

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

INITIAL STATEMENT OF REASONS

TITLE 13 CALIFORNIA CODE OF REGULATIONS, DIVISION 2, CHAPTER 6, ARTICLE 1
AMEND SECTION 1151.9.1

Explosives Routes and Stopping Places (CHP-R-2017-13)

PURPOSE OF REGULATIONS AND PROPOSED AMENDMENTS

The California Highway Patrol (CHP) proposes to amend regulations in Title 13 of the California Code of Regulations (CCR), Division 2, Chapter 6, Article 1, regarding designated routes for the transportation of explosives by commercial vehicles on highways in the state.

Pursuant to Division 14, Transportation of Explosives, commencing with Section 31600 of the California Vehicle Code (CVC), the CHP shall adopt regulations specifying the routes to be used in the transportation of explosives. The CVC requires the CHP to keep information current in regulation with maps indicating designated routes. The CHP's field commands conduct annual surveys on the routes and stops for the transportation of explosives to determine if changes are necessary. The CHP's Central Division proposed an update of explosives routes because a section of State Route (SR) 180 has been constructed and linked together in the downtown Fresno area. The proposed regulation amendments will update explosives routes by removing 20.2 miles and extending 14.7 miles of currently designated routes. These updates will provide carriers an alternative route to reduce potential risks associated with the transportation of explosives and enhance public health and safety in the Fresno area.

The proposed amendments have received concurrence from the CHP Central Division, Fresno Fire Department (FFD), Fresno County Fire Protection District (FCFPD), State Fire Marshal (SFM), and California Department of Transportation (Caltrans).

PURPOSE OF AMENDMENTS

The proposed amendment will update designated transportation routes for explosives near the city of Fresno by amending Map 9A in Section 1151.9.1 CCR.

Title 49 of the Code of Federal Regulations Section 397.71 authorizes each state to select routes in order to minimize risks and enhance public safety for the highway transportation of explosives by examining, reviewing, and evaluating alternate routes. This routing assessment employs the methodologies outlined in the Highway Routing of Hazardous Materials – Guidelines for

Applying Criteria (FHWA-HI-97-003) published by the Federal Highway Administration (FHWA) of the United States (U.S.) Department of Transportation (USDOT). The methodologies employed take into consideration items such as driving distance and time, number of schools, population and housing densities, and traffic accident rates along highways. The data is compiled using demographic and spatial data retrieved from the 2010 census survey conducted by the U.S. Census Bureau (USCB), the 2012 emergency facility sites composed by the Southern California Earthquake Center (SCEC) at the University of Southern California (USC), the most current fire station sites maintained by the FFD, the traffic volumes counts compiled by Caltrans and managed by the Fresno Council of Governments (FCOG), the collision incidents collected in the CHP's Statewide Integrated Traffic Records System (SWITRS) database, and the highway length and transit time derived from Google Earth and Google Maps. When data is not available for certain segments of local roads, the best estimates on traffic volume counts and/or accident rates are applied. The evaluation on relative risks of each alternative route is conducted using a geographic information system with a buffer zone within one mile of the routes referenced in the 2016 Emergency Response Guidebook (ERG) issued by USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA).

RATIONALE AND ANALYSIS

The current explosives routes were designated and became effective in 1992. A recent report submitted by CHP Central Division identified:

“Neither version of Map 9A (Ch. 2, Page 26) accurately depicts Area freeways in their present construction. For example, SR-41 and SR-180 both now intersect with SR-99 and Map 9A shows no reference at all to SR-168, which is well west of Academy Avenue (depicted). The current depiction of Map 9A was drawn sometime prior to the connecting of SR-41 and SR-180. When SR-99 was built in 1962, the interchanges with SR-41 and SR-180 were delayed due to political and financial reasons. The current Map 9A, lists the surface street routes to be used due to the lack of connection of the state routes. However, in the late 1990s to early 2000s, construction of the interchanges with SR-99, SR-41, and SR-180 were completed. Traffic can now continuously travel on SR-41 and SR-180 through the now existing interchanges with SR-99.”

The rationale for these highway sections to be updated in the designation is to reduce driving distance and time while maintaining low potential risk to the health and safety of the public.

To reduce the potential risks associated with the transportation of explosives on highways in order to enhance public health and safety for its residents and environment, the CHP conducted an analysis on these proposed alternative routes. To evaluate the relative risks associated with the transportation of explosives on these highway sections in the Fresno area, this analysis grouped them into individual routes and compared each one of them with the existing highway routes designated for transporting explosives, as shown on Map 9A in *Figure 1* specified by Section 1151.9.1 CCR. *Figure 2* depicts the proposed alternative routes, which are also outlined in Table 1 along with their route characteristics that are derived from the best available data and

estimates by conducting demographic and spatial evaluation on their associated relative risks for highway transportation of explosives.

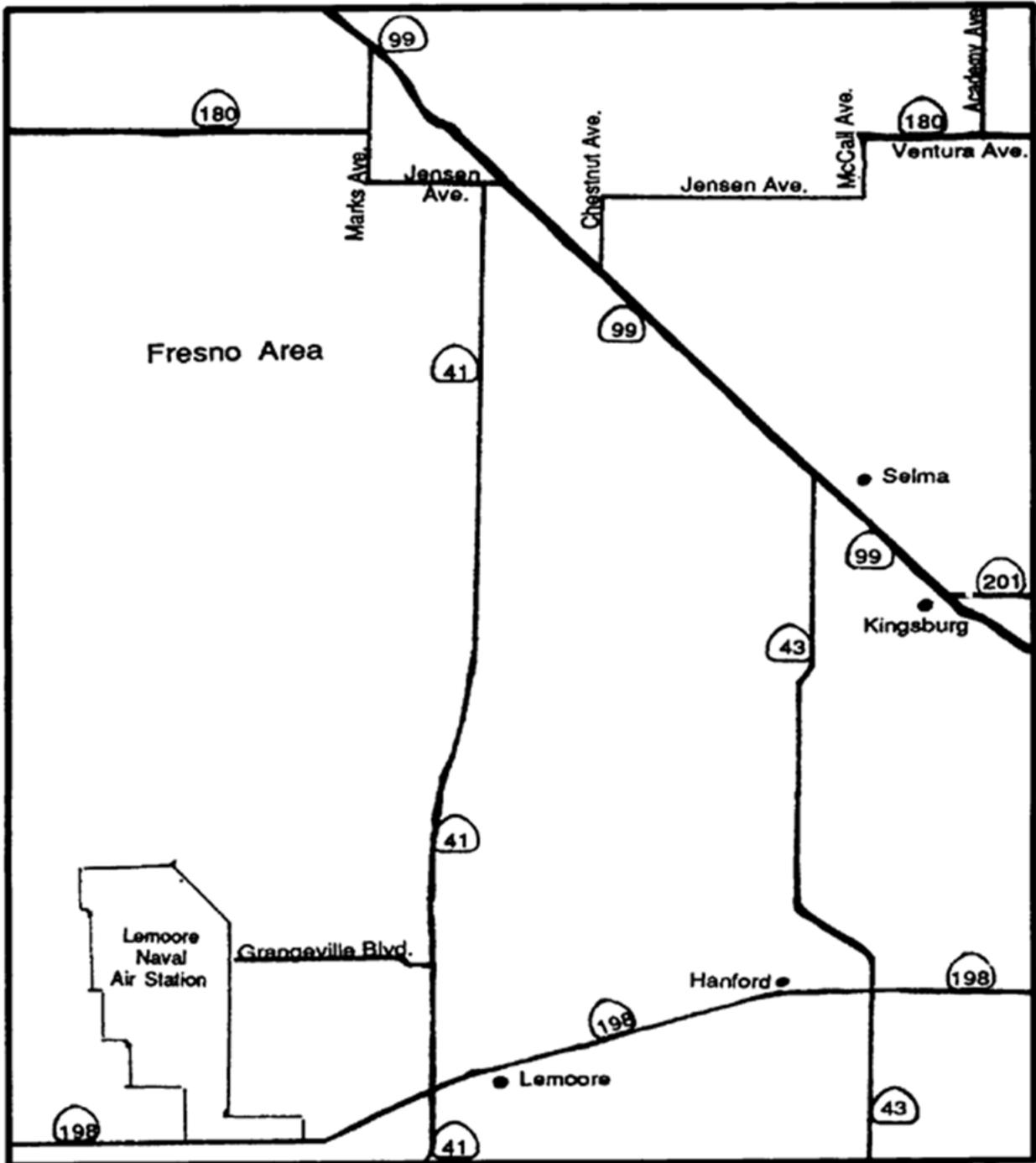


Figure 1: Map 9A Showing the Existing Routes Designated in the Fresno Area

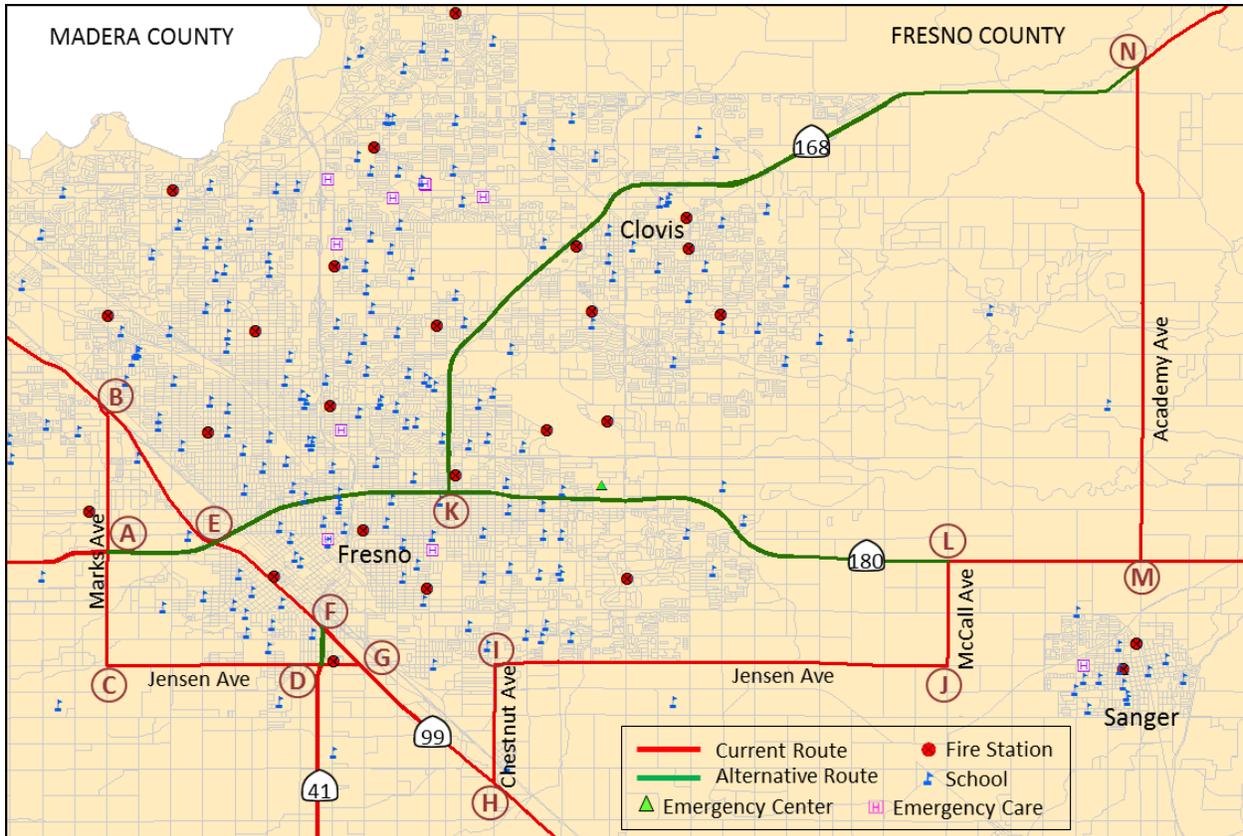


Figure 2: Alternative Routes Evaluation for Transporting Explosives in the Fresno Area

As shown in Figure 1 and Figure 2, for explosive shipments to be transported from the SR-180 junctions at Marks Avenue (Ave.) to McCall Ave. or vice versa, the shortest trip taken on the currently designated highways can be represented by Route 1 going from Point A to C, D, G, H, I, J, and L (ACDGHIL). Following the proposal to take advantage of the downtown section of SR-180, Route 2 presents an even shorter trip from Point A to E, K, and L (AEKL). Table 1 reveals that Route 2 is 6.4 miles shorter in distance with less than half the drive time than Route 1. However, because SR-180 passes through the downtown area of Fresno, the population and housing units within its 1-mile corridor along Route 2 are more than double of those along Route 1. Even though Route 2 has a higher number of schools, it has more emergency centers and fire stations nearby.

Accident rates are a function of traffic volumes and collision incidents along a highway and are closely related to potential risks in this assessment. Traffic counts provided by the FCOG along local road sections in Route 1 were surveyed mostly in 2005. In order to have them compared to the 2013-2015 collision counts, these traffic volumes were adjusted by the population increase in the city of Fresno from 2005 to 2014. Another estimate of the traffic volume was conducted for SR-180. Comparing to SR-99, SR-168, or SR-41 at the SR-180 junction, the traffic counts for this downtown section of SR-180 were about 6-10 times lower. One possible reason is because the construction of SR-180 for the downtown area was just completed in recent years. Thus, the traffic volumes for this section of SR-180 were only counted at two locations. One location was at the junction of Cornelia Ave. which is about 3.5 miles west of SR-99, and the other was at the

junction of McCall Ave. which is about 8 miles east of SR-168, as shown in *Figure 3*. The heavy traffic between these 16 miles of SR-180 was not surveyed and, thus, the traffic volumes on the section of SR-180 near downtown Fresno appeared lower than the traffic volumes surveyed on the downtown sections of other major highways.

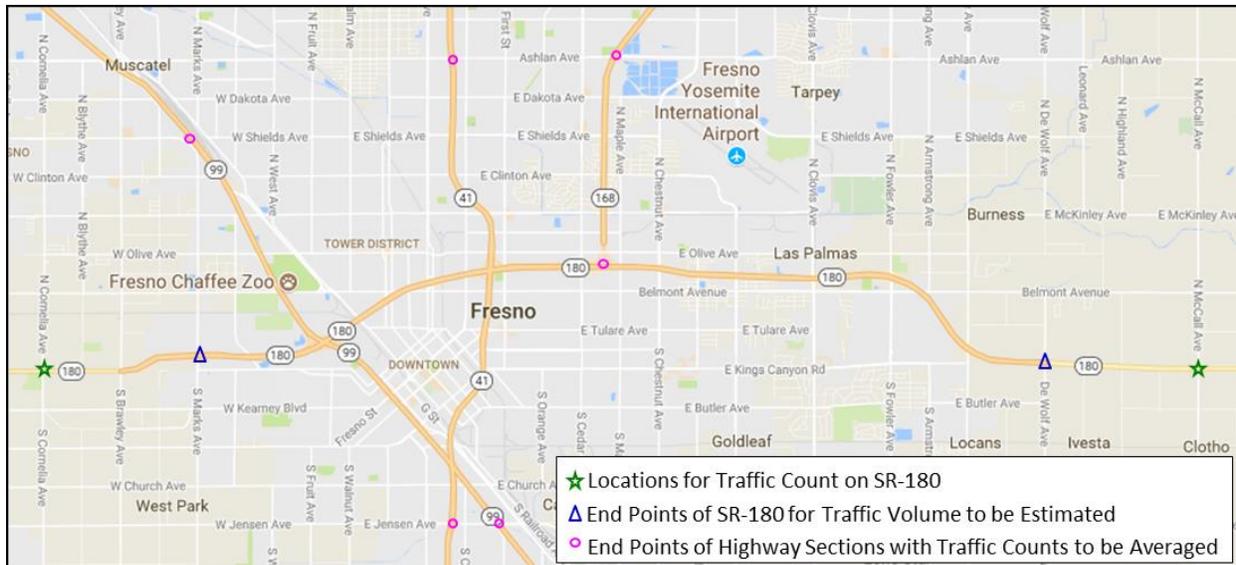


Figure 3: Traffic Volume Estimate Sites for SR-180 in the Downtown Area of Fresno

To estimate the vehicle miles traveled on SR-180 in the downtown area of Fresno, the traffic volume on SR-99 between Jensen Ave. and Shields Ave.; SR-41 between Jensen Ave. and Ashlan Ave.; and SR-168 between SR-180 and Ashlan Ave. were averaged and then applied to SR-180 between Marks Ave. and De Wolf Ave. By doing so, the accident rate along this section of SR-180 was then reduced from 0.62 to 0.13 collisions per million vehicle miles traveled, which is within the range of the accident rates on SR-99 (BF on *Figure 2*), SR-99 (GH on *Figure 2*), SR-41 (FD on *Figure 2*), and SR-168 (KN on *Figure 2*) at 0.13, 0.07, 0.09, and 0.09 collisions per million vehicle miles traveled, respectively.

With these adjustments and estimates, Table 1 shows the accident rate of Route 2 is lower than half of that of Route 1. Combining the higher population and housing units along the route, Route 2 possesses a relative population risk at only 1 percent higher and a relative housing risk at 10 percent higher when compared to Route 1. The differences in the relative risks are less than the FHWA's 25 percent threshold. The SR-180 route meets all requirements under the federal Surface Transportation Assistance Act of 1982 (STAA). The CHP proposes to add the downtown section of SR-180 into the designation for the transportation of explosives and remove all of the local non-state highways in Route 1 from the designation.

To evaluate whether to add SR-41 between Jensen Ave. and SR-99 into the designation, Route 3 (BACD on *Figure 2*), Route 4 (BEFGD on *Figure 2*), and Route 5 (BEFD on *Figure 2*) were compared with each other in Table 1. As presented in Table 1, among these three routes, Route 3 goes along the local roads and has the highest relative population risk due to high accident rates. Even though, between Routes 4 and 5, the differences in relative population and housing risk is

less than the FHWA’s threshold, the CHP proposes to add this short section of SR-41 into the designation not only because it meets the STAA requirements, but also because Route 5 possesses the lowest relative population and housing risk among these three compared routes.

To access Lake Shore located in the northeastern area of Fresno County, SR-168 is the only state road. In the current designation, Academy Ave. provides a linkage from SR-180 to SR-168 and vice versa. Adding the downtown section of SR-168 between SR-180 and Academy Ave. into the designation seems to provide a direct route to Lake Shore for the eastbound carriers on SR-180. Route 6 (KLMN on *Figure 2*) and Route 7 (KN on *Figure 2*) were evaluated and compared for this purpose. As presented in Table 1, even though Route 7 offers a shorter drive distance and time, it has a higher population and number of housing units within its 1-mile buffer than Route 6. With similar accident rates on these two routes, Route 7 is 74 percent higher in its relative population risk and even higher in its relative housing risk. Thus, under the current condition, the downtown section of SR-168 between SR-180 and Academy Ave. is not ready to be added into the designation for the transportation of explosives considering the public health and safety of this area.

Table 1: Routes Evaluated for Transporting Explosives in the Fresno Area

Alternate Routes	Route Length (mile)	Length Difference (mile)	Ratio (Alternates/ Minimum)	Estimated Driving Time (minute)	Ratio (Alternates/ Minimum)	Potential Population Exposure (<= 1 mile)	Ratio (Alternates/ Minimum)
Route 1: ACDGHIJL	20.5	6.4	1.46	32	2.46	50,007	1.00
Route 2: AEKL	14.0	0.0	1.00	13	1.00	118,797	2.38
Route 3: BACD	8.3	1.8	1.29	17	2.43	55,296	1.00
Route 4: BEFGD	7.1	0.6	1.09	8	1.14	80,001	1.45
Route 5: BEFD	6.5	0.0	1.00	7	1.00	76,971	1.39
Route 6: KLMN	21.0	5.6	1.36	23	1.64	71,538	1.00
Route 7: KN	15.5	0.0	1.00	14	1.00	124,279	1.74

Table 1 (continued)

Alternate Routes	Potential Population Impact (people per mile)	Ratio (Alternates/ Minimum)	Accident Rate (collisions per million vehicle miles traveled)	Ratio (Alternates/ Minimum)	Relative Population Risk (People per million vehicle miles traveled per road mile)	Ratio (Alternates/ Minimum)
Route 1: ACDGHIJL	2,445	1.00	0.30	2.35	732	1.00
Route 2: AEKL	8,479	3.47	0.13	1.00	1,081	1.48
Route 3: BACD	6,662	1.00	1.07	7.14	7,145	4.64
Route 4: BEFGD	11,338	1.70	0.15	1.16	1,703	1.11
Route 5: BEFD	11,922	1.79	0.13	1.00	1,541	1.00
Route 6: KLMN	3,403	1.00	0.09	1.00	322	1.00
Route 7: KN	8,034	2.36	0.09	1.00	758	2.35

Table 1 (continued)

Alternate Routes	Relative Population Risk (People per million vehicle miles traveled along route)	Ratio (Alternates/ Minimum)	Number of Schools (<= 1 mile)	Ratio (Alternates/ Minimum)	Potential Housing Exposure (<= 1 mile)	Ratio (Alternates/ Minimum)	Relative Housing Risk (Housing per million vehicle miles traveled along route)	Ratio (Alternates/ Minimum)
Route 1: ACDGHJLL	14,974	1.00	17	1.00	13,999	1.00	4,192	1.00
Route 2: AEKL	15,139	1.01	37	2.18	36,242	2.59	4,619	1.10
Route 3: BACD	59,306	5.96	15	1.00	17,263	1.00	18,515	5.88
Route 4: BEFGD	12,020	1.21	23	1.53	25,183	1.46	3,784	1.20
Route 5: BEFD	9,947	1.00	23	1.53	24,385	1.41	3,151	1.00
Route 6: KLMN	6,774	1.00	19	1.00	21,599	1.00	2,045	1.00
Route 7: KN	11,730	1.73	36	1.89	44,113	2.04	4,164	2.04

Figure 4 shows the updated Map 9A to be specified in Section 1151.9.1 CCR by removing 5.0 miles of Marks Ave. between Jensen Ave. and SR-99; 3.9 miles of Jensen Ave. between Marks Ave. and SR-99; 2.3 miles of Chestnut Ave. between SR-99 and Jensen Ave.; 7.0 miles of Jensen Ave. between Chestnut Ave. and McCall Ave.; and 2.0 miles of McCall Ave. between Jensen Ave. and SR-180; and adding 14.0 miles of SR-180 between Marks Ave. and McCall Ave. and 0.7 miles of SR-41 between Jensen Ave. and SR-99. At the same time, to match the updated routes, the CHP also proposes to remove the restriction specified in Section 1151.9.1(b) CCR that states, “Northbound vehicles on SR-41 turn east on Jensen Avenue to SR-99, then north to Belmont Avenue. South on Marks Avenue to SR-180.”

In summary, this proposed amendment will remove 20.2 miles of the current routes and extend 14.7 miles of the designated routes for the transportation of explosives by commercial vehicles to enhance health and safety of the public in the Fresno area.

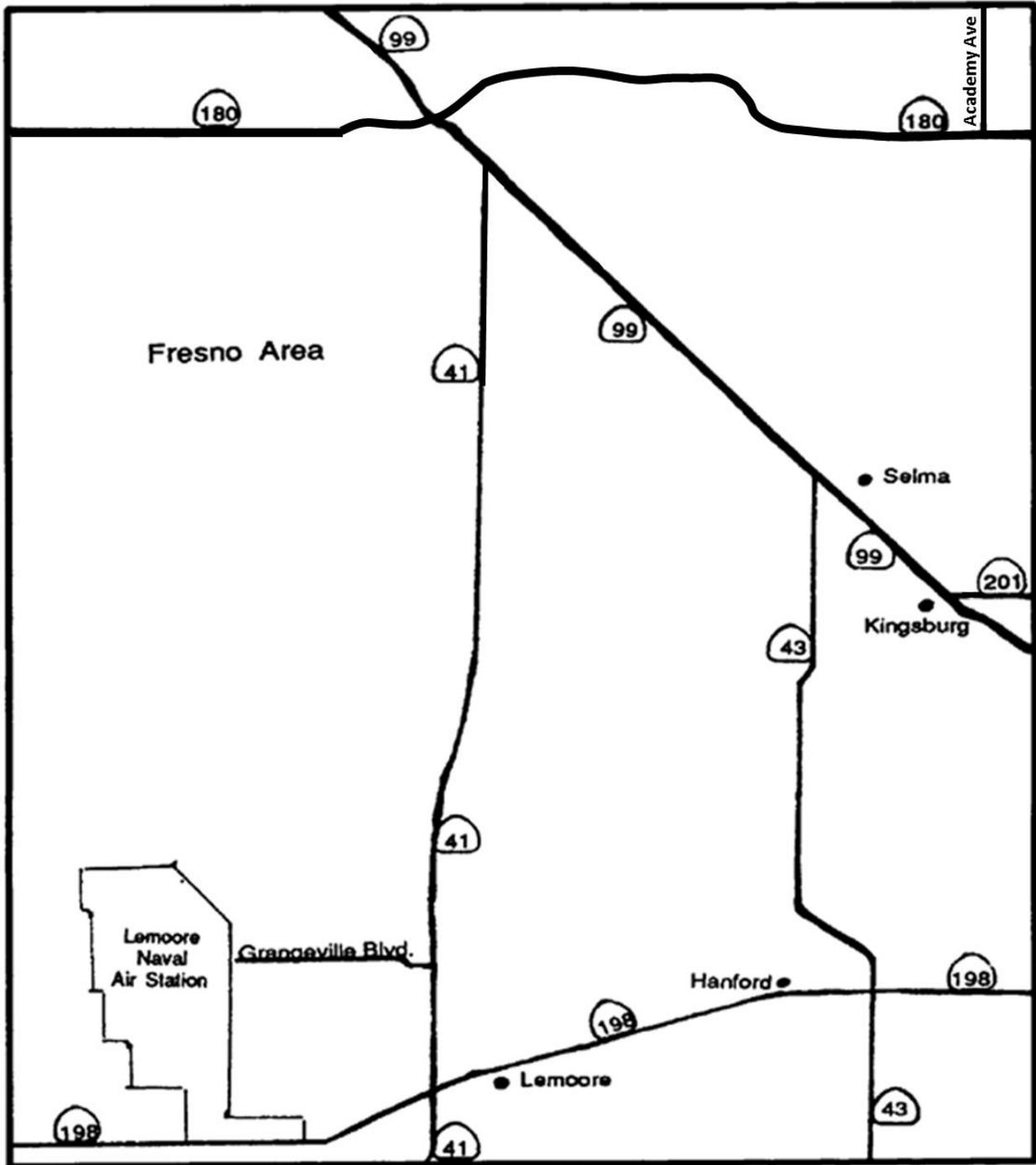


Figure 4: Proposed Map 9A Updating Explosive Routes Designated near Fresno

STUDIES/RELATED FACTS

The evaluation of possible routes follows the recommended methodologies outlined in the Highway Routing of Hazardous Materials – Guidelines for Applying Criteria (FHWA-HI-97-003) published by the FHWA of USDOT. The data used for this analysis was obtained from the

2010 census survey conducted by the USCB, the 2012 emergency facility sites composed by the SCEC at the USC, the most current fire station sites maintained by the FFD, the traffic volumes counts compiled by Caltrans and managed by the FCOG, the collision incidents collected in the CHP's SWITRS database, and the highway length and transit time derived from Google Earth and Google Maps. When data is not available for certain segments of local roads, the best estimates on traffic volume counts or accident rates were applied to the risk comparisons. The evaluation was conducted using a geographic information system with a buffer zone within one mile of the routes referenced in the 2016 ERG issued by USDOT's PHMSA.

CONSULTATION WITH OFFICIALS

These changes were evaluated by the CHP's Commercial Vehicle Section and received concurrence from the CHP Central Division, FFD, FCFPD, SFM, and Caltrans.

ALTERNATIVES

Other than the alternatives discussed above, no reasonable alternative considered by the CHP or otherwise identified and brought to the attention of the CHP would be more effective in fulfilling the purpose for which the action is proposed or as effective and less burdensome to affected private persons than the proposed action. The alternative of making no changes to the existing regulations was rejected because it fails to keep information current in the CCR. Failing to provide updated routes to carriers may increase potential risks of detrimental hazards while transporting explosives in the Fresno area.

LOCAL MANDATE

These regulations do not impose any new mandate on local agencies or school districts.

ECONOMIC IMPACT ANALYSIS

Creation or Elimination of Jobs

The CHP has made an initial determination that this proposed regulatory action will neither create nor eliminate jobs within the State of California because the regulation only designates an additional 14.7 miles and removes 20.2 miles of explosives routes. The transportation of explosives by commercial vehicles along the discussed routes presents only a very small portion of the total vehicle movement in the state.

Creation of New Business or Elimination or Expansion of Existing Business

The CHP has not identified any significant adverse impact on the creation of new businesses or elimination or expansion of existing business within the State of California. Businesses involved in the transportation of explosives will have more consistent and updated information on designated routes in the state. The proposed regulatory action will not create new businesses or eliminate or expand any existing business in transporting explosives or offering these trucks stop services via the updated routes.

Benefits of the Regulation

This proposed regulatory action will continue to provide a nonmonetary benefit to the protection of the health and welfare of California residents, worker safety, and the state's environment. The changes to the application of the regulation are not substantive, and bring the regulation in conformance with existing statute. The proposed changes update and clarify safe and efficient routes designated for carriers transporting explosives and contribute to transportation safety and public health.

BUSINESS IMPACT TO THE STATE

Based on the economic impact analysis, the CHP has made an initial determination that the proposed regulatory action would have no significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states. The proposed regulation action updates designated highway routes for commercial vehicle carriers moving explosives in California.

FISCAL IMPACT TO THE STATE

The CHP has determined these regulation amendments will result in:

- No significant increased costs for persons or business;
- No significant compliance costs for persons or businesses directly affected;
- No discernible adverse impact on the quantity and distribution of goods and services to large and small businesses or the public;
- No impact on the level of employment in the state; and
- No impact on the competitiveness of California to retain businesses, as the regulation amendments will enhance the health and safety of transporting explosives for businesses and the public.