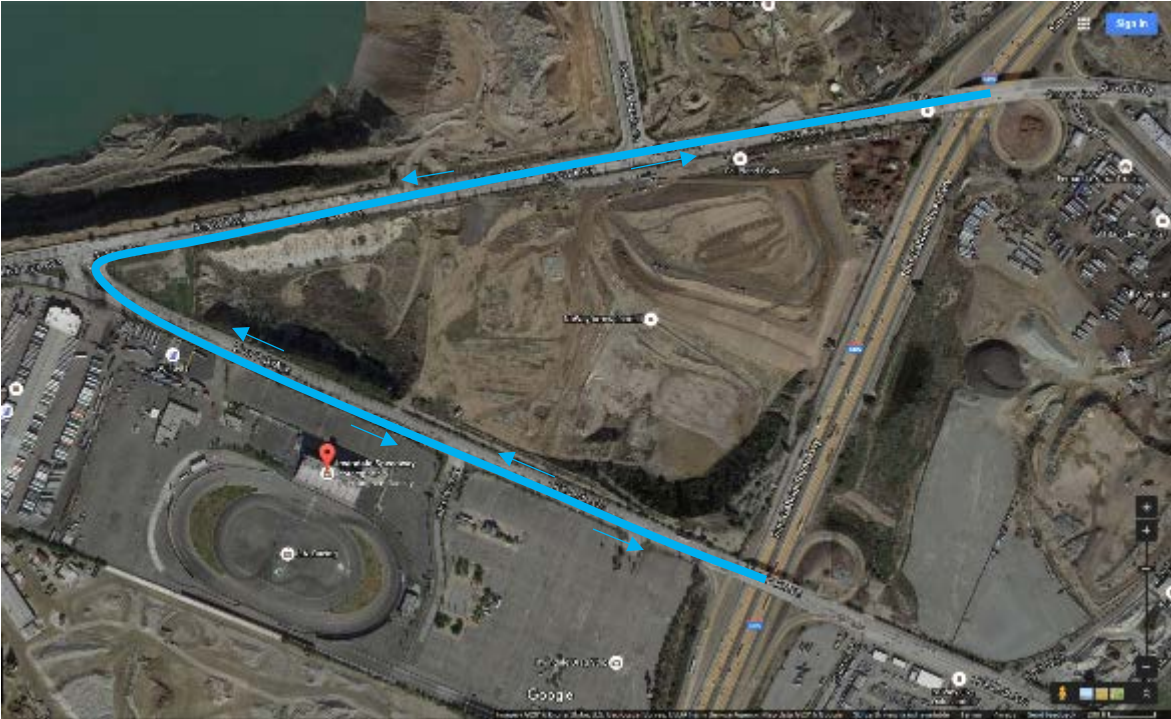
Appendix CC. Map and Transition Route to All American Raceway



Appendix DD. Map and Transition Route to Sacramento Raceway



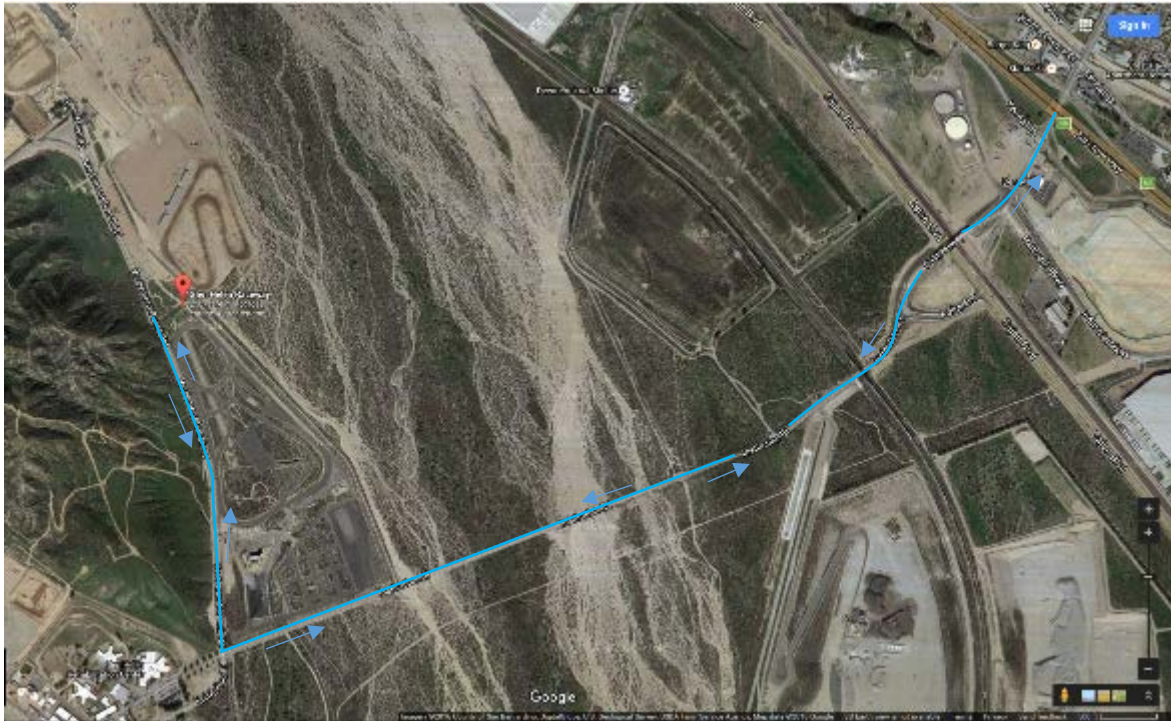
Appendix EE. Map and Transition Route to Irwindale Event Center



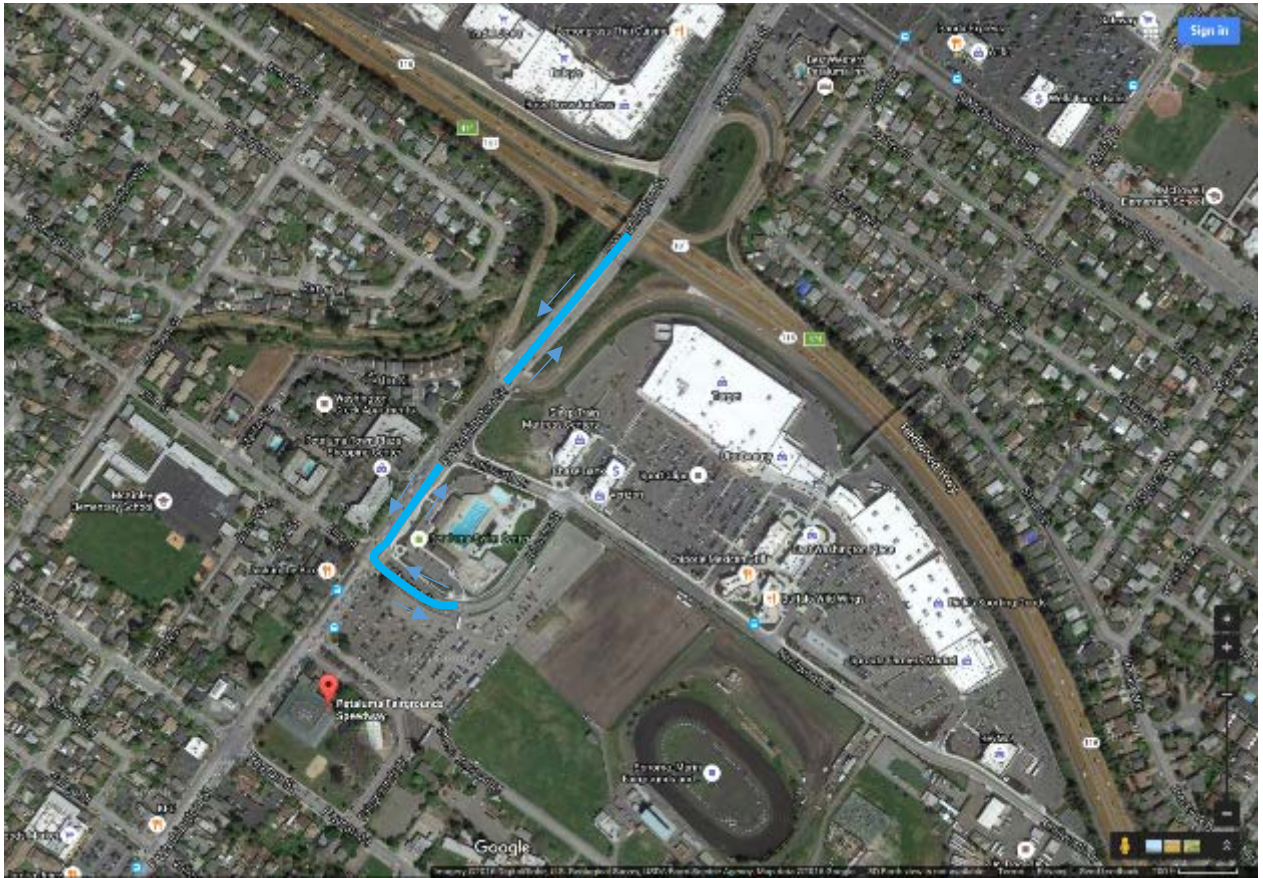
Appendix FF. Map and Transition Route to Thunderhill Raceway Park



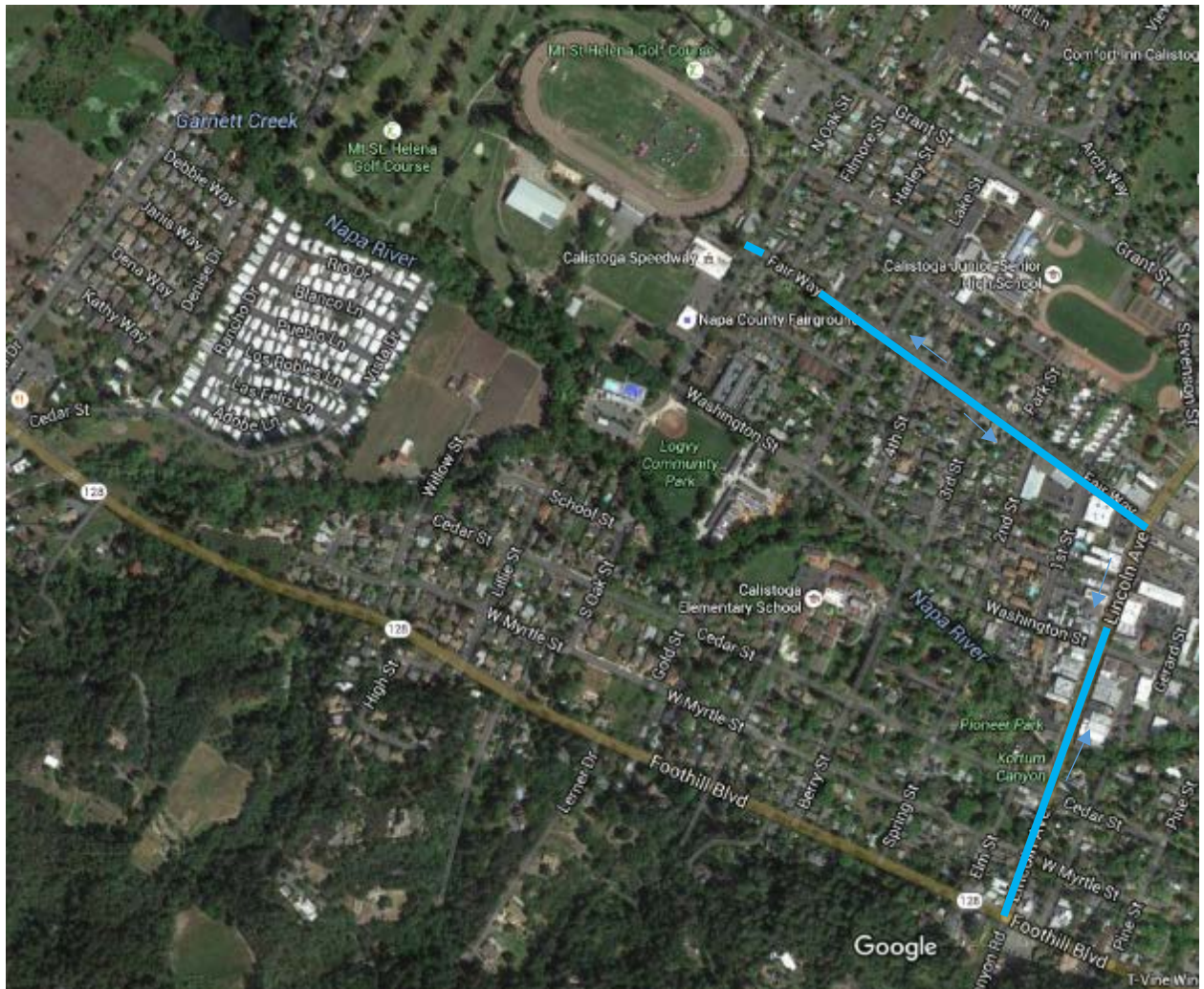
Appendix GG. Map and Transition Route to Glen Helen Raceway



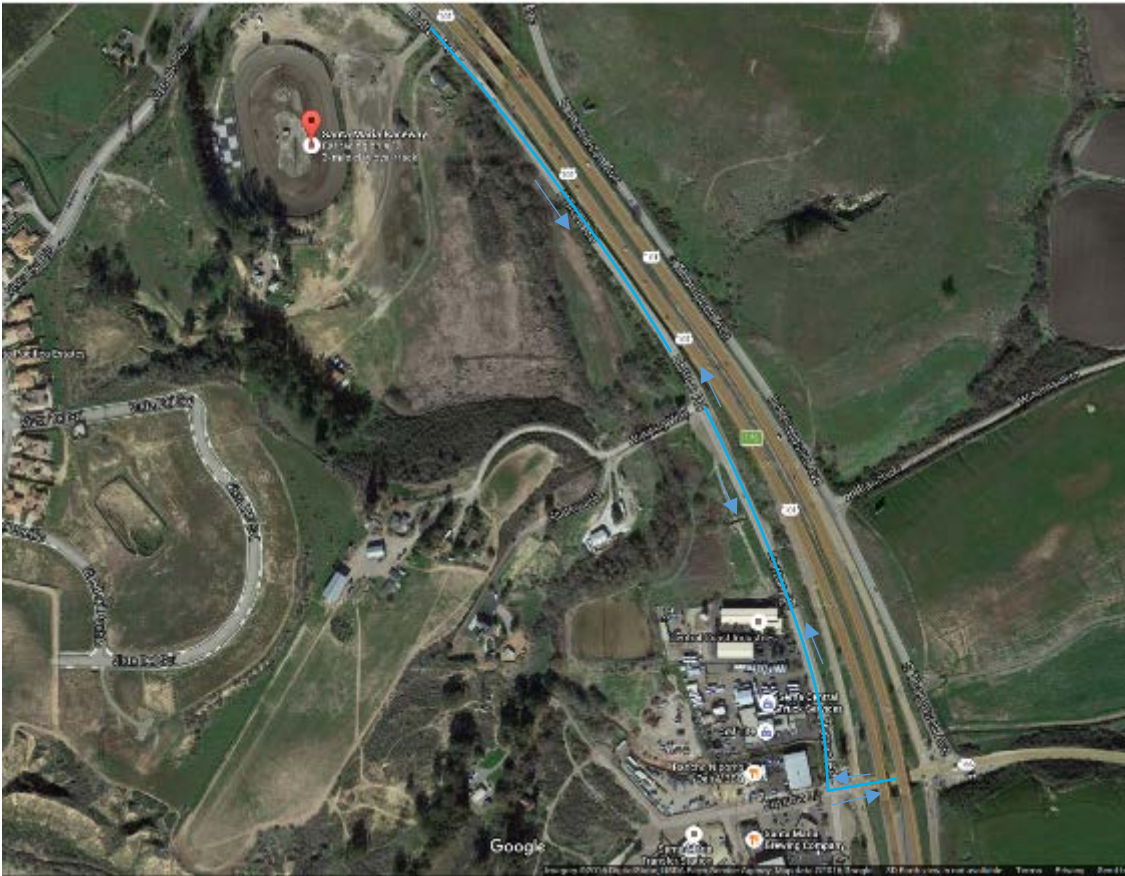
Appendix HH. Map and Transition Route to Petaluma Speedway



Appendix II. Map and Transition Route to Calistoga Speedway



Appendix JJ. Map and Transition Route to Santa Maria Raceway



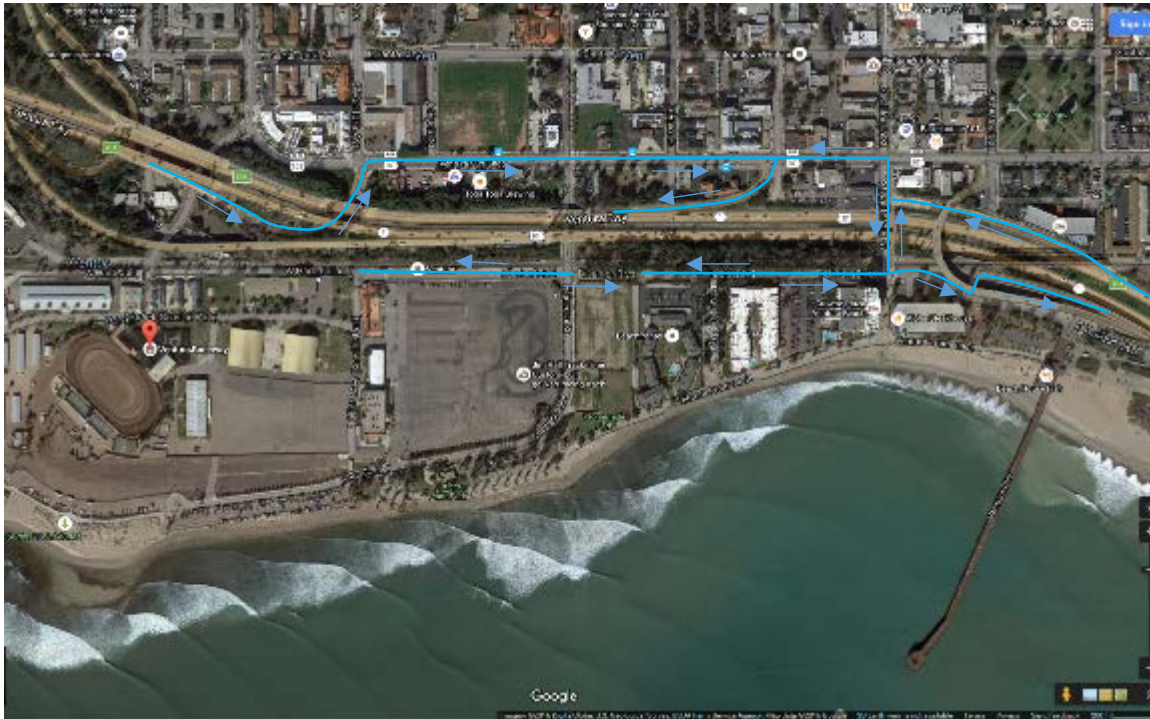
Appendix KK. Map and Transition Route to Thunderbowl Speedway



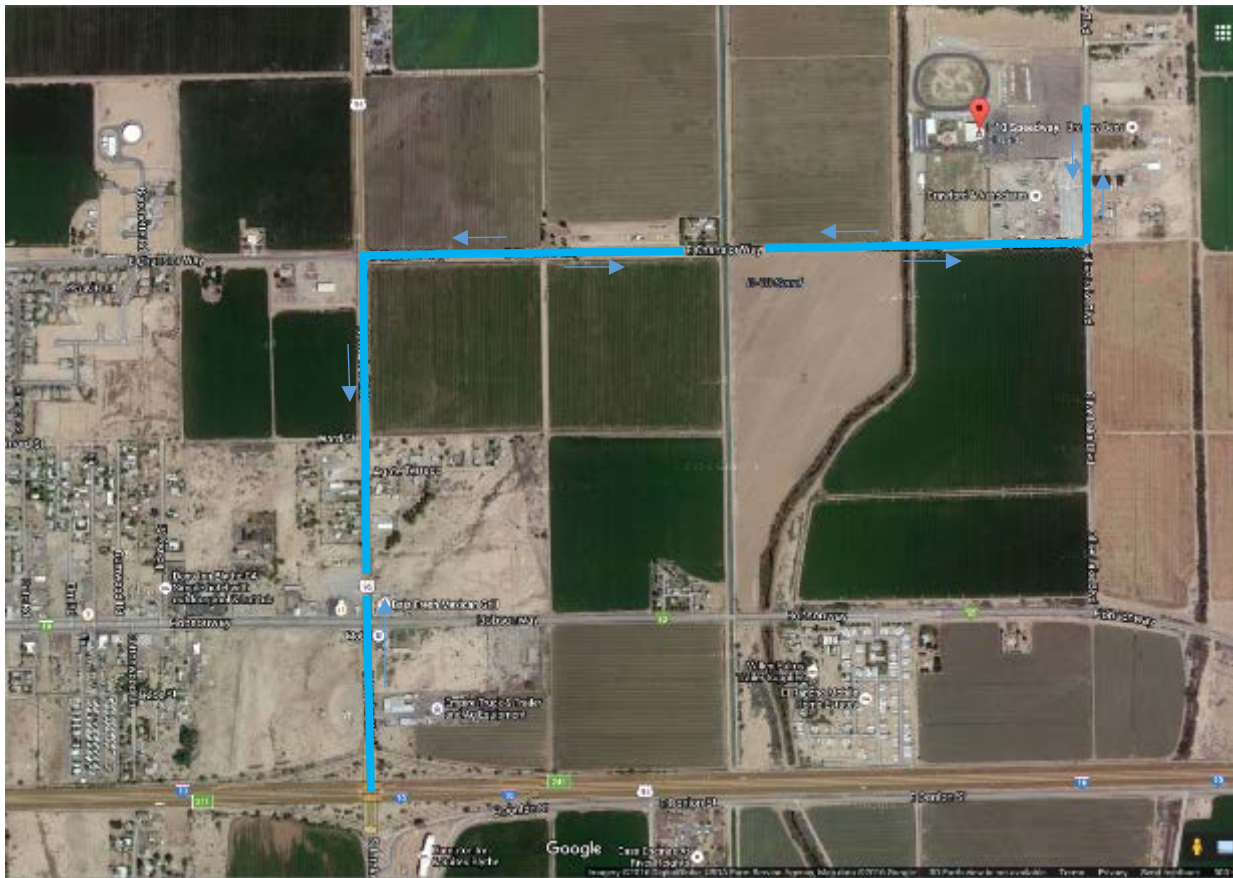
Appendix LL. Map and Transition Route to Keller Auto Raceway at Plaza Park



Appendix MM. Map and Transition Route to Ventura Raceway



Appendix NN. Map and Transition Route to Lucas Oil I-10 Speedway



Appendix OO. Map and Transition Route to Crows Landing Air Facility



Appendix PP. Map and Transition Route to Qualcomm Stadium



Appendix QQ. CHP Motorsports Information Bulletin

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

INFORMATION BULLETIN



ISSUES CONCERNING MOTORSPORTS VEHICLE COMBINATION LENGTH AND THE USE OF RECREATIONAL VEHICLES FOR MOTORSPORTS

Commercial Vehicle Section (CVS) has fielded numerous questions from enforcement personnel and from the motorsports industry regarding requirements for vehicle combinations transporting motorsports competition vehicles. The purpose of this Information Bulletin is to provide clarification on several issues concerning the industry.

Effective January 1, 1997, Senate Bill 1463 amended Vehicle Code (VC) Section 35401.5 to permit a truck tractor-semitrailer combination used in connection with motorsports to have a maximum Kingpin to Rear Axle (KPRI) measurement of 46 feet. Offtracking analysis on access routes to 27 California raceways was conducted in an attempt to allow access from the National Network (NN) system for these vehicles without a permit. Attached to this Information Bulletin is a list showing each raceway, the route that must be taken by these longer KPRI vehicles, and any requirements of local governments that have authority over non-state roads along the route. Please note that these vehicles do not have legal access to three raceways: Santa Maria Speedway, Holtville Aerodrome International Raceway, and Thunder Park. Vehicles registered in California and participating in a motorsports event outside of the state may use the NN system within California without a permit.

Some states have issued recreational vehicle (or passenger) plates to these vehicles. While another state may legally register these longer KPRI vehicles as recreational vehicles to operate intrastate, once they leave their home state they come under the guidelines of the International Registration Plan (IRP). The IRP is an agreement among the states to uniformly administer registration laws for commercial vehicles that travel interstate. The IRP agreement defines a recreational vehicle as being exempt from commercial registration when used by an individual or his/her family for recreational purposes. A vehicle used in conjunction with a business endeavor does not meet this definition. A business endeavor can be defined by monetary investments made with the expectation that some return on this investment will occur. If a vehicle is properly registered as a recreational vehicle in another state and is not used for business purposes, then California fees will not be required. However, such a vehicle will be held to the California legal maximum length of 65 foot overall with a 38 foot KPRI (40 foot with dual rear axles).

Several tractor-semitrailer combinations traveling to motorsports competition events were denied entry to California recently due to the size or type of vehicle configuration.

In order for a power unit and semitrailer combination used in connection with motorsports to qualify for the 46 foot KPRA, the power unit must meet the definition of a “truck tractor” per Section 655 VC.

655(a) VC: A “truck tractor” is a motor vehicle designed and used primarily for drawing other vehicles and not so constructed as to carry a load, other than a part of the weight of the vehicle and the load so drawn. As used in this section, “load” does not include items carried on the truck tractor in conjunction with the operation of the vehicle if the load carrying space for these items does not exceed 34 square feet.

Examples of motorsports-exempt vehicles include:

1. A combination in which the length of the semitrailer in exclusive combination with a truck tractor does not exceed 48 feet. A semitrailer not more than 53 feet in length shall satisfy this requirement when configured with two or more rear axles. This vehicle combination must be used exclusively or primarily in connection with motorsports. These trailers may operate with a KPRA to rear axle measurement limit of not more than 46 feet. (See Figure 1)
2. A motor vehicle with a large sleeper berth registered in another state as a recreational vehicle, towing a semitrailer and used in motorsports, would be considered a truck tractor as defined in the Vehicle Code. (See Figure 2)

The above mentioned vehicles and combinations are to be considered commercial vehicles and subject to all motor carrier regulations, including log book requirements, alcohol/controlled substance testing, etc. These operators are subject to Sections 2813, 27900 and 34507.5 VC, Title 13, and must possess a current International Fuel Tax Agreement license or a temporary permit obtained through the California Board of Equalization or purchased at truck stops prior to entering California.



Figure 1



Figure 2



Figure 3

A vehicle built on a bus chassis and registered as a recreational vehicle in another state cannot exceed a single vehicle length of 40 feet and combined length of 65 feet when operated in California. If the same vehicle is registered as a bus and meets all the requirements of a motor carrier of passengers, this vehicle cannot exceed a single vehicle length of 45 feet and a combined length of 65 feet. Additionally, this configuration would be restricted to the NN system routes and terminal access routes that meet the requirements found in Section 35400(b)(9) VC. (See Figure 3)

OUT OF STATE BASED VEHICLE

Operators of out-of-state based vehicles that are used to transport motorsports competition vehicles:

- (a) Operated in a business endeavor (regardless of length), or
- (b) Which are in excess of 65 feet and registered as a recreational vehicle

are subject to the same commercial motor vehicle laws as California-based vehicle operators with two exceptions:

1. Driver license:

Another state's driver license of appropriate class is required. Pursuant to Section 12502(b) VC, any person entitled to the exemption contained in subdivision (a), while operating a commercial motor vehicle within this state, as defined in subdivision (b) of Section 15210 VC, shall have in his/her possession a current medical certificate of a type described in subdivision (c) of Section 12804.9 VC which has been issued within two years of the date of operation of that vehicle.

2. Registration:

Only partial year California vehicle registration fees are required which may be purchased in one of two ways: 1) a valid four-day trip permit for both the power unit and the trailer; or 2) 90 days of California commercial vehicle registration. Operators may also apply for apportioned registration in their base state and pay fees based on the mileage traveled in each state (owners need to inquire with their base state concerning this option).

Any questions regarding this Information Bulletin may be directed to the Enforcement Unit, CVS, at (916) 445-1865.

ENFORCEMENT SERVICES DIVISION

ATTACHMENT

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