

Freight on the I-80 Network: Keeping Commerce Moving

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I-80 Winter Operations Coalition
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Presentation by Daniel B. Kuhn, UDOT Railroad & Freight Planner

(Photos by Daniel B. Kuhn, Vern Keeslar of InterPlan, and C.R. England, Inc.)

Freight on the I-80 Network:

1. I-80: A Multi-Route Freight Corridor
2. I-80: Transporting the West's Bounty
3. UDOT Freight Planning One Hour Truck Count Data
4. I-15: The I-80 Network's Southwestern Connection
5. I-80 Corridor: Winter Weather Impacts and Alternate Routes
6. Highway Freight Challenges and Needs
7. UDOT Freight Planning Focus

I-80: A Multi-Route Freight Corridor

- I-80 issues impact freight flow on connecting routes
- Feeder route issues impact freight flow on I-80
- I-80 system handles time-sensitive, refrigerated/perishable freight



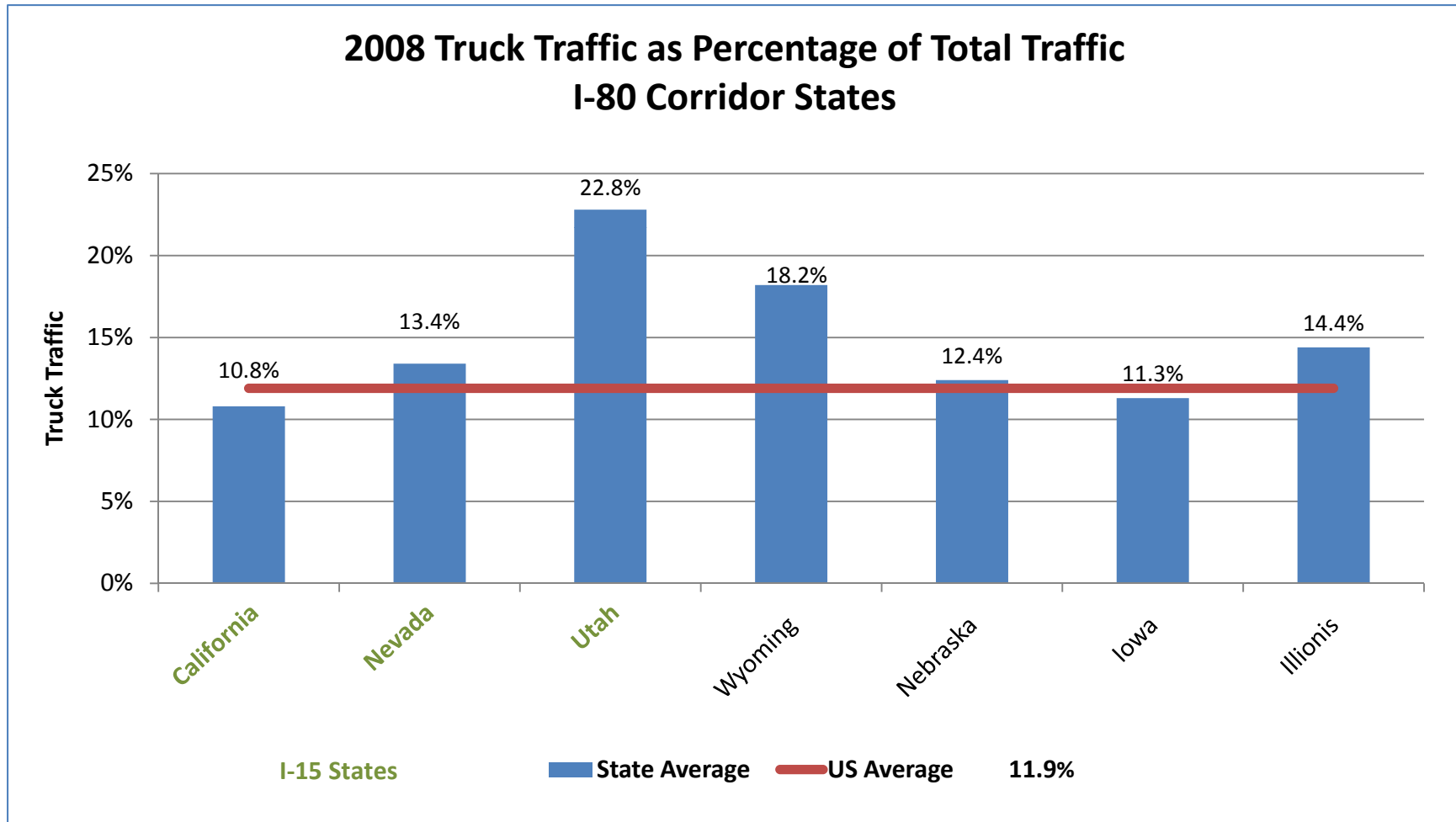
Photo by Daniel B. Kuhn

I-80: The Traditional Perspective

- **I-80 Chicago to Sacramento: 2,050**
(distances shown in miles)
- A relatively low number of trucks travel I-80 the entire distance from Sacramento to Chicago
- West of Chicago, I-80 is but one important link in a vast and dynamic highway freight network



I-80: Total Truck Traffic by State



Highway Statistics 2008, USDOT (FHWA), non-weighted average

I-80: Transporting the West's Bounty

- Have you ever noticed how many refrigerated (reefer) trucks there are along I-80 and its connecting routes?
- C.R. England, America's largest refrigerated truck company, is headquartered at the hub of the I-80 network in Salt Lake City
- Approximately half of C.R. England's nearly 4,000 trucks pass through Salt Lake City every week, most traveling on portions of I-80



Photo courtesy of C.R. England, Inc

How Dams Equal Truck Traffic on the I-80 Network

- Since 1902, major government water projects have led to the development of large growing areas in the West
- Adequate water means agricultural production

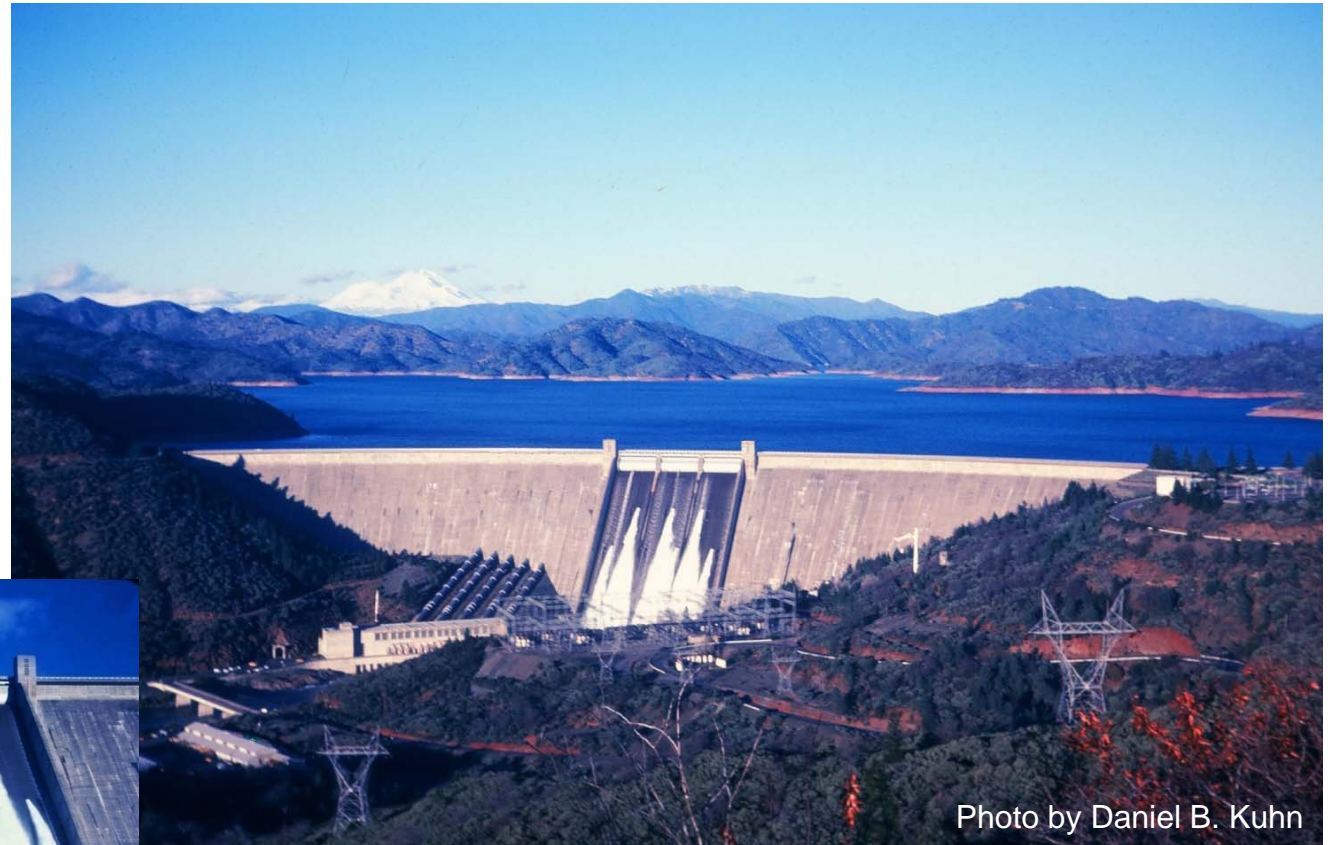


Photo by Daniel B. Kuhn



Photo by Daniel B. Kuhn

Freight on the I-80 Network

- Irrigation projects allow farmers to grow high value fruit and vegetable crops in formerly unproductive areas
- Refrigerated (reefer) trucks transport those crops to markets across North America, with much of that traffic using I-80 east of Sacramento or Salt Lake City

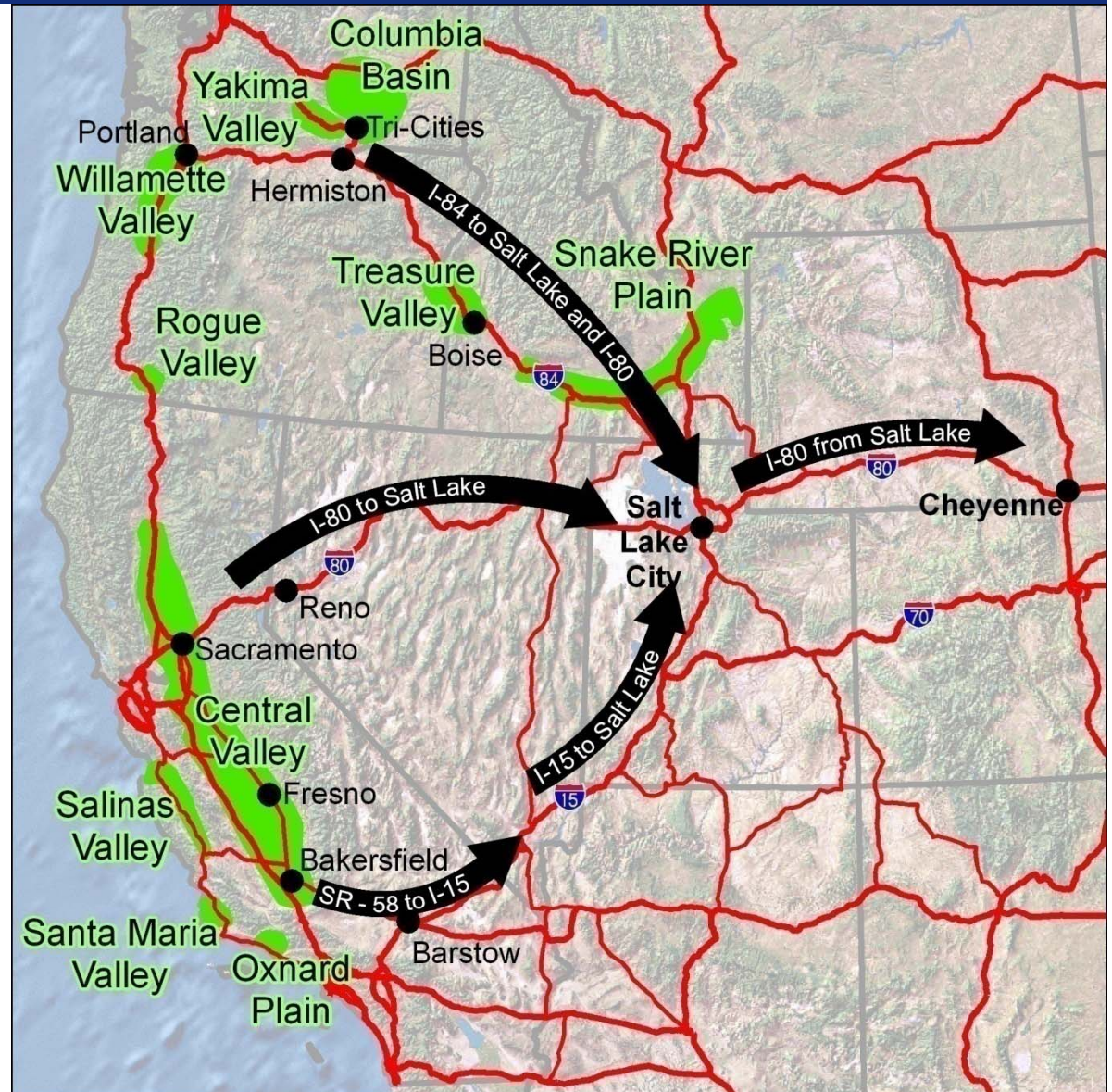


Photo by Daniel B. Kuhn



I-80 Reefer Truck Flow

- Refrigerated produce is extremely sensitive to delays in transport
- Preliminary data indicates that reefer trucks constitute approximately 30 percent of total truck traffic on I-80 across the West
- I-80 reefer truck traffic approaches 50 percent in certain areas of the West during summer and fall harvest



UDOT Freight Planning One Hour Truck Count Data

- **Data collected by UDOT Railroad & Freight Planner Daniel B. Kuhn along I-80 and I-15 from western Wyoming to northern and southern California via Utah**
- **Count locations terminate near Sacramento and Barstow, reflecting their role as freight route hubs in California**
- **Counts made during May to October, 2010 agricultural harvest season**
- **Data obtained during full one hour truck counts and not extrapolated from 15 or 30 minute counts**
- **All truck counts are FHWA Class 8 and above large combo trucks**
- **Data includes a breakdown of reefer and non-reefer trucks**
- **This one hour truck count data provides a snapshot look at large truck operations along I-80 and I-15 in the West**
- **All data, graphics, and maps formulated for UDOT Planning by InterPlan Company of Midvale, Utah**

FHWA Vehicle Classification



1: Motorcycles



2: Automobiles



3: 2 Axle - 4 Tire Single Unit



4: Buses



5: 2 Axle - 6 Tire Single Unit



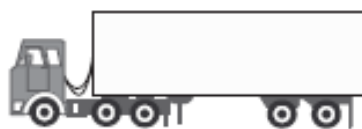
6: 3 Axle Single Unit



7: 4+ Axle Single Unit



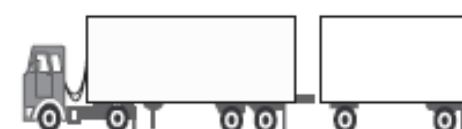
8: 4 or Less Axle Single Trailer



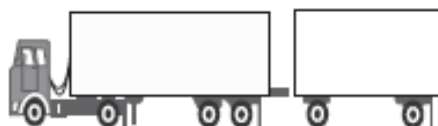
9: 5 Axle Single Trailer



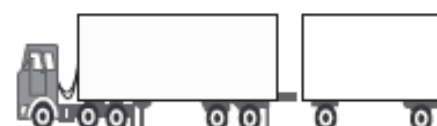
10: 6 or More Axles Single Trailer



11: 5 or Less Axles Multi Trailer

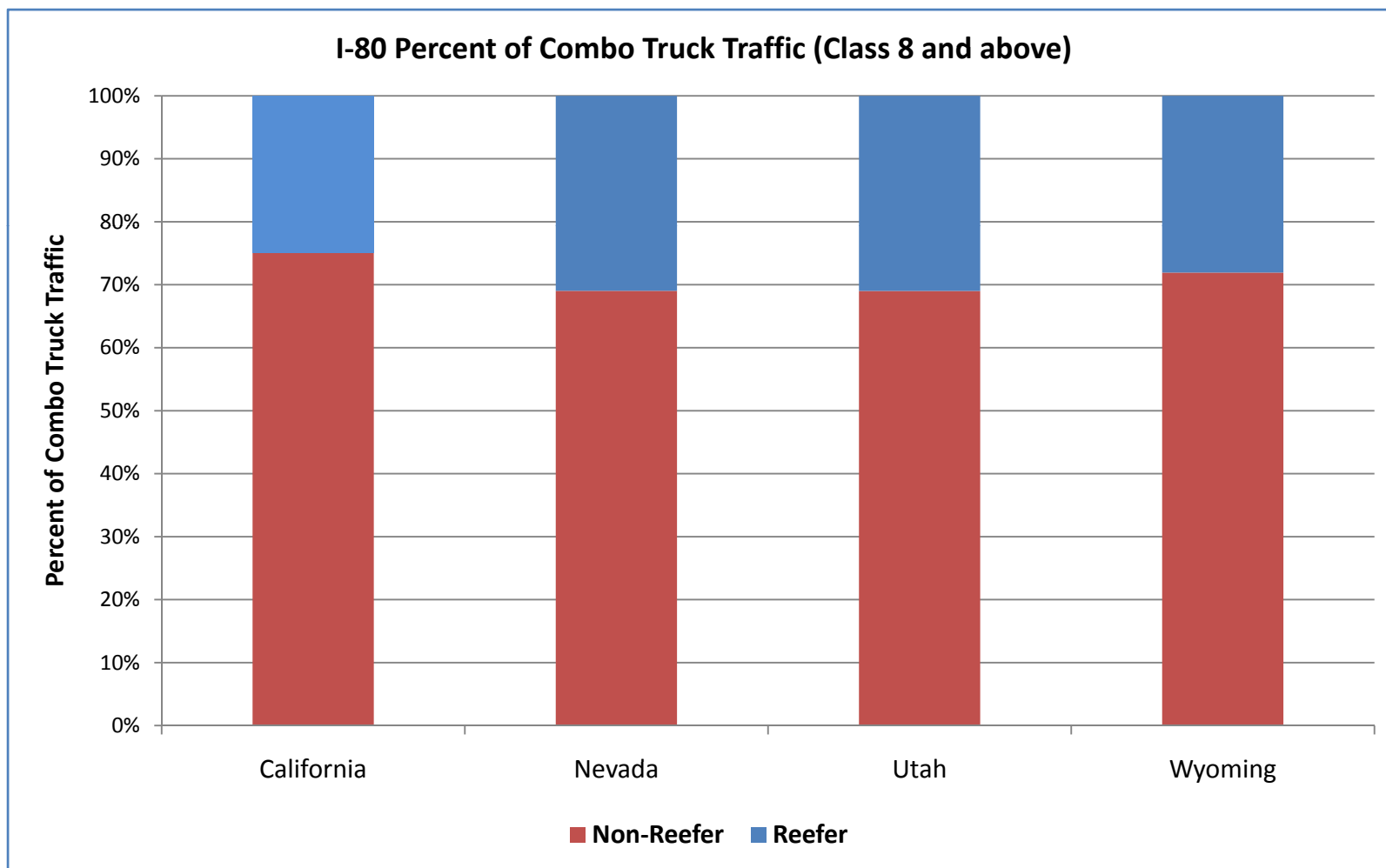


12: 6 Axle Multi Trailer

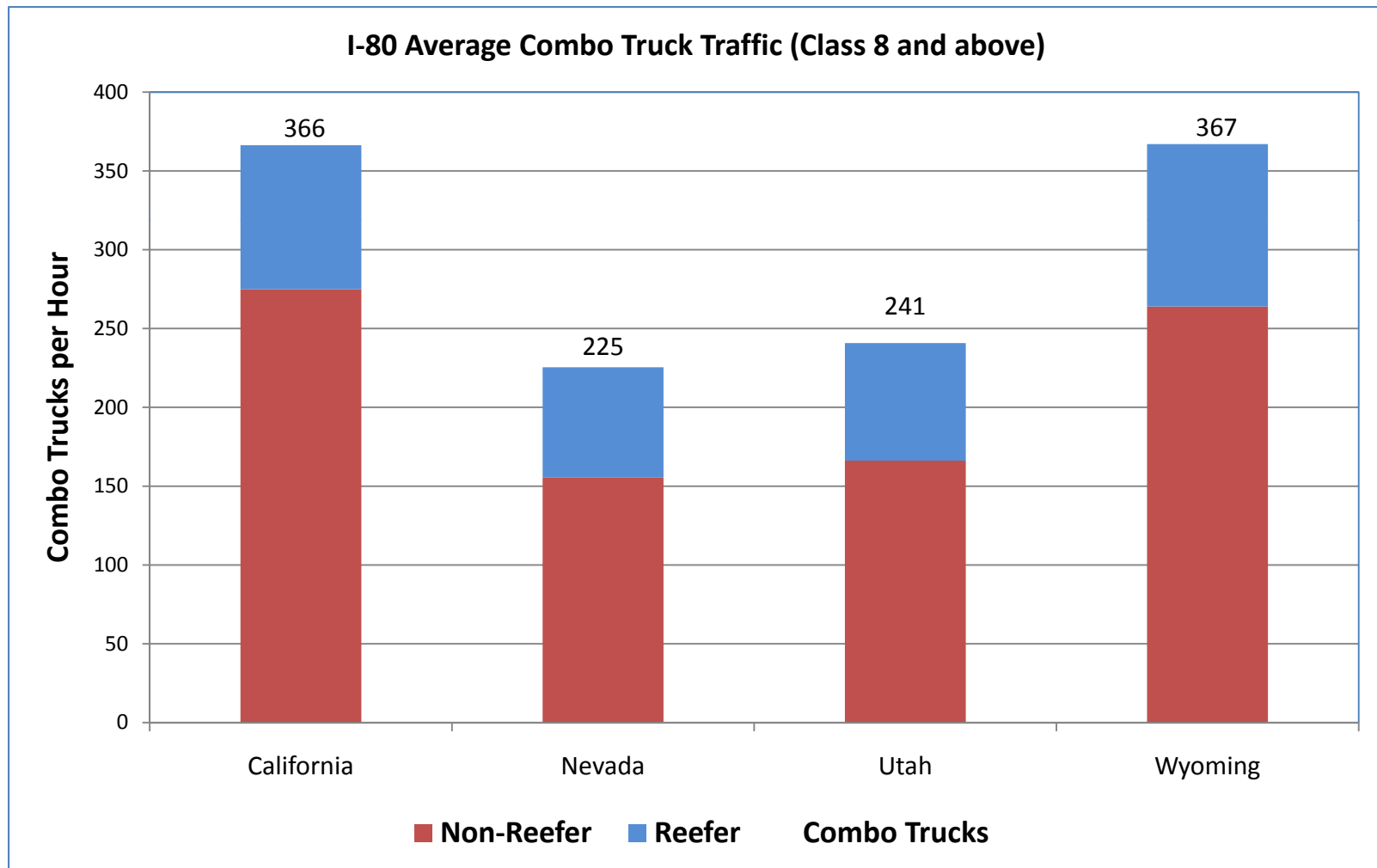


13: 7 or More Axles Multi Trailer

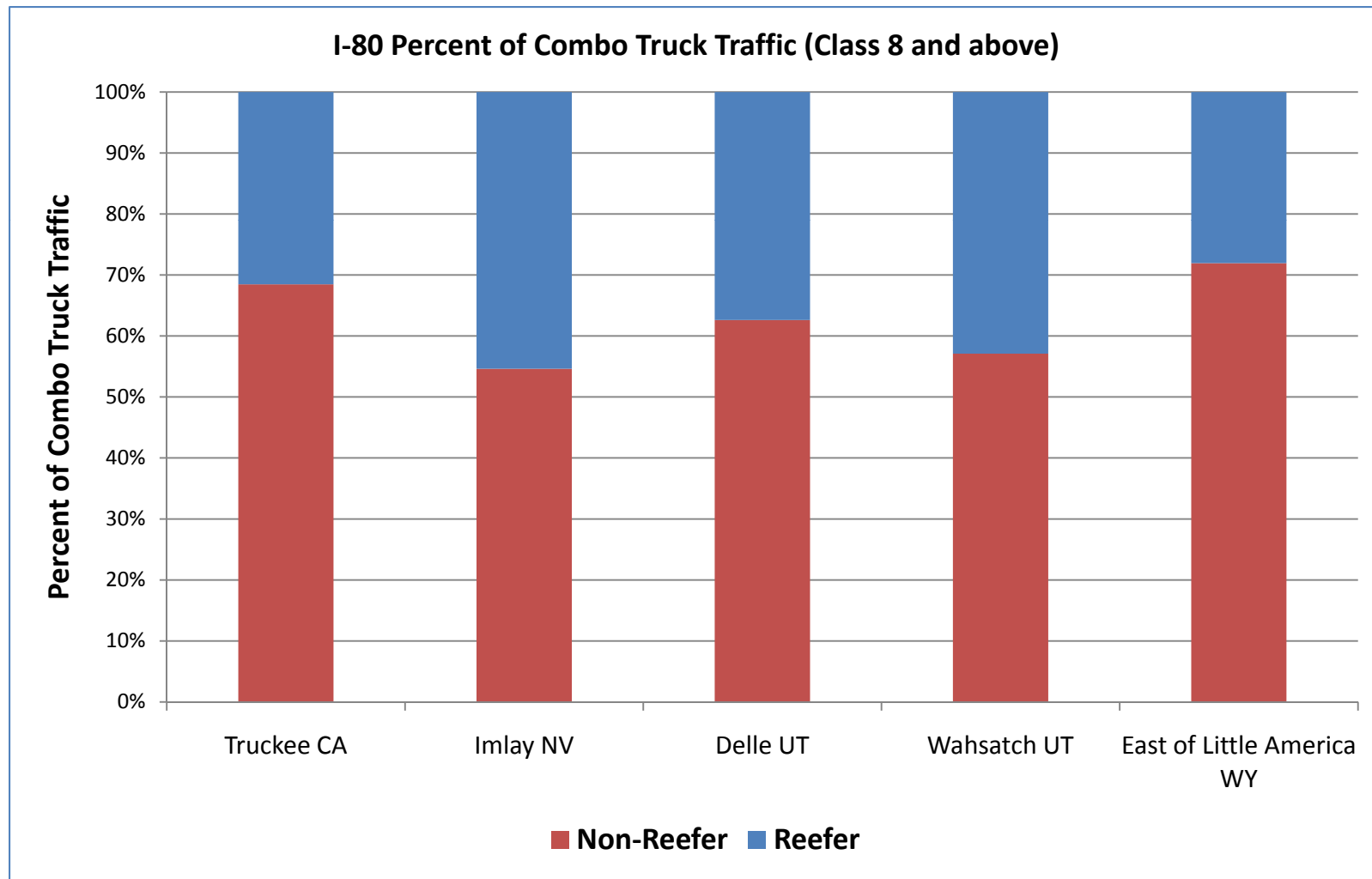
I-80 Hourly Combo Truck Traffic by State



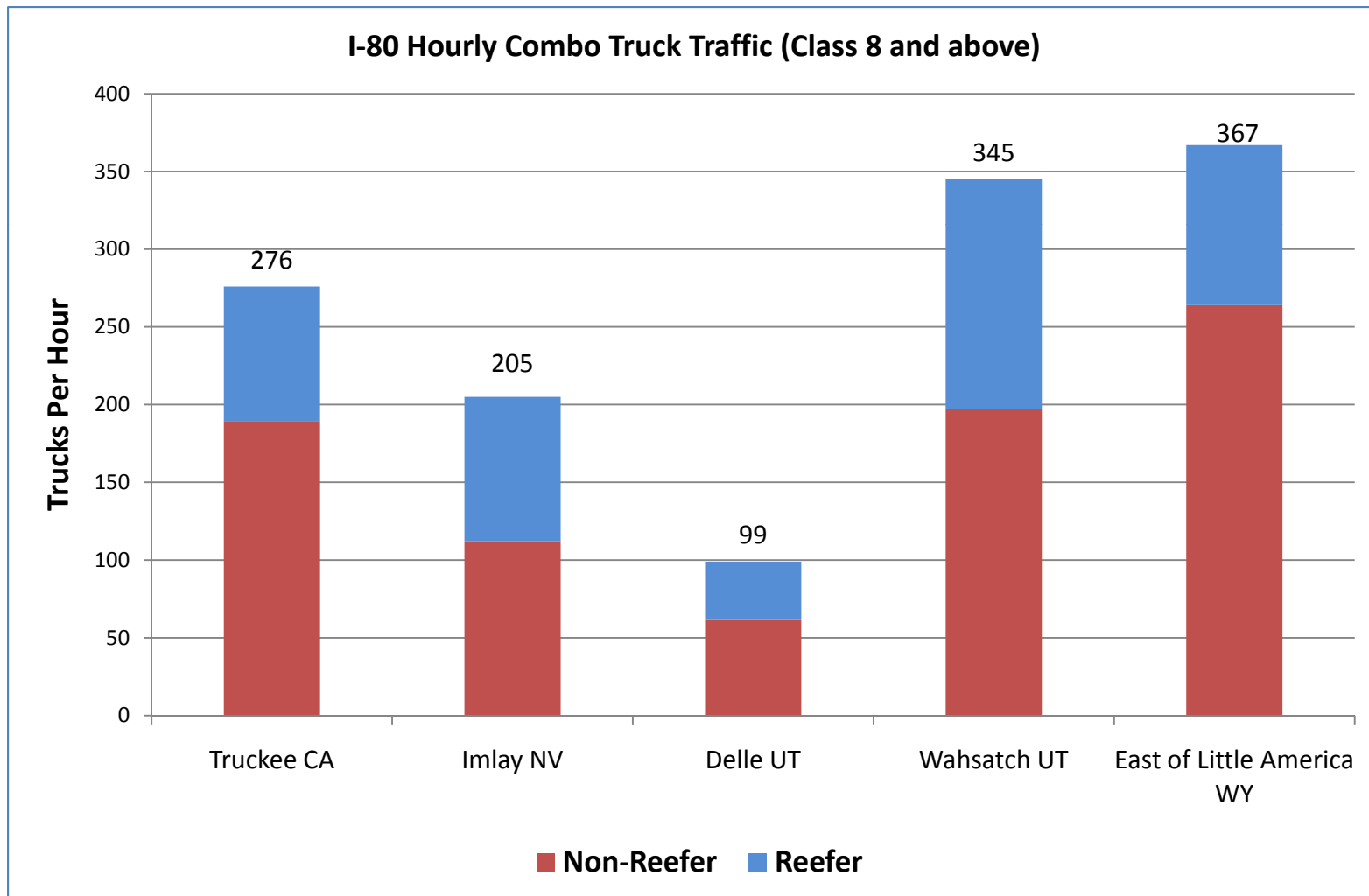
I-80 Average Hourly Combo Truck Traffic by State



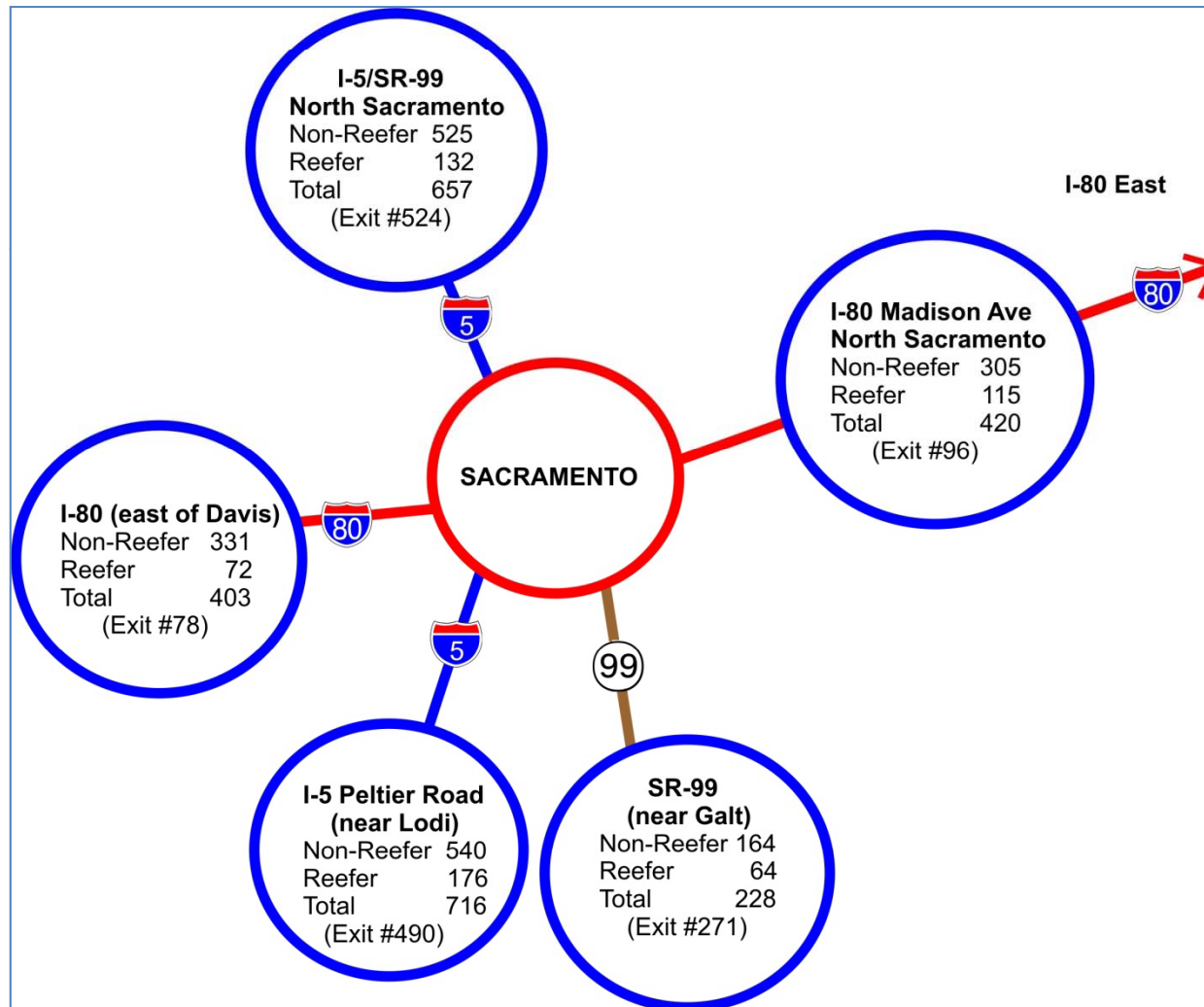
I-80 Hourly Combo Truck Count Percentages by Location



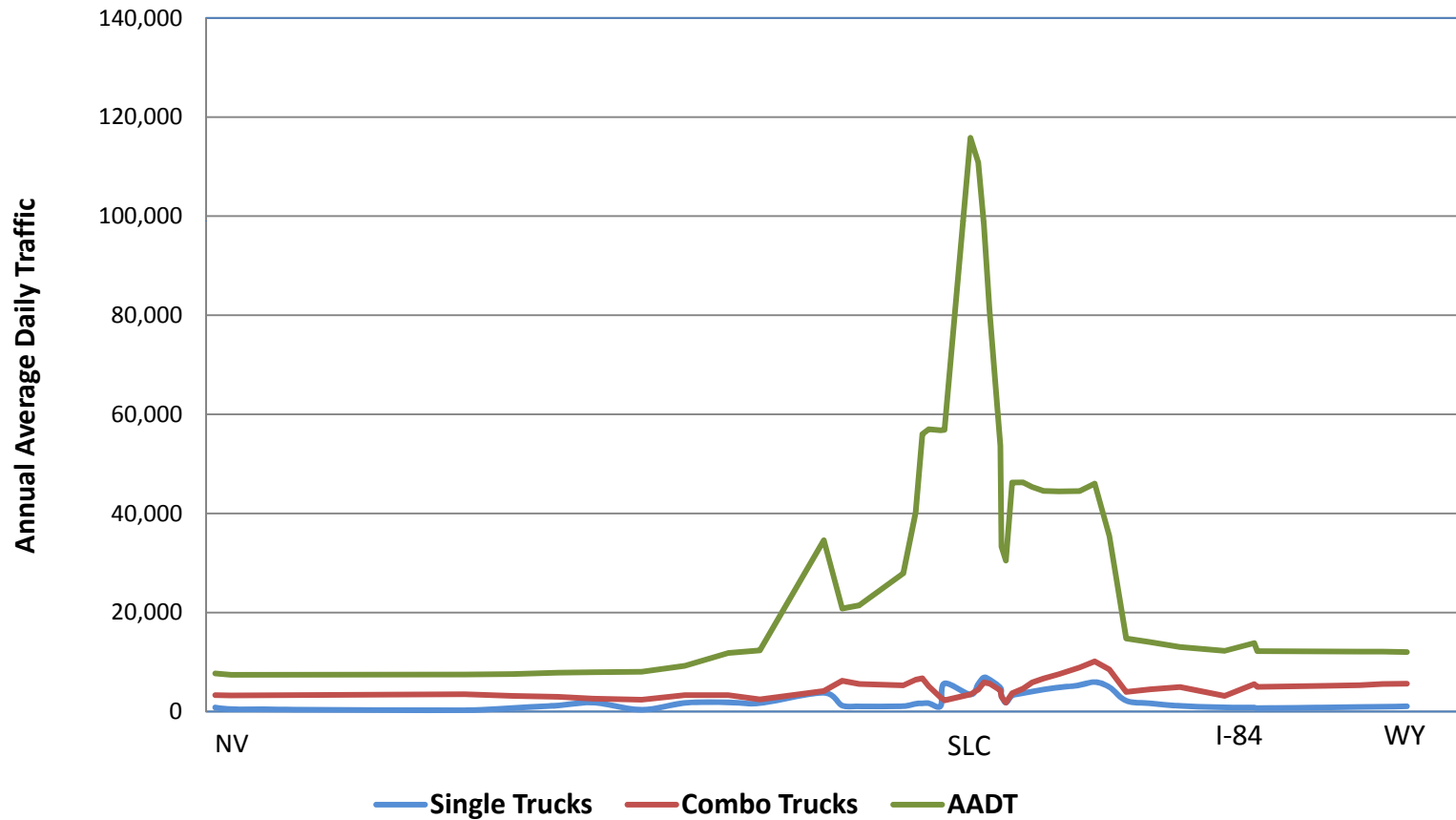
I-80 Hourly Combo Truck Counts by Location



Sacramento: Freight Crossroads of Northern California



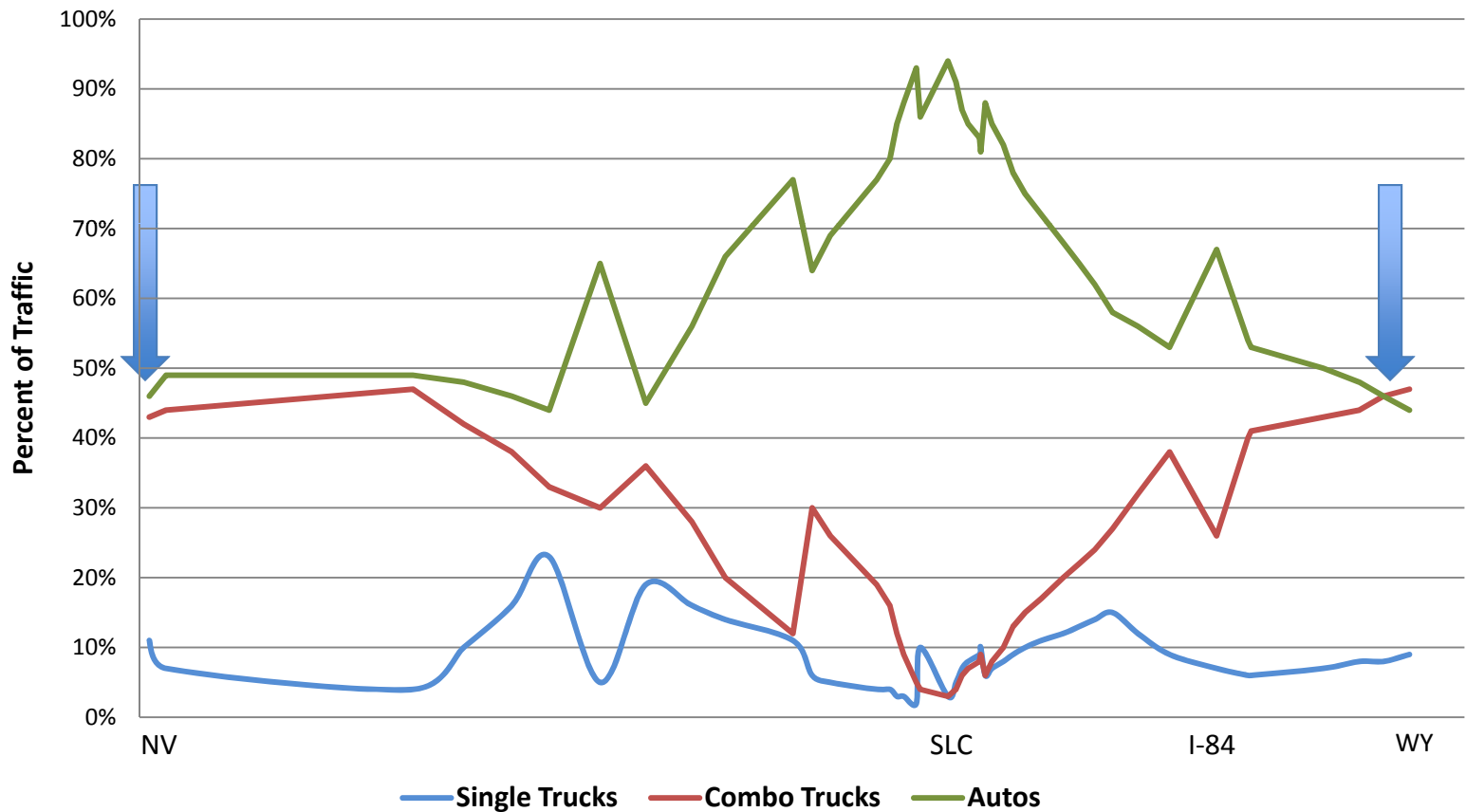
I-80 Utah Traffic Volume



Traffic on Utah Highways, 2009

Truck Traffic on Utah Highways, 2009

I-80 Utah Traffic Percentage



Traffic on Utah Highways, 2009

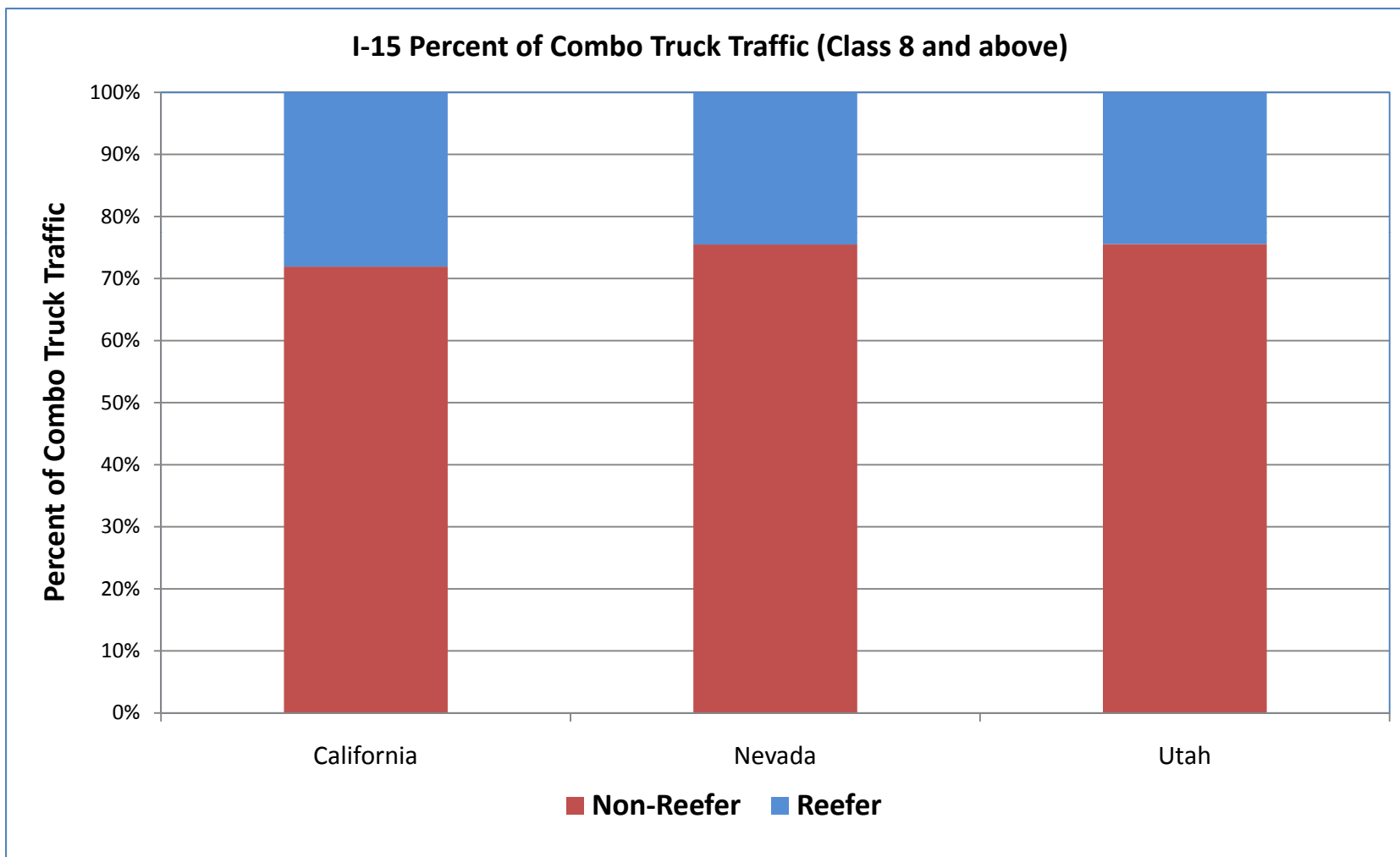
Truck Traffic on Utah Highways, 2009

I-15: The I-80 Network's Southwestern Connection

- South of Salt Lake City most of I-15's truck traffic is east/west rather than north/south
- I-15 links the I-80 and I-70 corridor in Utah with Southern California
- I-15 is the only Primary Freight Route serving the entire Wasatch Front population corridor in Utah
- I-15 is the main highway freight route serving Las Vegas, Nevada
- I-15 is also I-40's link with Southern California south of Barstow

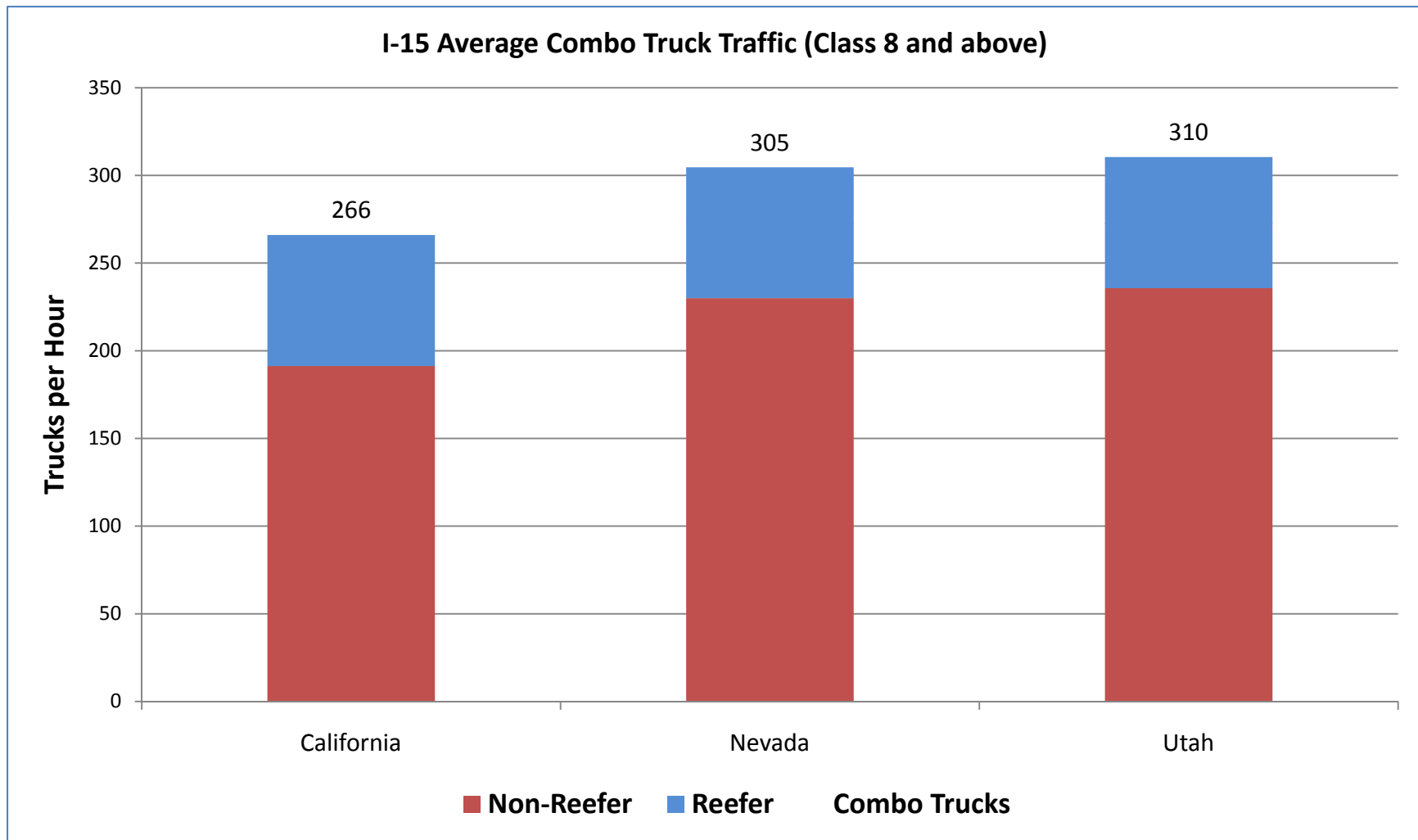


I-15 Hourly Combo Truck Traffic by State*

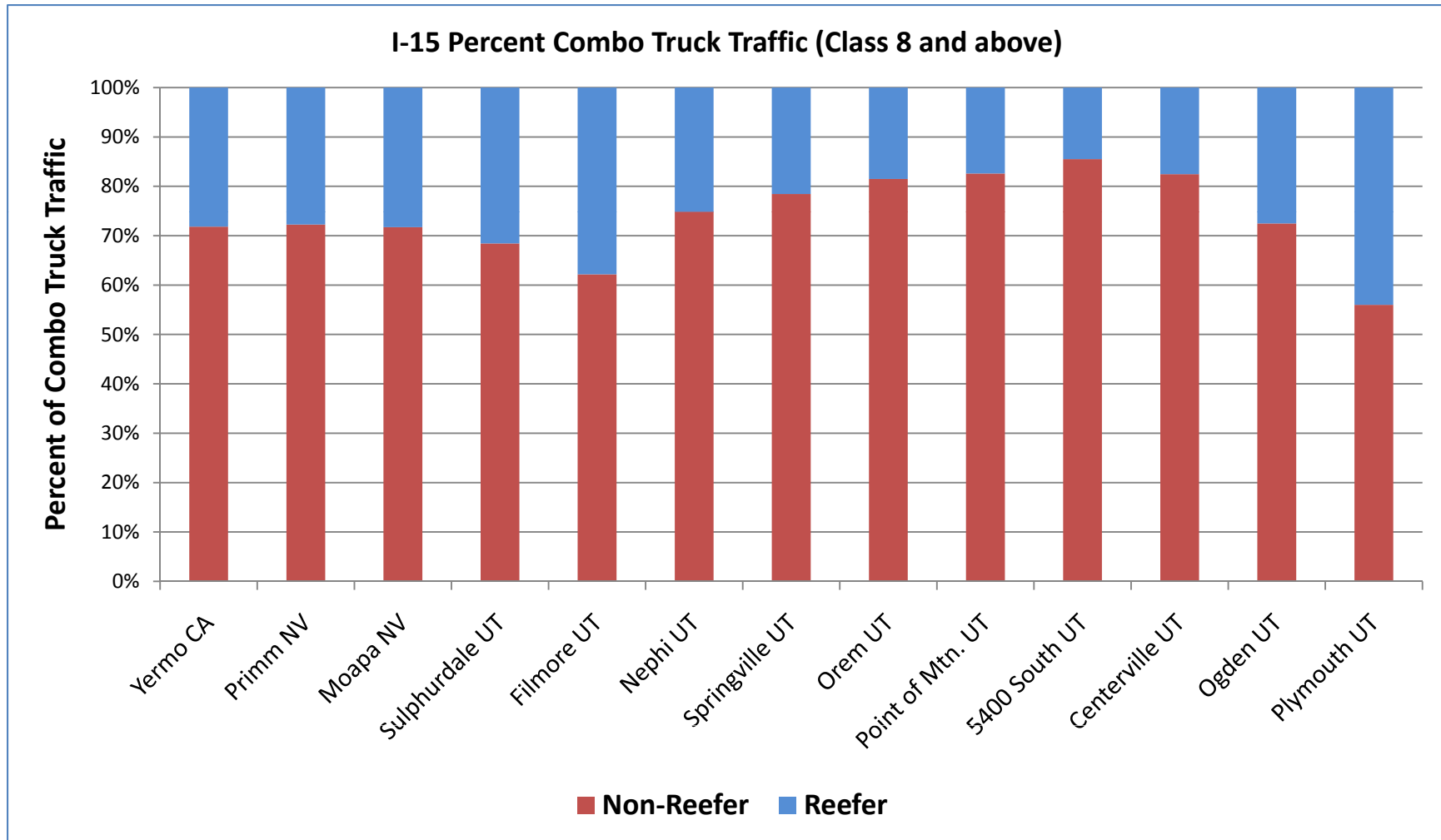


*Arizona not included, does not generate substantial truck traffic

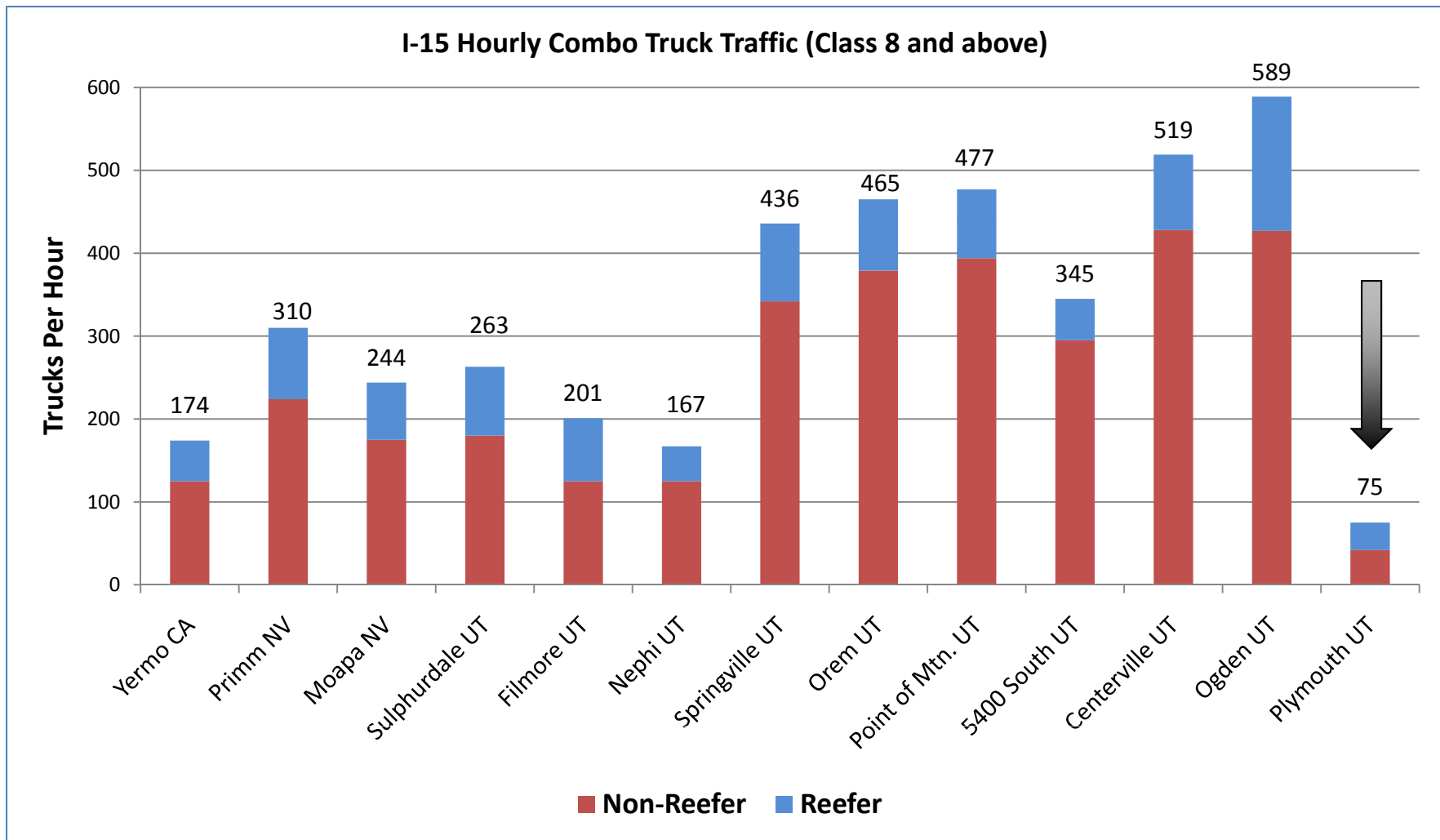
I-15 Average Hourly Combo Truck Traffic by State



I-15 Hourly Combo Truck Count Percentages by Location

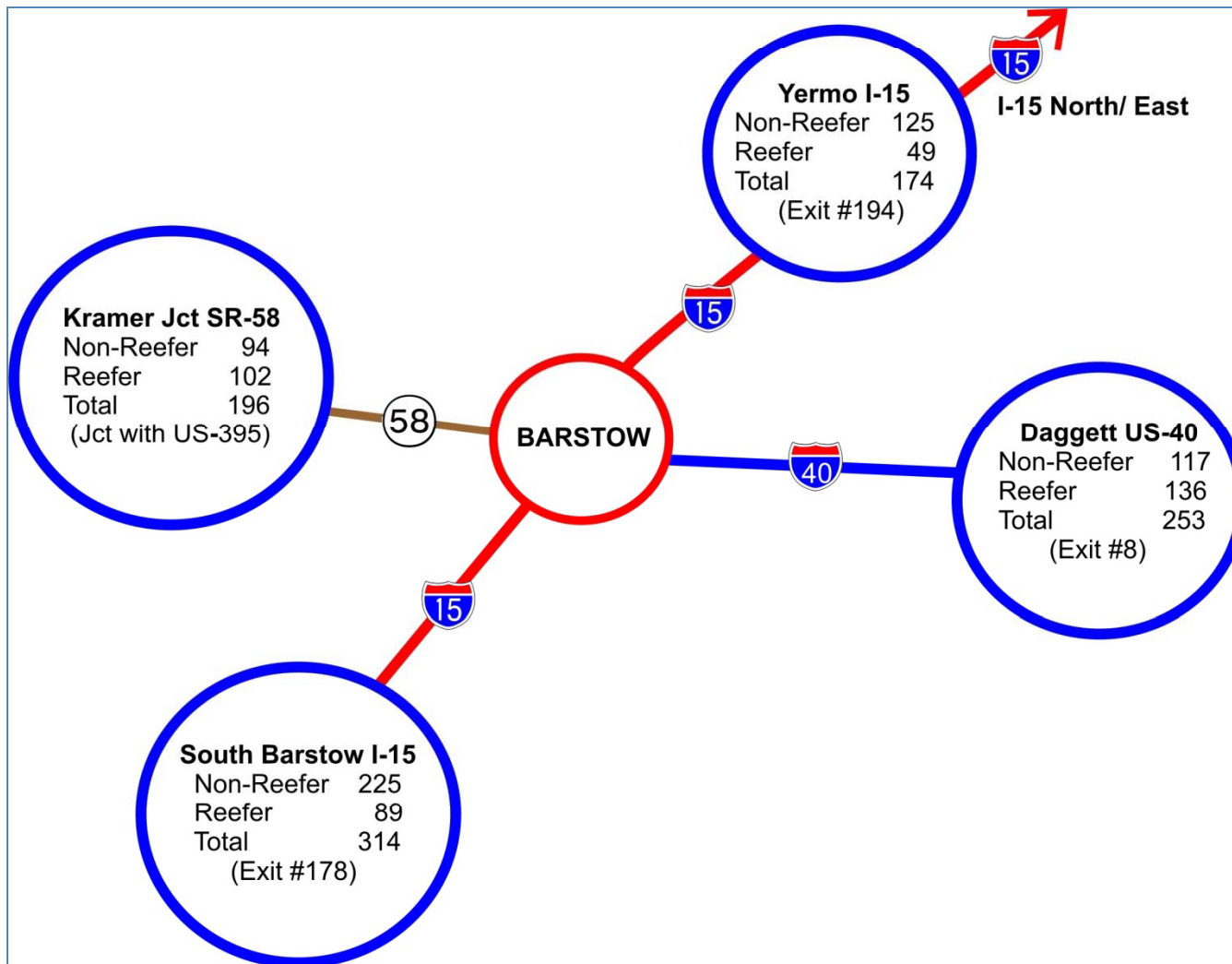


I-15 Hourly Combo Truck Count Percentages by Location

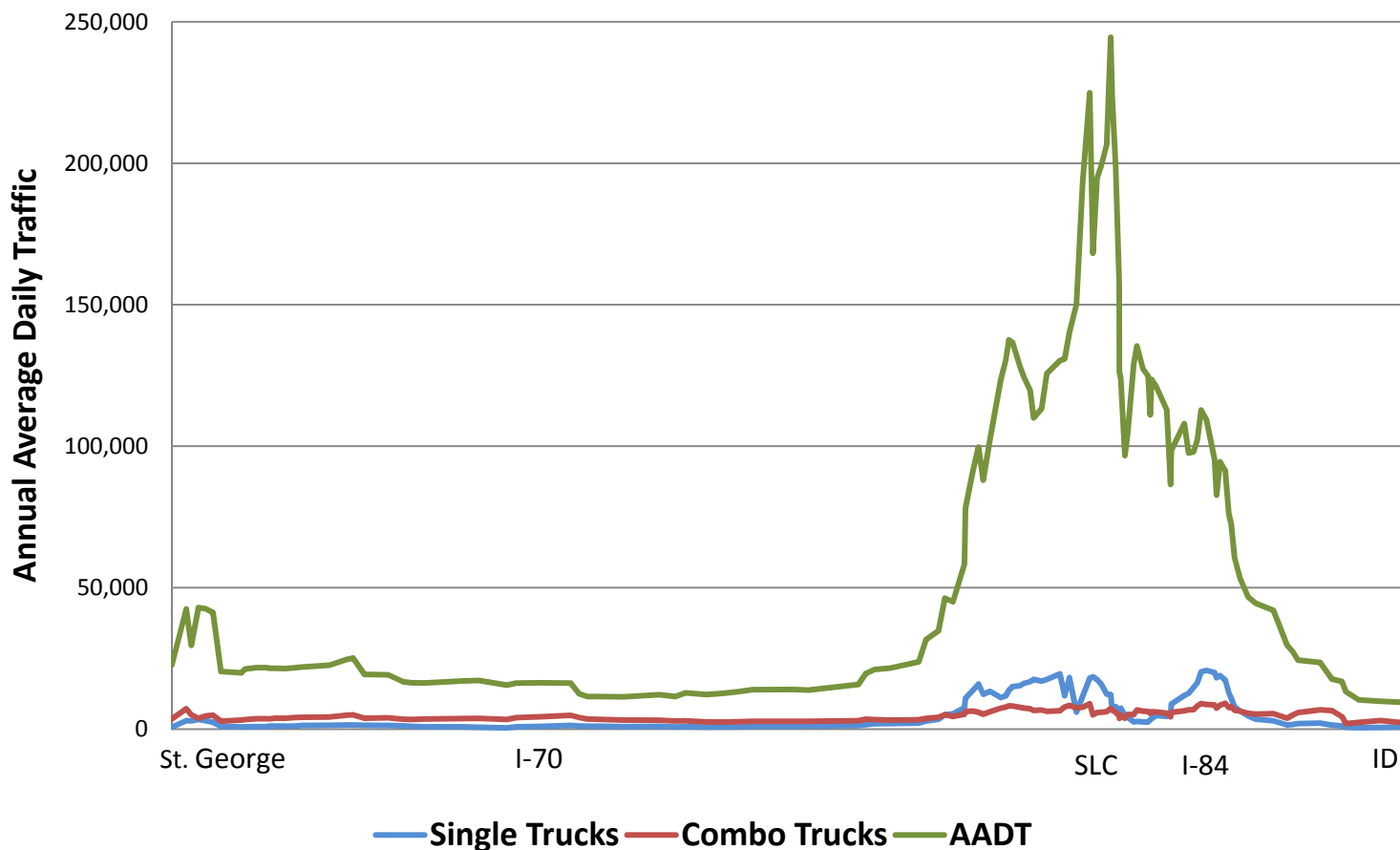


Freight on the I-80 Network (I-15)

Barstow: Freight Crossroads of Southern California



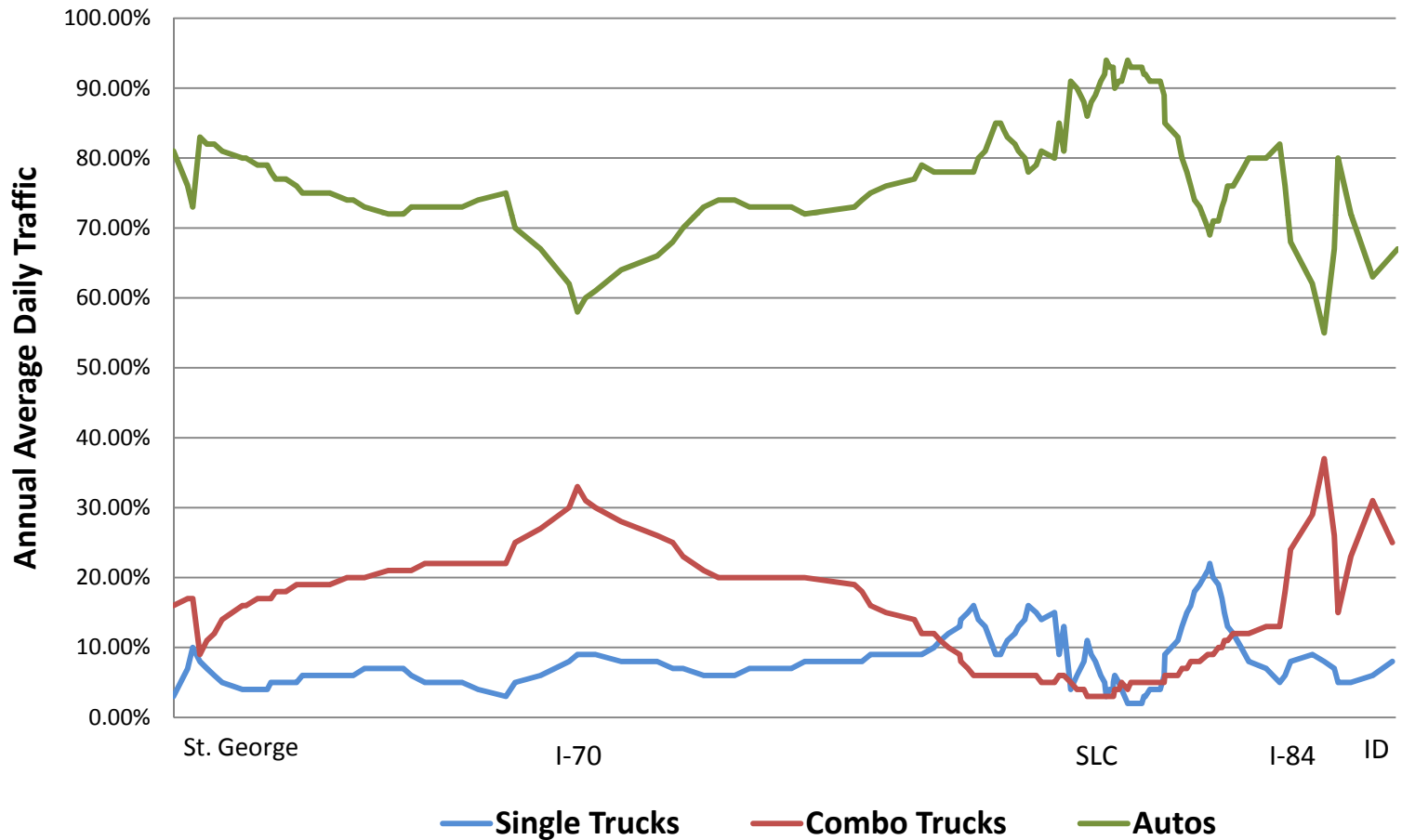
I-15 Utah Traffic Volume



Traffic on Utah Highways, 2009

Truck Traffic on Utah Highways, 2009

I-15 Utah Traffic Percentage



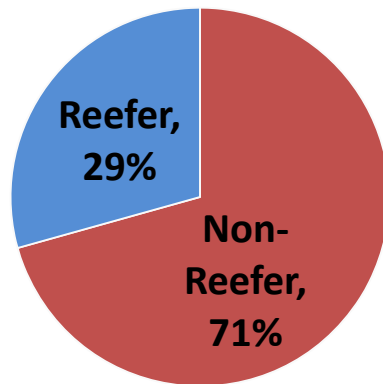
Traffic on Utah Highways, 2009

Truck Traffic on Utah Highways, 2009

Freight on the I-80 Network

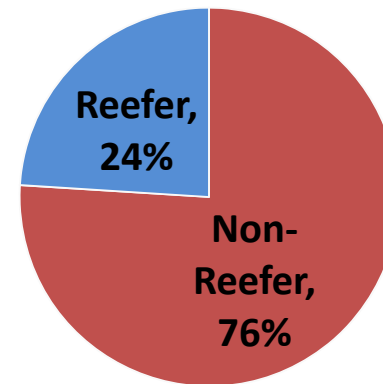
Comparison: I-80/I-15 Hourly Average Combo Truck Traffic

I-80 Corridor Combo Truck Types



(CA, NV, UT, WY)

I-15 Corridor Combo Truck Types



(CA, NV, UT)



Photo courtesy of C.R. England, Inc.

I-80 Corridor: Winter Weather Impacts and Alternate Routes

- **Donner Pass is one of the world's snowiest mountain passes**
- **Sierra Nevada snow is very heavy and wet, earning the nicknames "Sierra Cement" and "California Redi-Mix"**
- **Southern Wyoming snow is dry powder that blows and drifts**



Photo courtesy of California Department of Transportation



Photo courtesy of California Department of Transportation

I-80 Corridor: Donner Pass Closure (Bakersfield Option)

- The Sierra Nevada Mountains are a formidable barrier to east/west freight movement
- There is no viable truck route to avoid Donner Pass
- I-80 Chicago to Sacramento: **2,050**
- I-80 and I-15 Chicago to Sacramento via St. George and Barstow and SR-58 and SR-99: **2,320**



I-80 Corridor: Wyoming Closure (I-76/I-70/US-6 Option)

- Most truck companies try to avoid detouring across the Rockies via Denver and I-70
- I-80 Chicago to Sacramento: **2,050**
- I-80, I-76, I-70, and US-6 Chicago to Sacramento via Denver: **2,175**



I-80 Corridor: I-40 Southwestern Route Alternative

- Winter weather problems along I-80 often necessitate avoiding the route entirely
- Many truck companies route their freight via I-80 in Summer and via I-40 in Winter
- I-80 Chicago to Sacramento: **2,050**
- I-55, I-44, I-40, SR-58, and SR-99 Chicago to Sacramento: **2,430**



I-80/I-15 Corridor: I-76/I-70 Colorado Option

- The shortest route between Chicago and Barstow is via Denver
- I-80 and I-15 Chicago to Barstow: **1,979**
- I-80, I-76, and I-15 Chicago to Barstow: **1,907**
- Although shorter, the Denver routing is much slower due to numerous steep mountain grades
- Most long-distance trucks stay on I-80 to I-15 at Salt Lake City



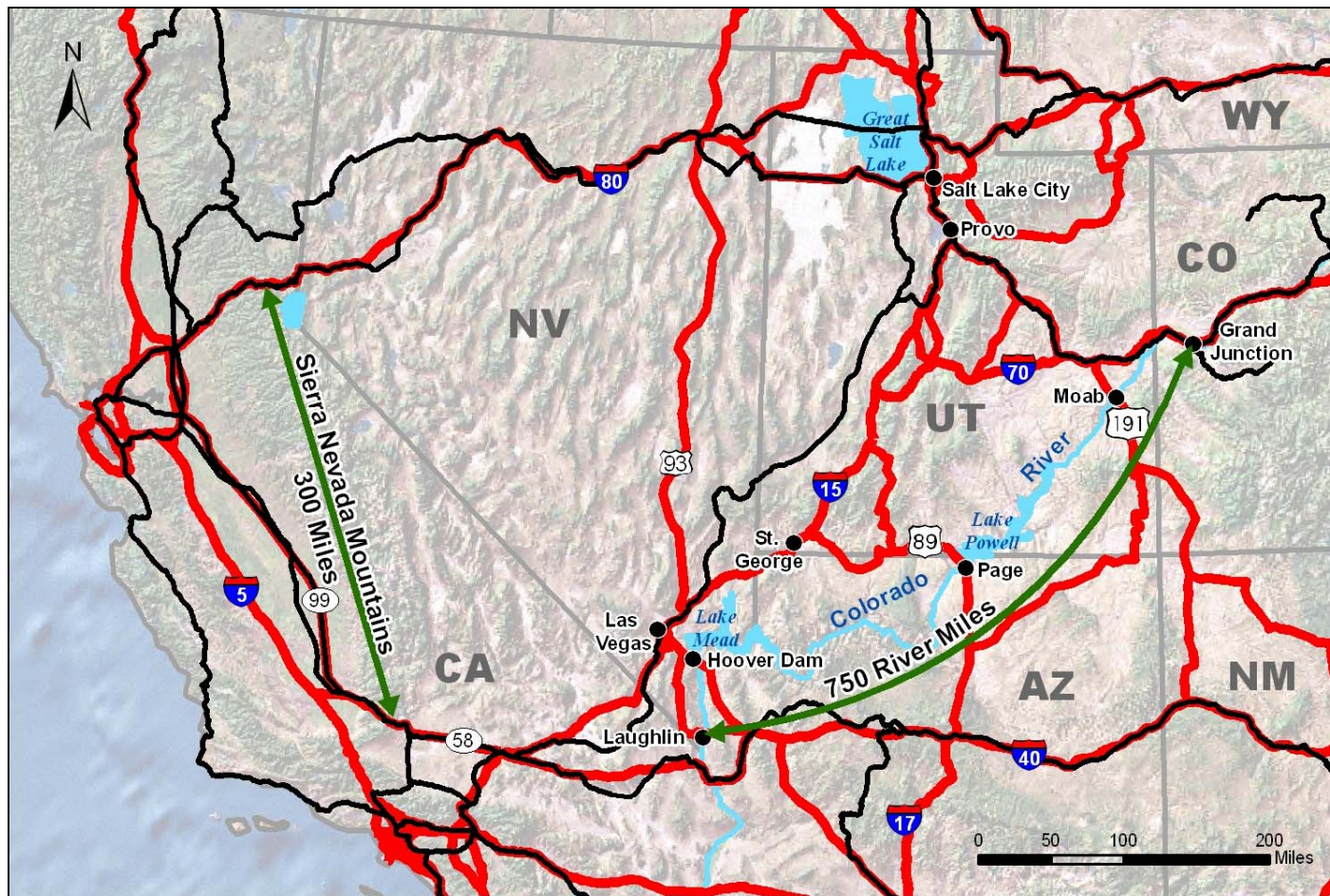
I-80 and I-15: Sharing Transcontinental Commerce

- Geography affects the location and truck traffic on Primary Freight Routes in the West
- With far greater population, Southern California generates much more freight than Northern California
- The truck parking shortage along I-15 in Utah would not be critical if it were not handling transcontinental freight to and from I-80



Freight Corridors Must Circumvent Geographical Barriers

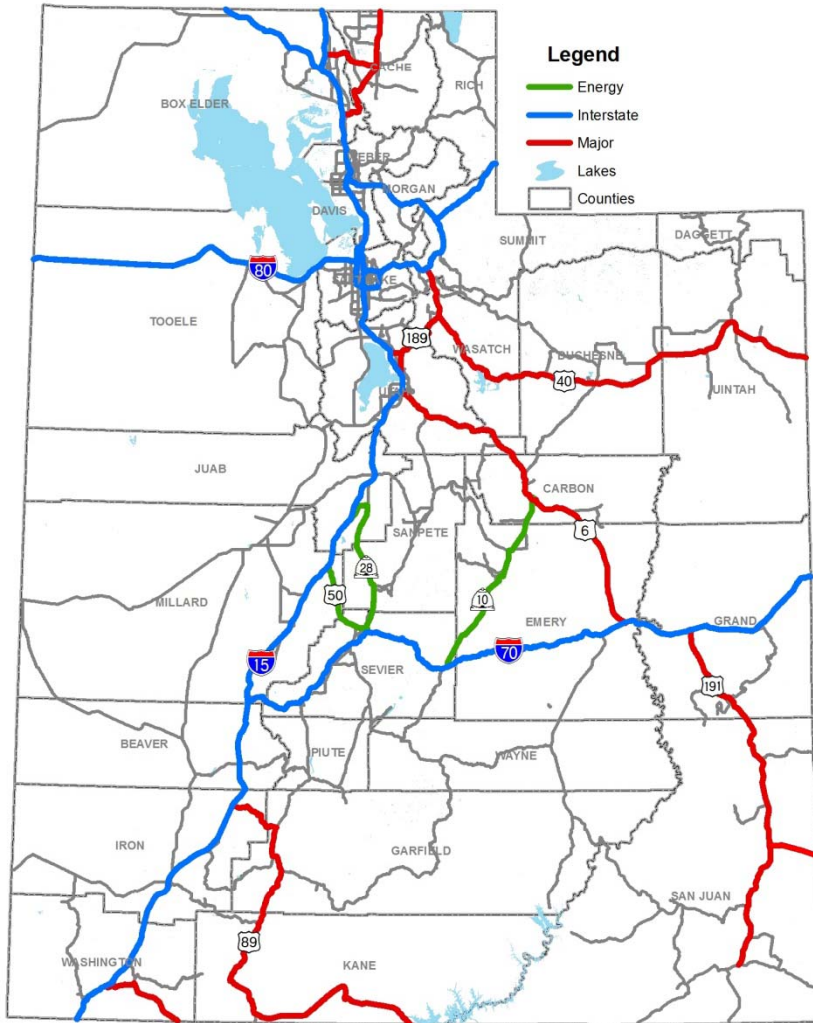
Examples: Sierra Nevada Mountain Range (California) | Colorado River Canyons (Grand Jct. to Laughlin)



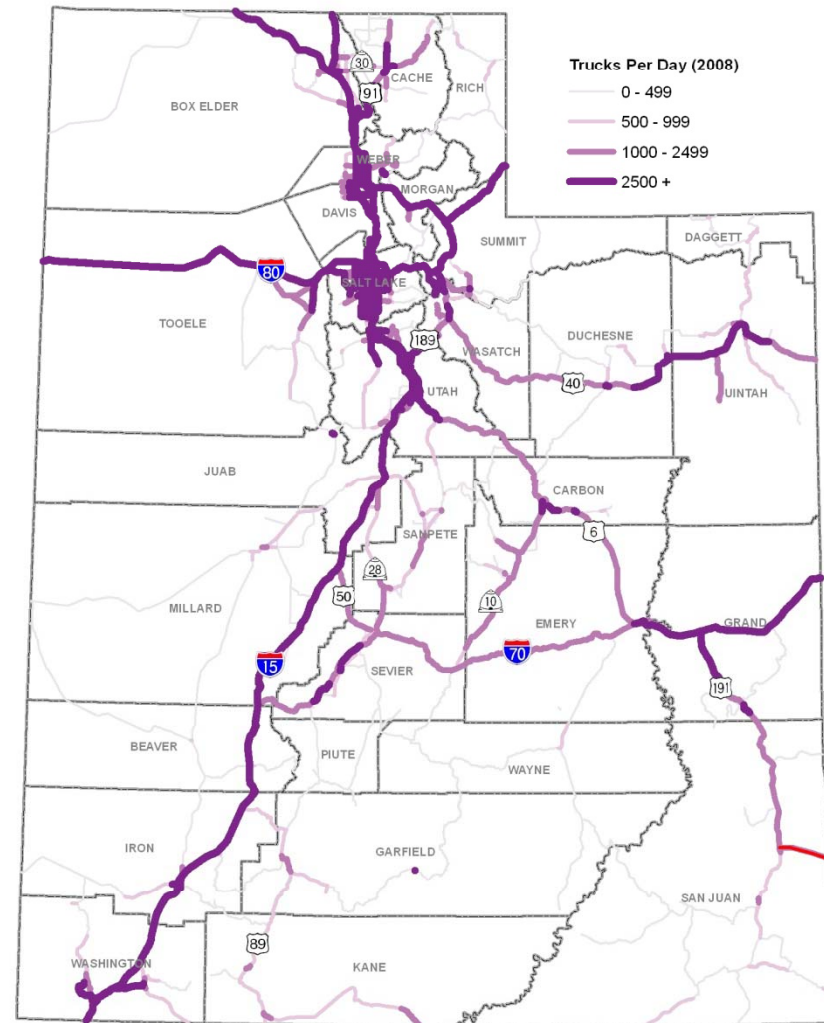
— Highway Freight Routes — Railroad Freight Routes

Freight on the I-80 Network

Utah's Primary Freight Routes



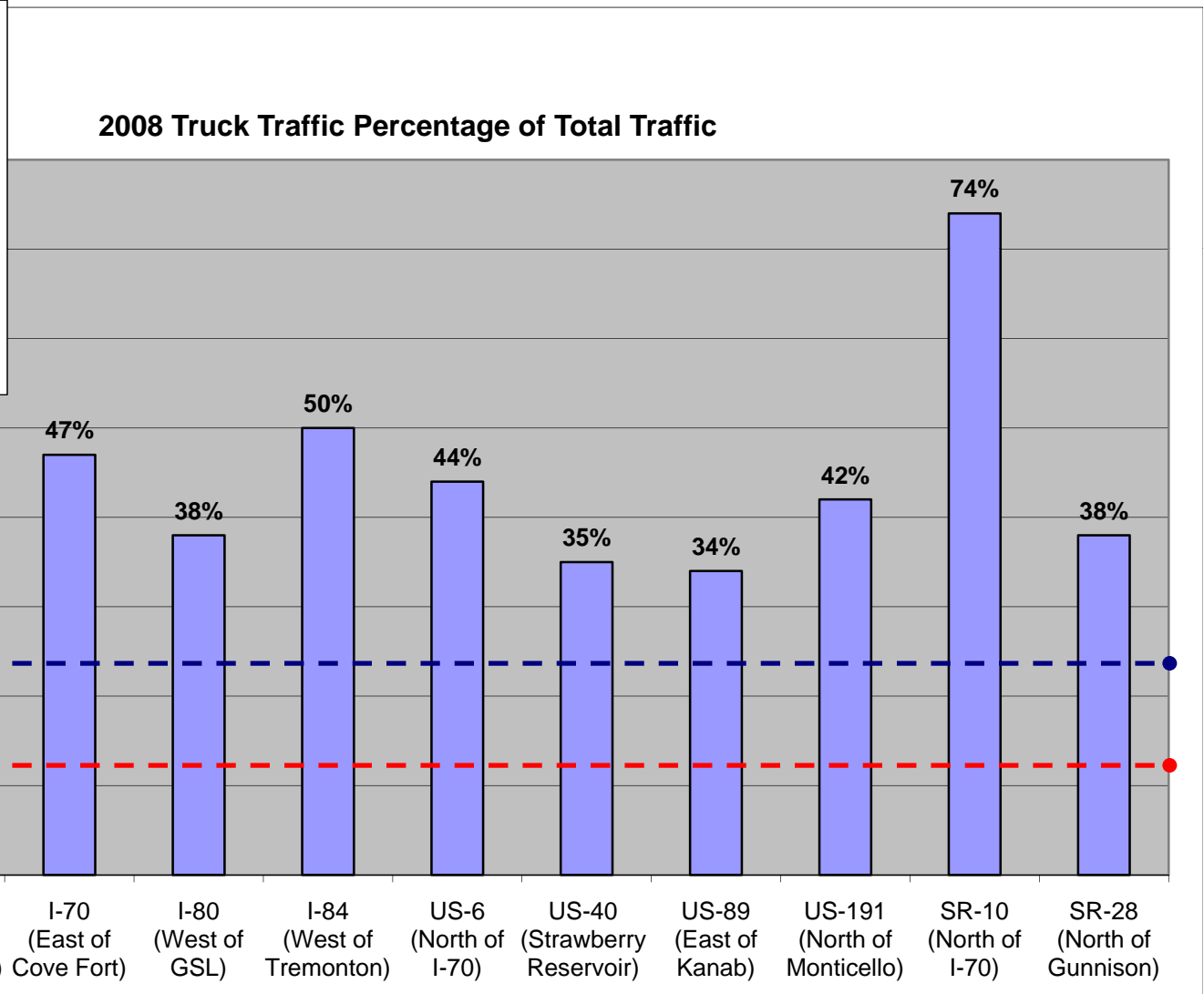
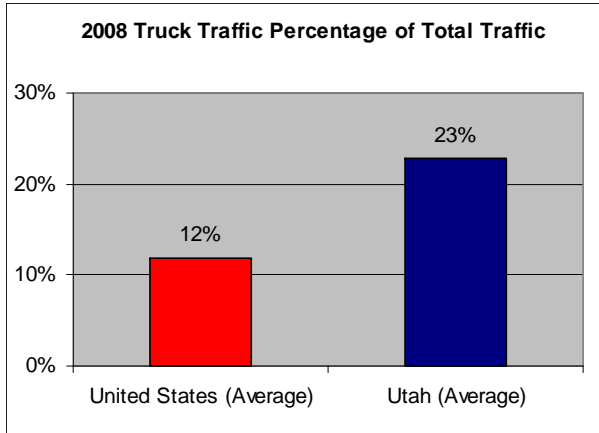
Utah's Daily Truck Volume



UDOT Truck Traffic on Utah Highways, 2008

Freight on the I-80 Network

Each of These Routes Handle Freight to and from the I-80 Network



Highway Statistics
2008, USDOT (FHWA)

Utah Average

US Average

Highway Freight Challenges and Needs

- Much of the West's freight traffic is on two-lane highways
- High numbers of automobiles and RVs on two-lane freight corridors affect truck operations



Freight on the I-80 Network

- **Passing lanes of adequate length and frequency**
- **Downhill passing lanes in appropriate locations**
- **On Interstates, a third uphill lane is beneficial**



Photo by Daniel B. Kuhn

- **Passing lanes have been identified as the most important rural highway need by the trucking industry in Utah**

Freight on the I-80 Network

- Full width, paved shoulders are a major safety need on Utah's two-lane Primary Freight Routes
- Full shoulders are particularly important on highways used for energy and hazardous material shipments



Photo by Daniel B. Kuhn



Photo by Daniel B. Kuhn

Freight on the I-80 Network

- Sufficient off-highway, long-term truck parking at truck stops, rest areas, and near freight generating business/industrial locations



Photo by Daniel B. Kuhn

- In August 2010, UDOT was awarded \$545,000 from FHWA to study how to best address the long-term truck parking shortage along I-15

Freight on the I-80 Network

- **Acceleration and deceleration lanes of adequate length at intersections along Primary Freight Routes or where truck traffic is high**



Photo by Daniel B. Kuhn

Freight on the I-80 Network

- Adequate turning radii at interchanges, intersections and business entrances
- Signal timing and turn lane lengths adjusted for high levels of truck traffic
- Intersection turning radii and signal timing have been identified as the most important urban highway need by the trucking industry in Utah



Photo by Daniel B. Kuhn



Photo by Daniel B. Kuhn

UDOT's Freight Planning Focus

- Working with transportation, warehousing, as well as logistics leaders and organizations on freight operations and needs
- Monitoring freight operations, both nationally and globally, that affect Utah's economy, business community and transportation corridors
- Educating government and business leaders, as well as universities and civic groups, on freight operations and issues



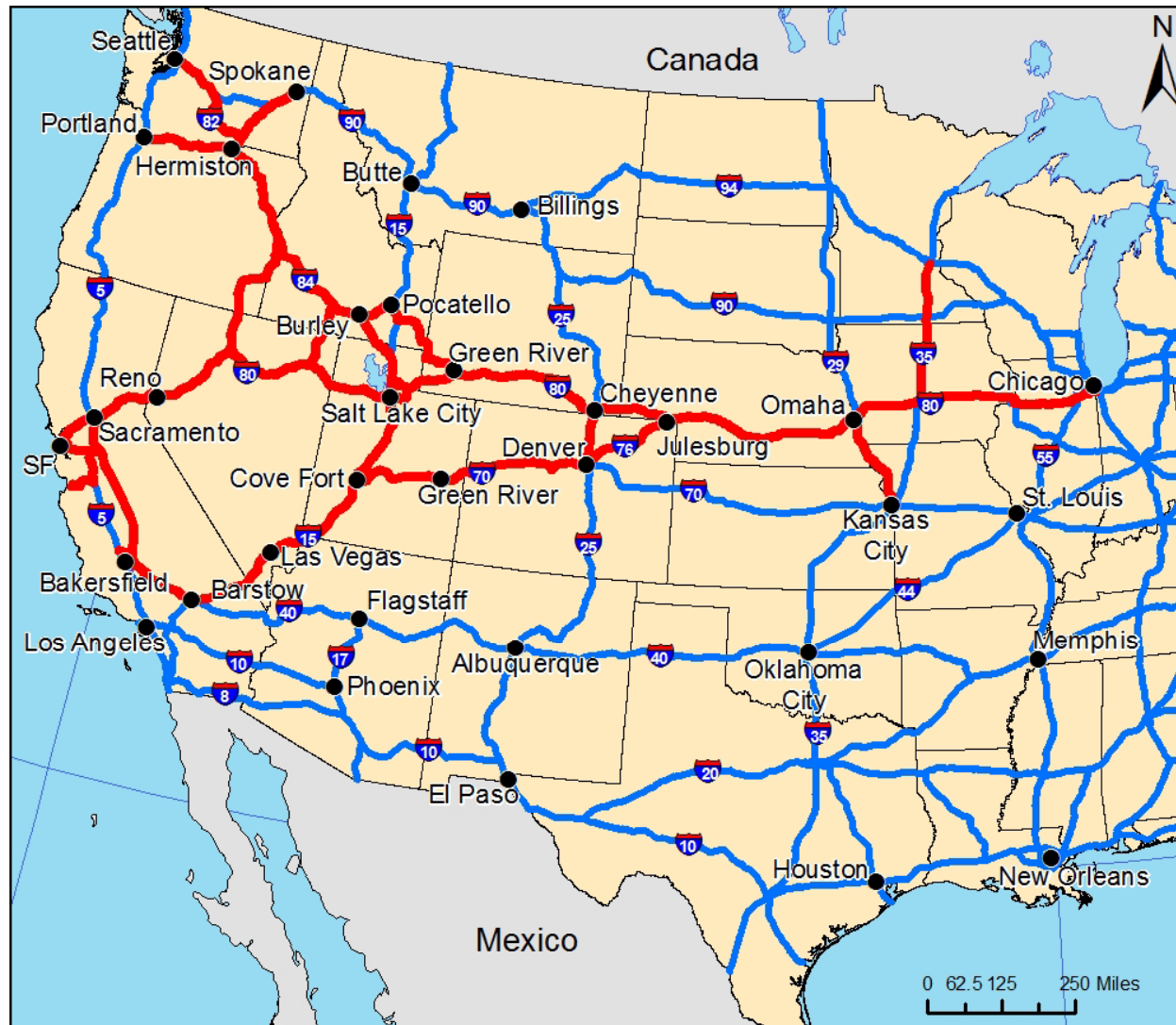
Photo by Daniel B. Kuhn

UDOT “Final Four” Priorities (freight related)

- **TAKE CARE OF WHAT WE HAVE**
Maintain existing highway freight infrastructure and service to Utah shippers
- **MAKE THE SYSTEM WORK BETTER**
Identify problems impacting freight service as well as options for addressing those challenges
- **IMPROVE SAFETY**
Through improvements such as passing/climbing lanes, paved shoulders, improved turning radii, etc.
- **INCREASE CAPACITY**
Determine how to improve freight flow and service in Utah and across the West

Freight on the I-80 Network

The I-80 Network: More than a Single Route



I-80: A Multi-Route Freight Corridor

Conclusions:

- I-80 must be viewed as a complete system of freight routes
- Freight traffic is constantly changing along the I-80 corridor
- Time-sensitive reefer trucks are a major factor along the I-80 network

Future Considerations:

- Forecasting truck volumes 10 to 20 years in the future
- UDOT will share its freight data with other coalition states



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