

South Central Valley Sustainable Goods Movement Overview - 2018



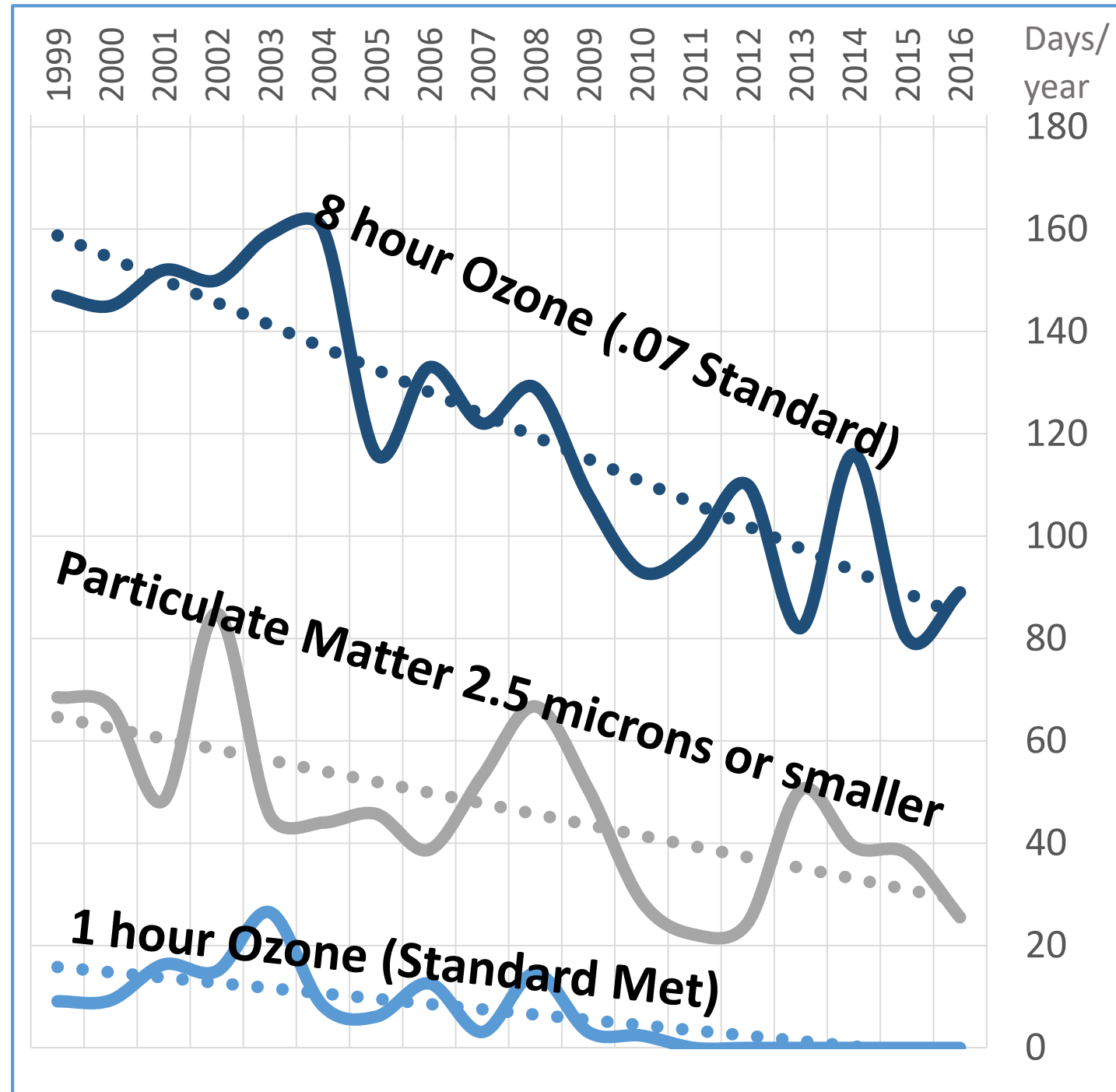
**Kern Council
of Governments**

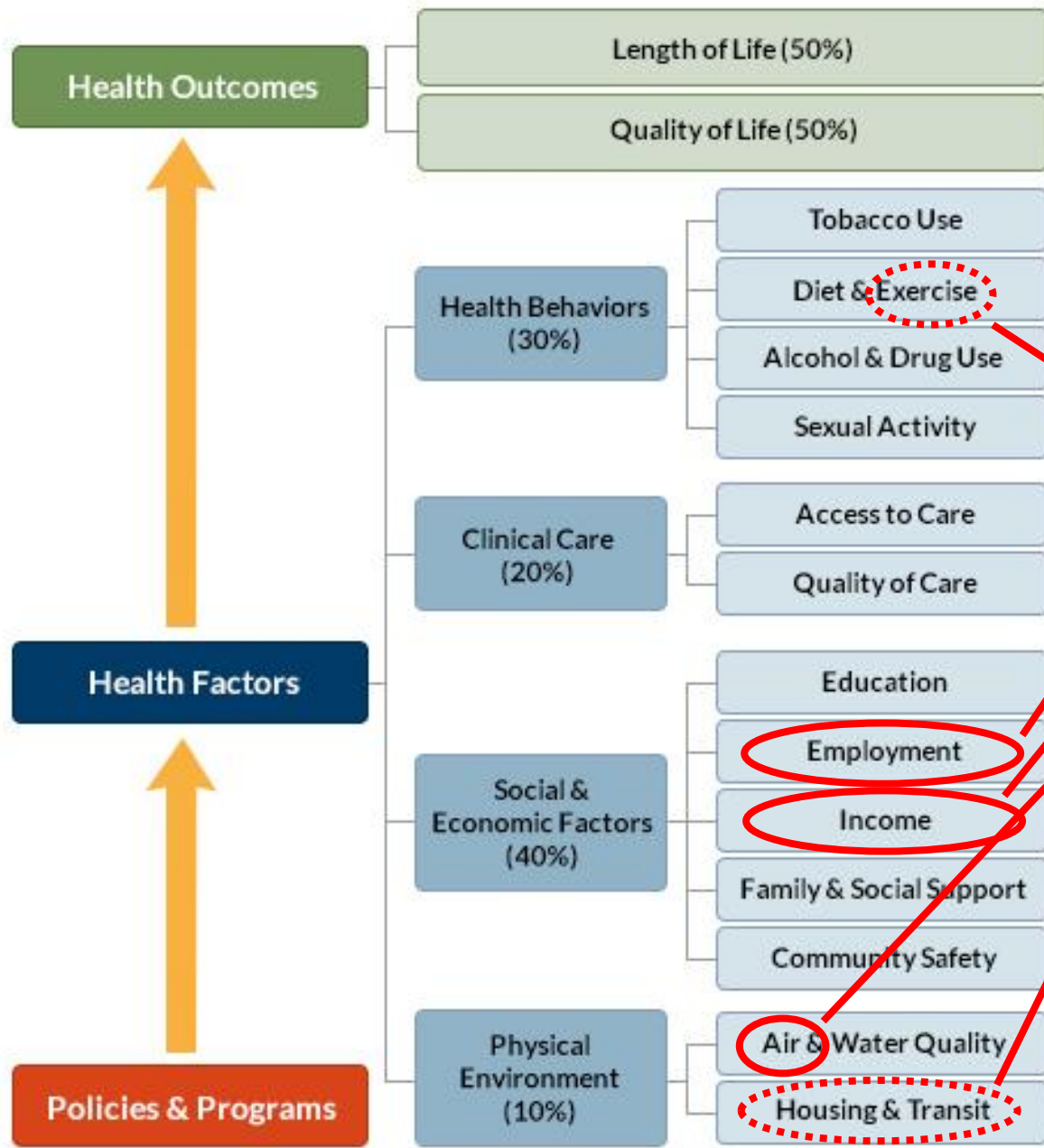
Kern County Progress on Air Quality 1999 - 2016



In addition, as of 2018 Kern no longer has to report on the Carbon Monoxide standard which it has been in attainment of since 1989.

Source: California Air Resources Board iADAM data





Central Valley Counties Health Ranking Consistently at or Near the Worst Since 2010

Estimated Weights of Transportation Related Factors on Health Ranking:

- 4% - Exercise (walking, biking)
- 8% - Employment (economic growth)
- 8% - Income (economic growth)
- 2.5% - Air (vehicle emissions)
- 5% - Housing & Transit (job access, walking)

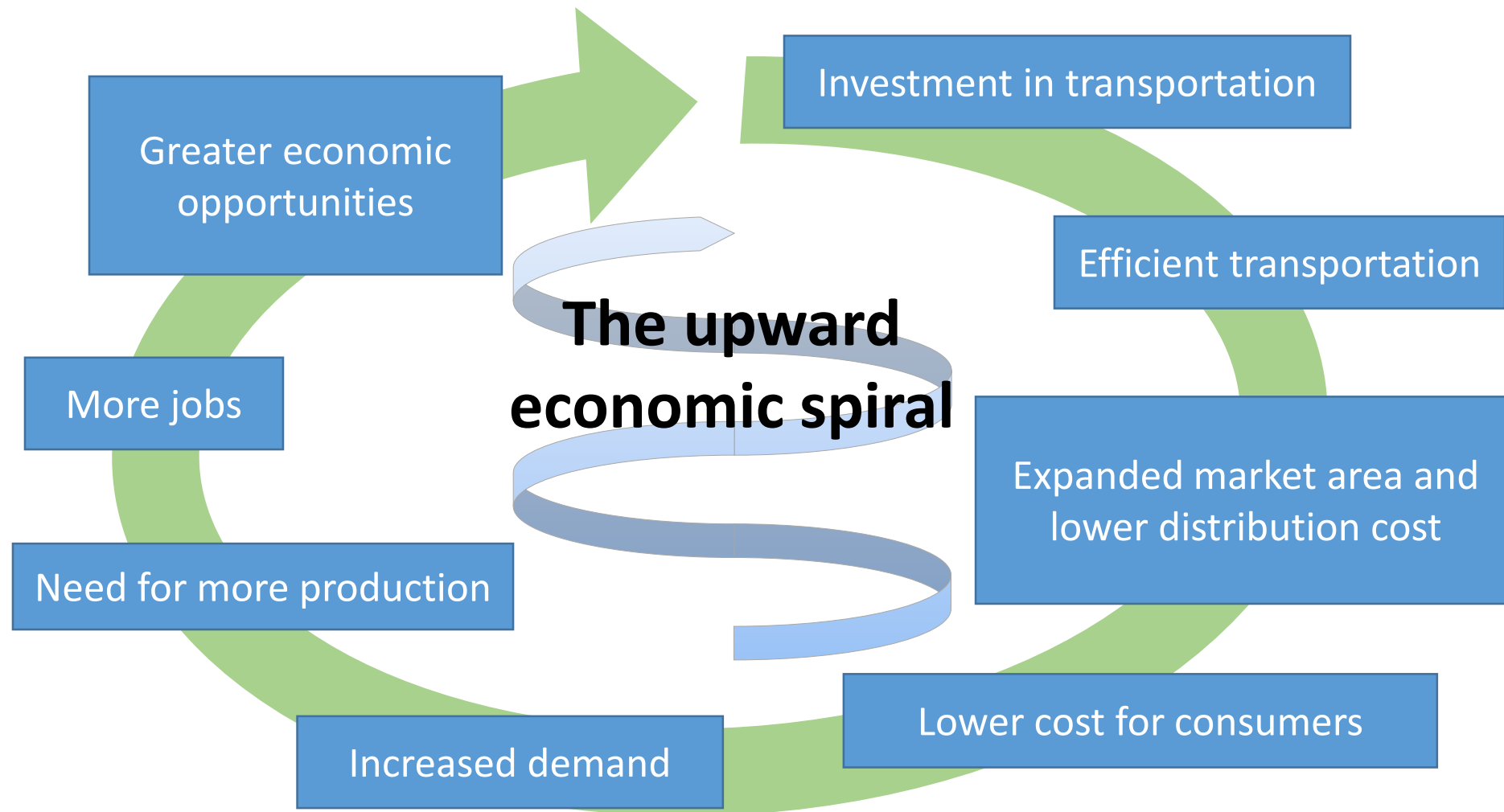
Transportation Related Factors Affect Less than 30% of the region's health ranking and more than half (16%) are economic growth related.

County Health Rankings & Roadmaps
Building a Culture of Health, County by County

A Robert Wood Johnson Foundation program

<http://www.countyhealthrankings.org/explore-health-rankings/our-methods>

Investment in More Efficient, Reliable Transportation – Especially for Goods Movement – Drives the Economy

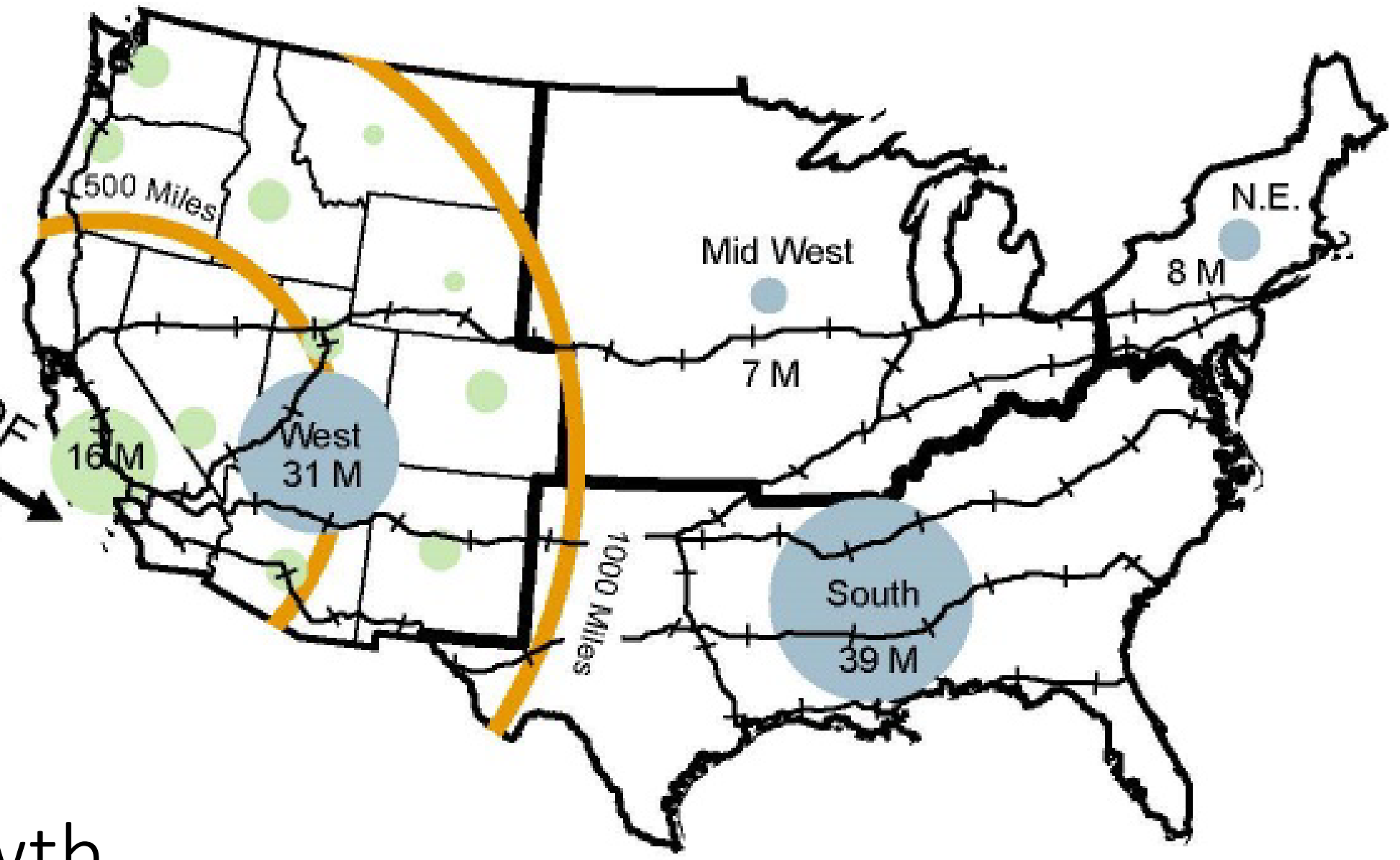


Think
Global



To Asia

55% TO 60% OF
ALL U.S. IMPORTS



Future
U.S. Growth
Concentrations

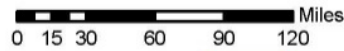
**82% of Growth in the Lower 48 States
In South and West 2010 - 2050**

California's Emerging Trucking Center

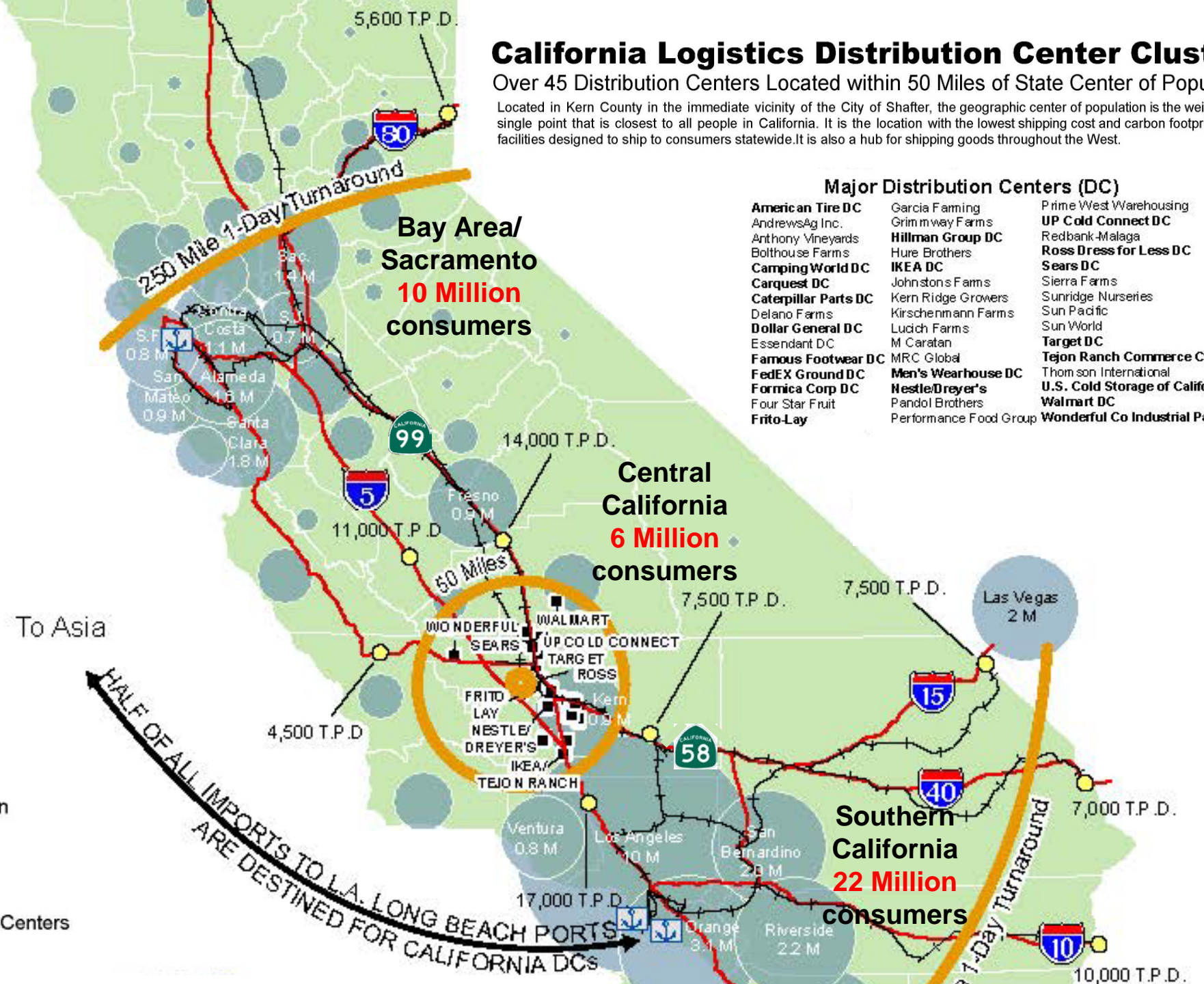
California Logistics Distribution Center Cluster

Over 45 Distribution Centers Located within 50 Miles of State Center of Population

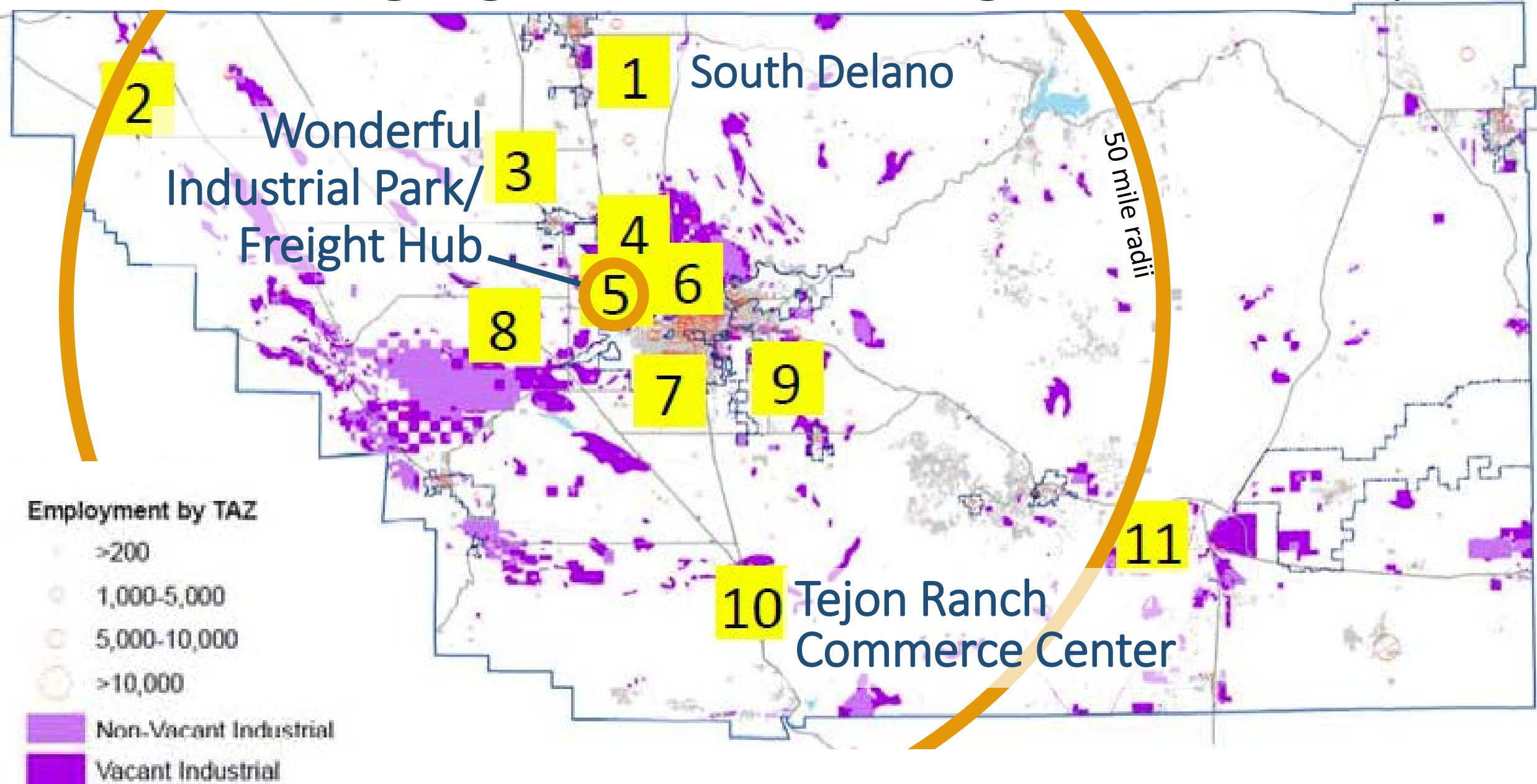
Located in Kern County in the immediate vicinity of the City of Shafter, the geographic center of population is the weighted single point that is closest to all people in California. It is the location with the lowest shipping cost and carbon footprint for facilities designed to ship to consumers statewide. It is also a hub for shipping goods throughout the West.



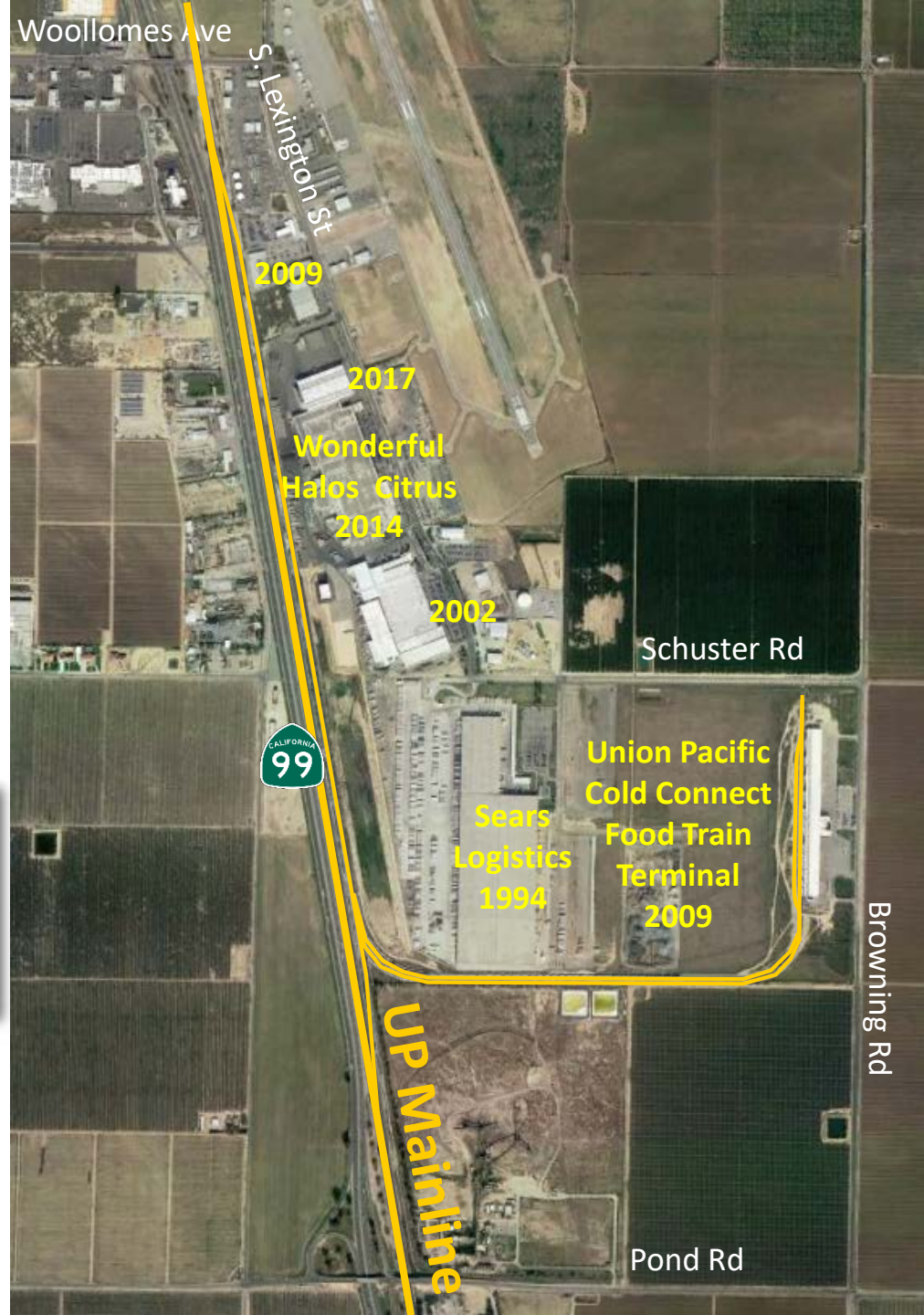
- Major Container Ports
- Distribution Centers
- California Geographic Center of Population
- Distance from Center of Population
- County Proportional Population
- Major Route Used by Central Distribution Centers
- Major Rail Routes



Kern's Emerging West U.S. Freight Hub Complex



South Delano – Union Pacific Cold Connect, Sears Logistics, Wonderful Halos Citrus Processing



Tejon Ranch Commerce Center

Catepillar DC
2013

Tejon Outlets
2013

MJR DC
2017

Wonderful Co DC
2005

Famous
Footware DC
2011

Dollar General DC
2012

IKEA DC
2003



→
To L.A.



Shafter West U.S. Freight Hub & Wonderful Industrial Park

Ross Dress For Less DC
2015

Bakersfield Pipe & Supply
2015

FedX Ground
2016

Target DC
2003

2009

2018

American Tire DC
2016

2013

Essendant DC
2018

Hillman Group DC
2004

Weatherford Corod Mfg Plant
2012


4.5 miles of rail sidings owned by City of Shafter, longest is 2 miles w/ switches to main line at both ends.

Bakers Hughes
2012

MRC Global
2017

Formica DC
2006

Smith-Mi Swaco
2012

To  99

BNSF Mainline

Phase I Complete

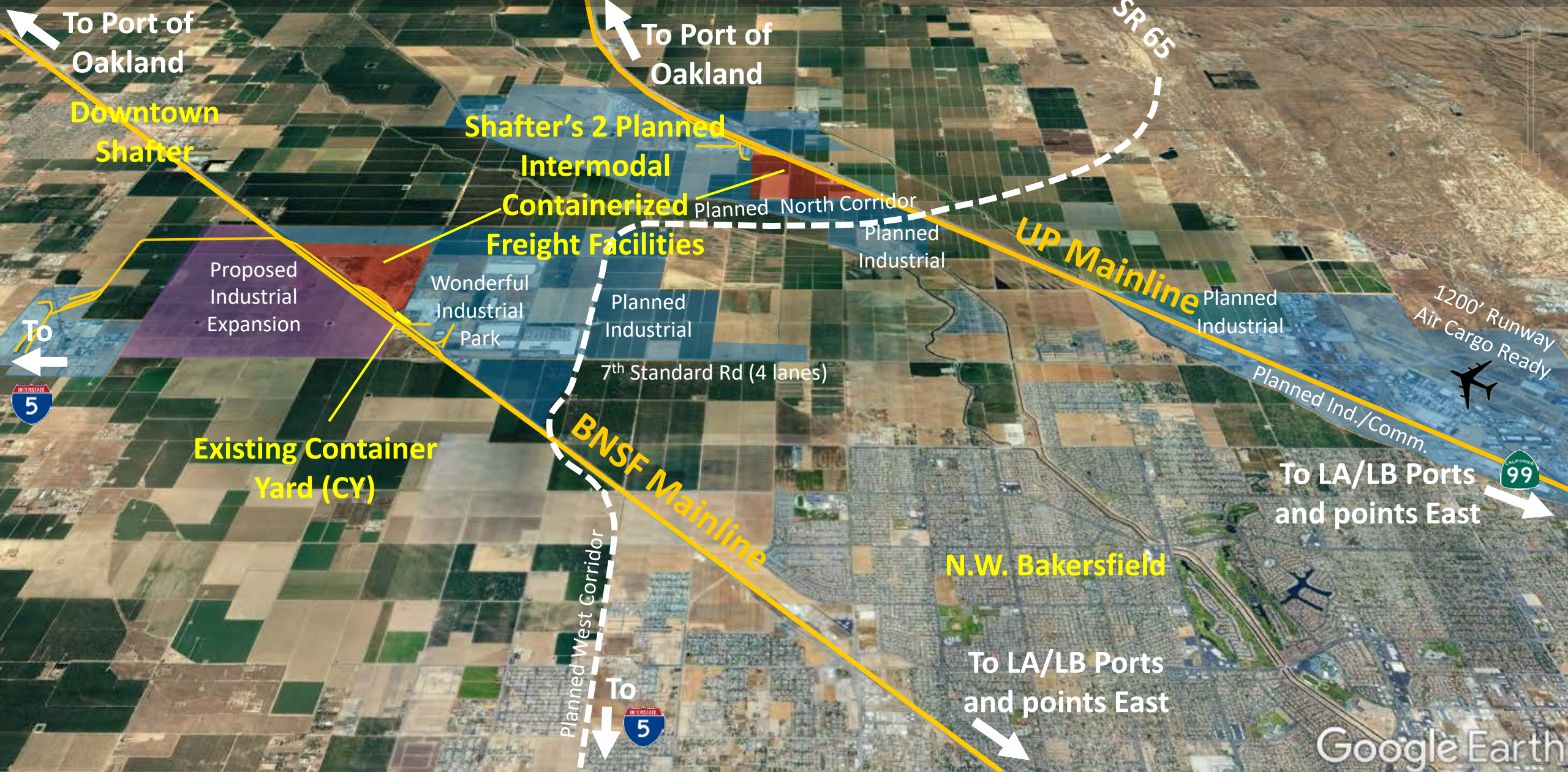
160 - 40' Container Spaces

To  5

1000 ft

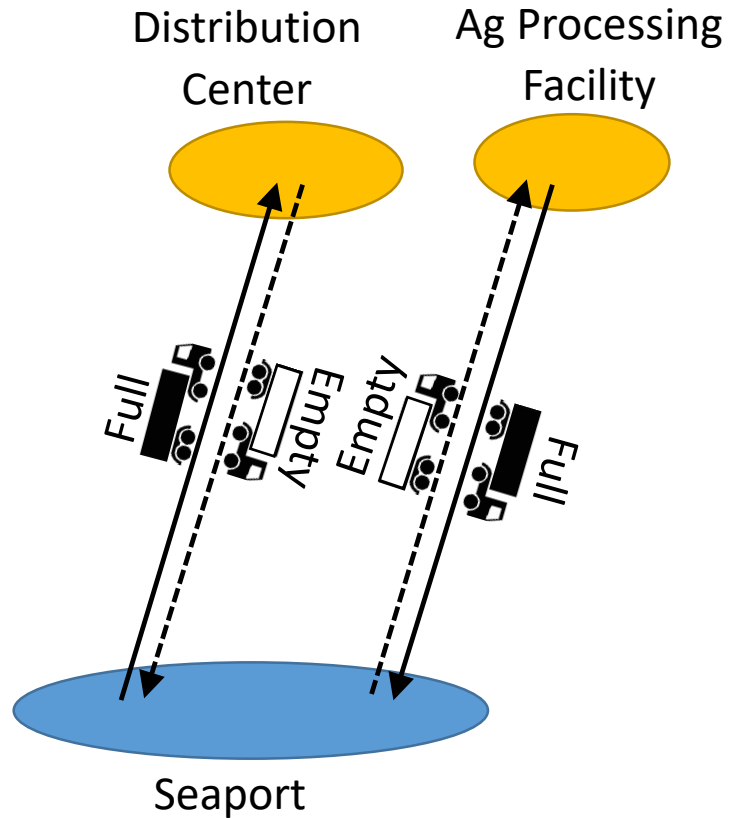
Shafter West U.S. Freight Hub

12 Square Miles of Vacant Industrial/Commercial land

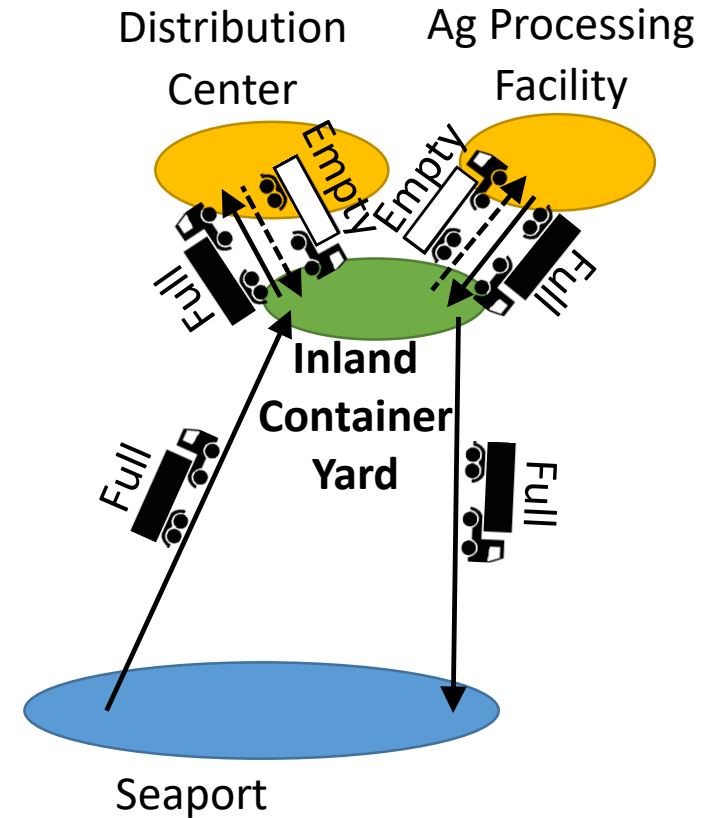


Basic Concept: Container Load Matching

Before Project



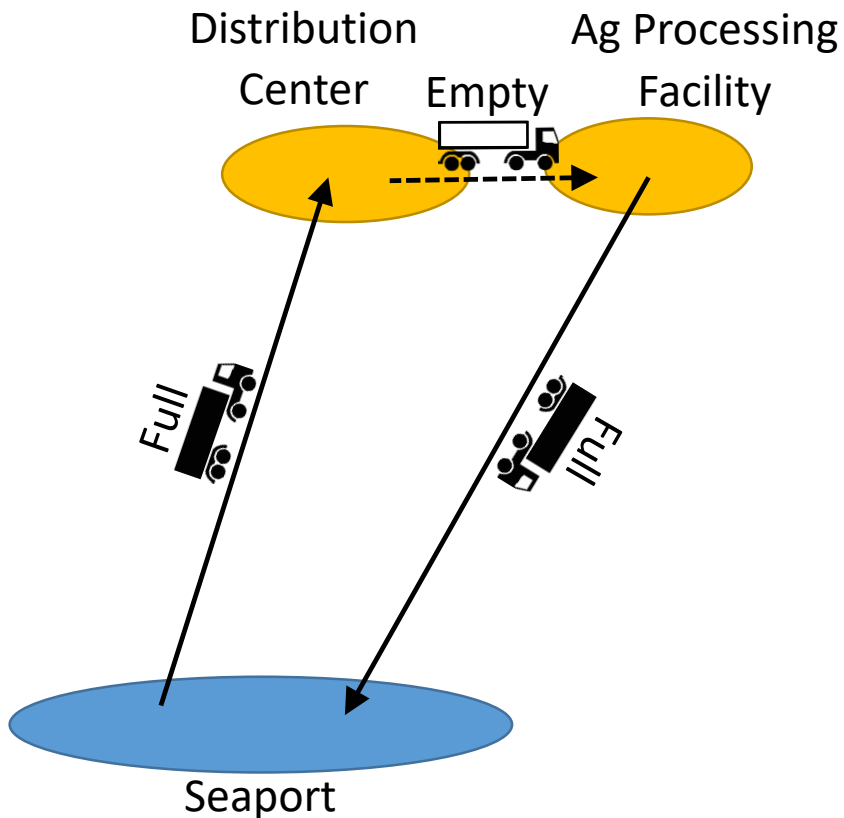
After Project



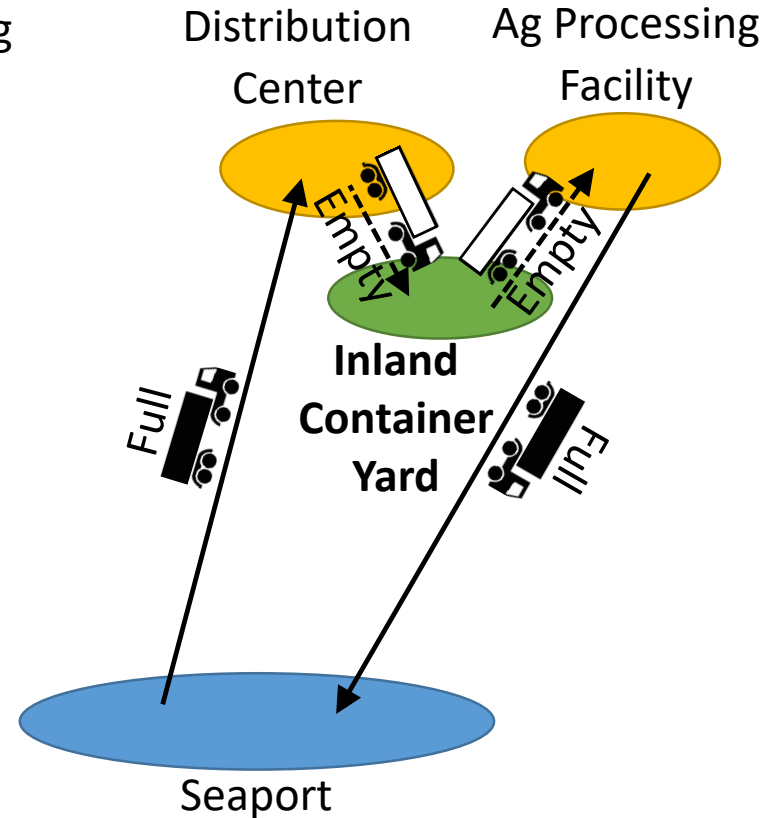
More Efficient Load Matching Variations

A. Virtual Container Yard

(needs public cloud supply chain solutions and/or block chain solutions)

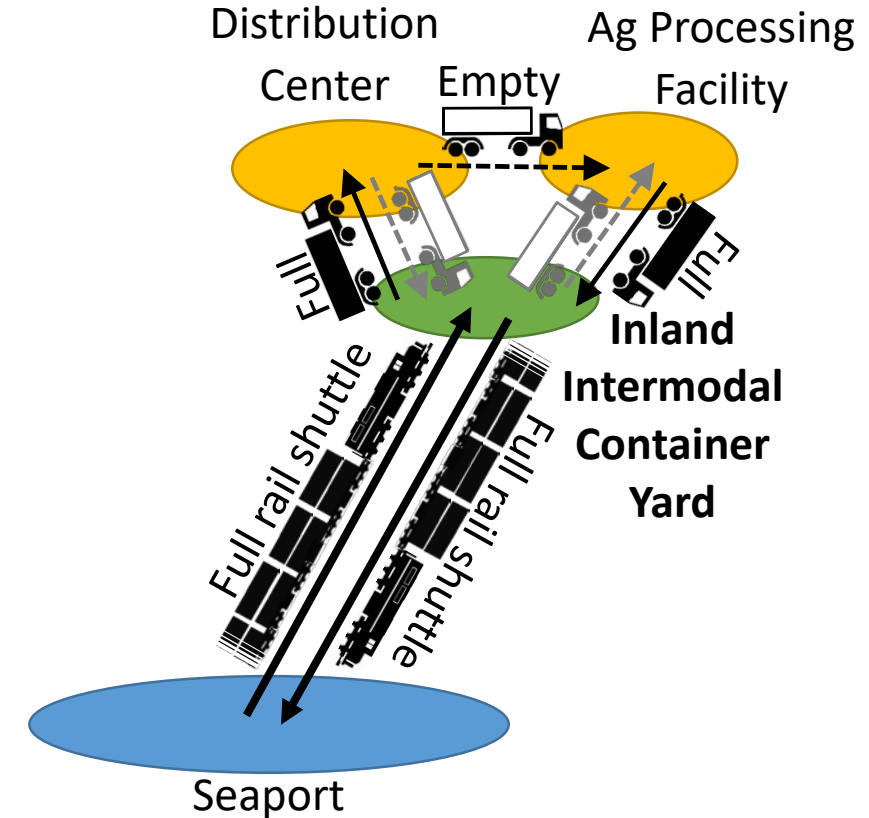


B. Exchange Empty Container/Chassis for needed ocean carrier type, and/or for cleaning



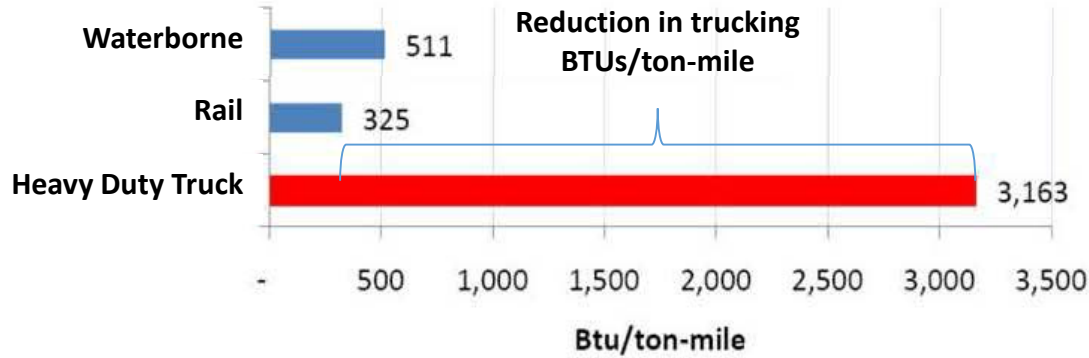
C. Rail Shuttle Concept ... Challenge

(Need 300 containers per ship headed to inland port and similar volume of exports going back with competitive pricing from a class 1 RR and/or additional government investment)



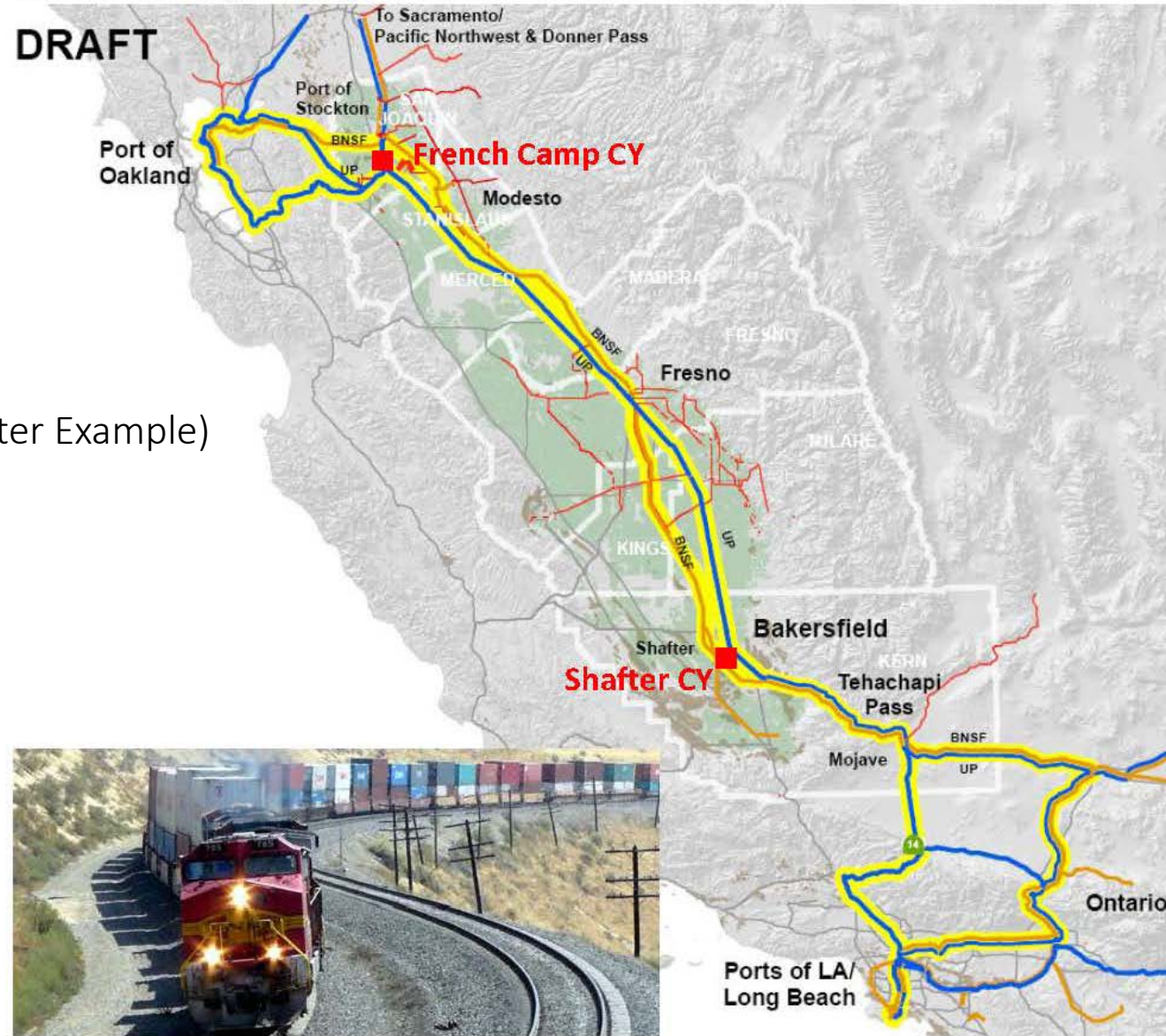
Rail vs. Truck = 10 Fold GHG Reduction

Energy Intensity of Freight Modes in 2004
(Btu/ton-mile)



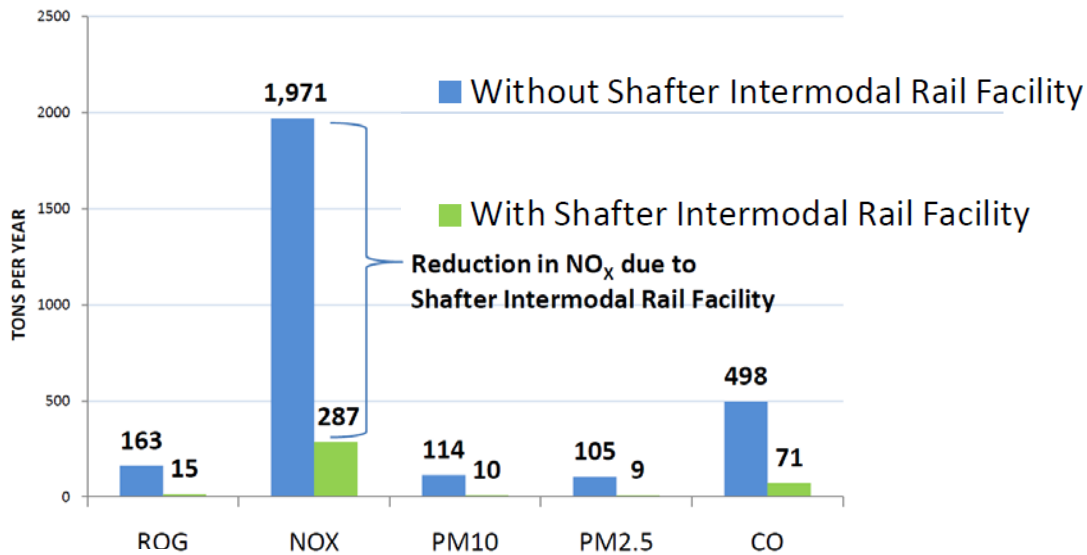
Potential for future investment shares to be spent on a 600 mile freight container rail shuttle service connecting the ports with container yards if truck volumes are high enough to attract a class 1 railroad to service the route.

DRAFT



Rail vs. Truck = 7 Fold NOX Reduction (Shafter Example)

COMPARISON of CRITERIA POLLUTANT EMISSIONS
WITHOUT and WITH
SHAFTER INTERMODAL RAIL FACILITY



Average Savings = 127 truck VMT per container trip = Less Emissions + Less Wear & Tear on Roads + Less Congestion

Importer or Exporter	Walmart	Sears	Target	Men's Warehouse	IKEA	
City	Porterville	Delano	Shafter	Bakersfield	Lebec	Average
From Ports of LALB Via Highway						
Truck VMT	204	166	147	133	109	
I710	19	19	19	19	19	
I5 South of Kern Co.	74	74	74	74	74	
I5 Total	90	90	90	90	89	
I5 in SJV Study Area	16	16	16	16	15	
SR99	77	55	31	20	0	
Other	18	2	7	4	1	
From Ports of LALB Via Shafter Intermodal Terminal						
Truck VMT	50	27	1	18	41	
I710	0	0	0	0	0	
I5 South of Kern Co.	0	0	0	0	0	
I5 in SJV Study Area	0	0	0	0	1	
SR99	0	16	0	9	32	
Other	50	11	1	9	8	
VMT Change						
Truck VMT	-154	-139	-146	-115	-68	
I710	-19	-19	-19	-19	-19	
I5 South of Kern Co.	-74	-74	-74	-74	-74	
I5 in SJV Study Area	-16	-16	-16	-16	-14	
SR99	-77	-39	-31	-11	32	
Other	32	9	-6	5	7	
I5/SR99 Corridor Net	-93	-55	-47	-27	18	-43
Non-Corridor	-61	-84	-99	-88	-86	-84
Total	-154	-139	-146	-115	-68	-127

The Bottleneck is at the Ports

How do you get 300 containers bound for DCs in the Central Valley from a single ship at the right pier with access to the right rail line, that is also willing to take on export containers from the Central Valley?

Legend

- 1 – Pier J On-Dock
- 2 – Pier G On-Dock
- 3 – Pier E On-Dock (MHT)
- 4 – Pier A On-Dock
- 5 – Pier T On-Dock
- 6 – Pier B Rail Yard
- 7 – TICTF Shared On-Dock
- 8 – Pier 300 On-Dock
- 9 – Pier 400 On-Dock
- 10 – WBICTF On-Dock
- 11 – WB-East (TraPac) On-Dock
- 12 – B200 Support Rail Yard (PHL Base)

Figure 14.300 On-Dock and Support Rail Yards in San Pedro Bay



To Get Industry's Interest... Talk Market Share/Branding Government Fees & Incentives vs. Protecting Business Market Share

- Government Funds Marketing Campaign for Consumers to Purchase Products Shipped Sustainably (Like SmartWay or Energy Star, sort of a LEED program for goods movement).
- Menu Based Approach - Let Business Pick Which Sustainable Shipping Strategies They Want to Use
- Participating Businesses are licensed to Market their Products as Being “Shipped the Smart Way” or “Green Seal Certified.”
- Government Certification Regularly For Use of Marketing & Promotional Materials



Other branding and certification resources



sourcemap
proprietary product for
supply chain tracking



Trucking Efficiency is an industry organization focused on reducing fuel use by the trucking industry.



<https://rmi.org/our-work/transportation/trucking-efficiency/>

Non-Transportation Certification Branding Examples



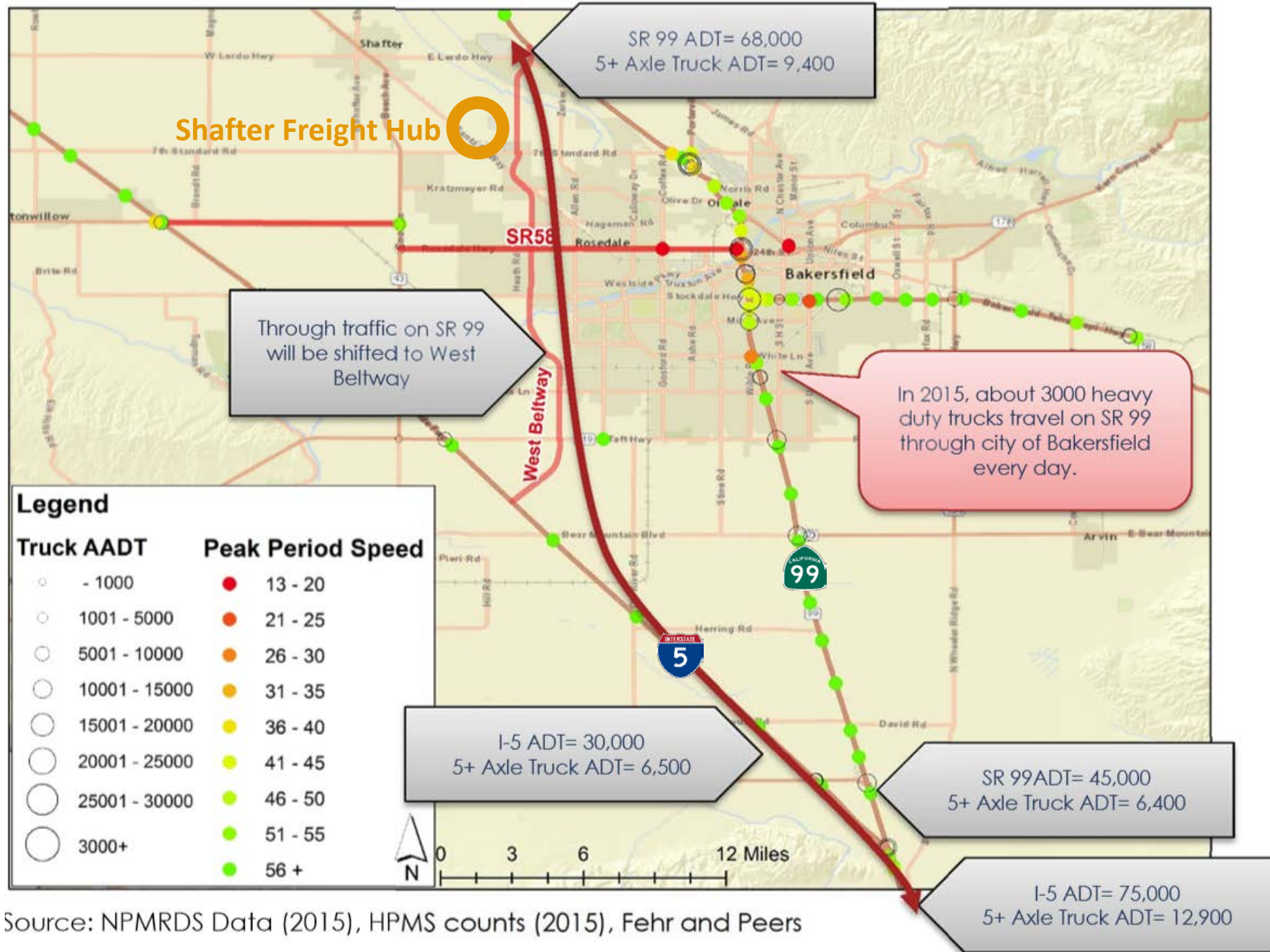
Highway Infrastructure Projects Supporting More Sustainable Goods Movement - 2018



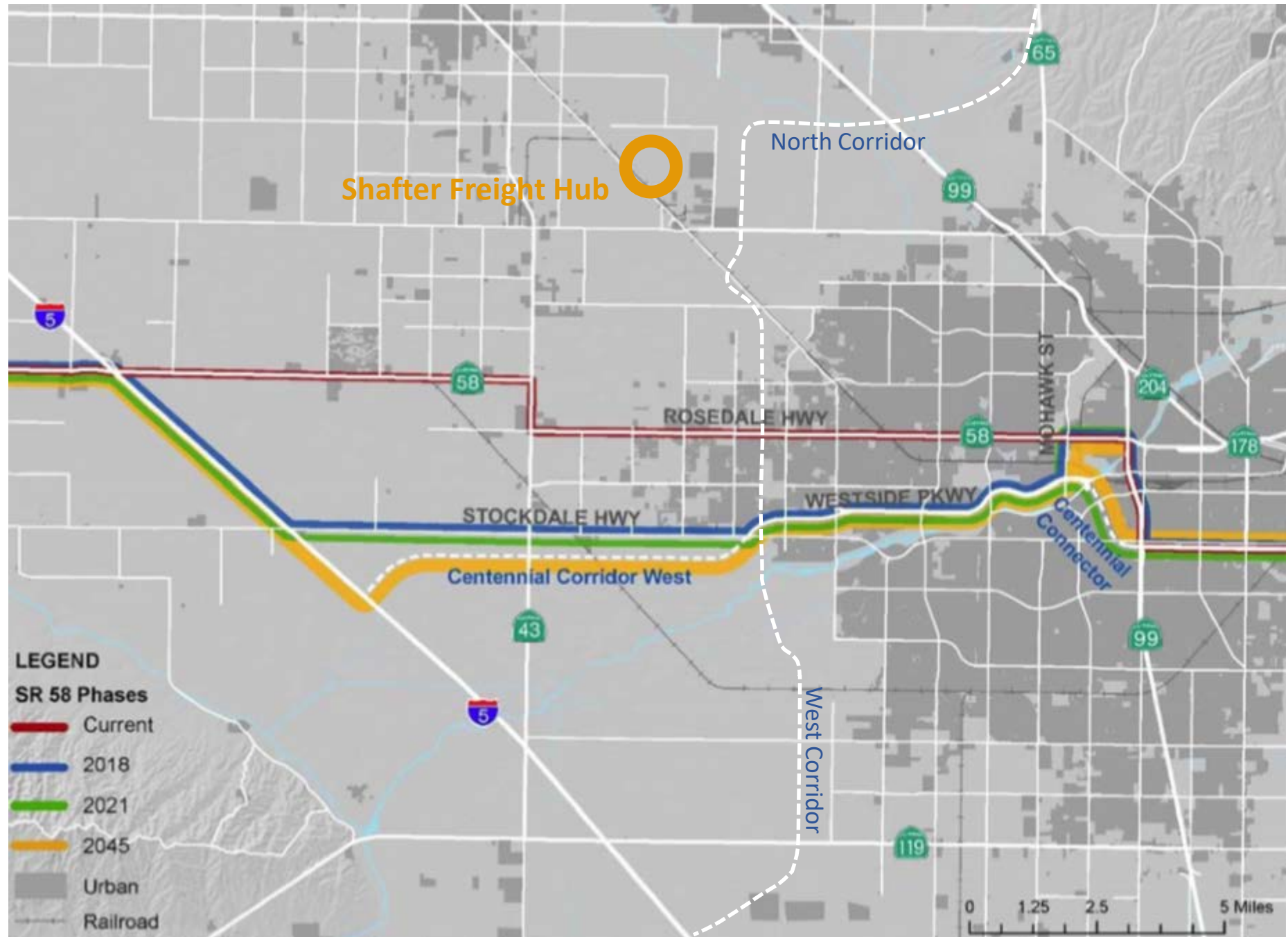
**Kern Council
of Governments**

West Corridor Bypasses

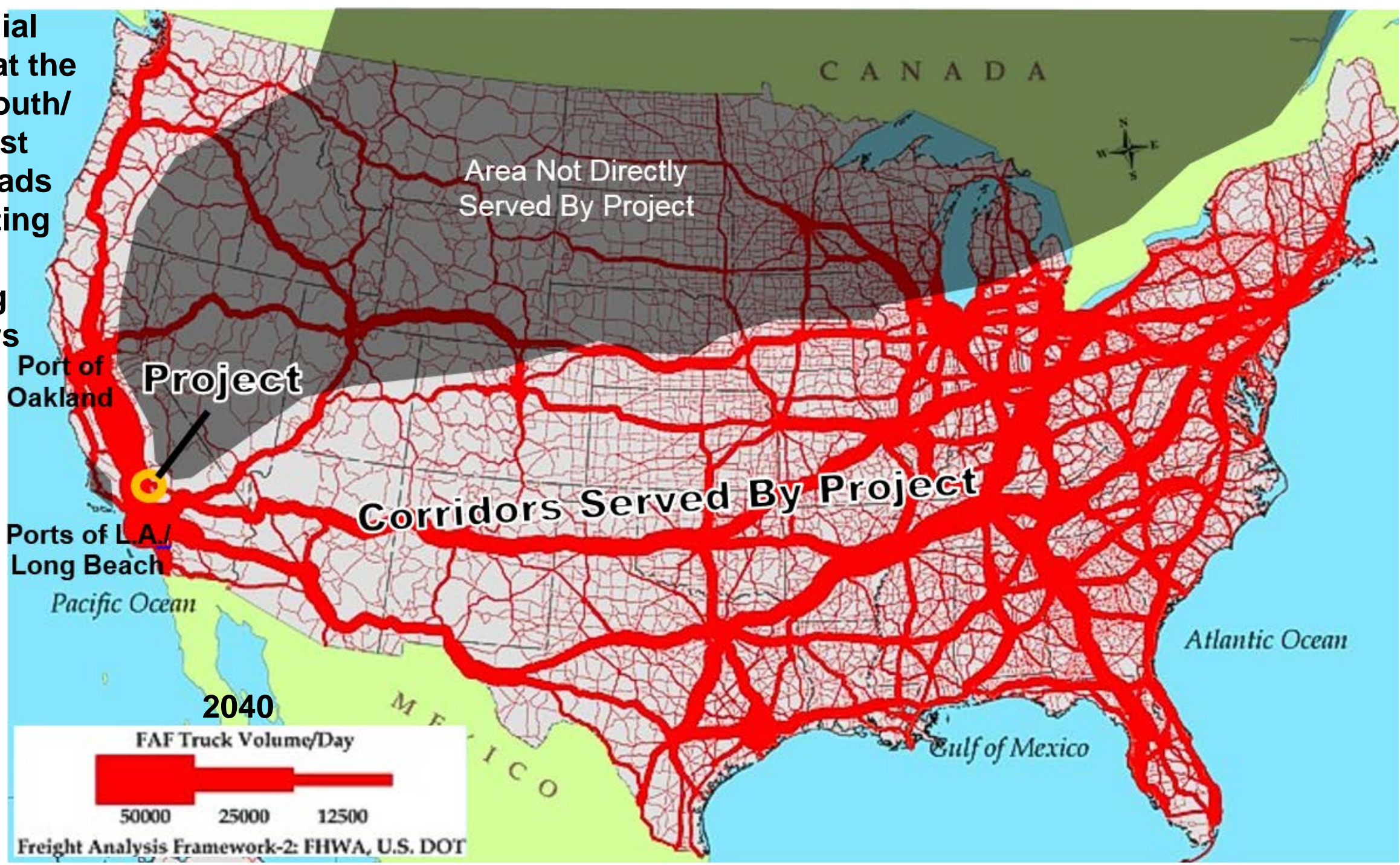
Busiest Segment of 99 South of Sacramento – Shifts 3,000 Trucks Per Day From 99 to I-5 South of Bakersfield (partially funded)



Centennial Corridor Project Phases: Re-designation of SR 58

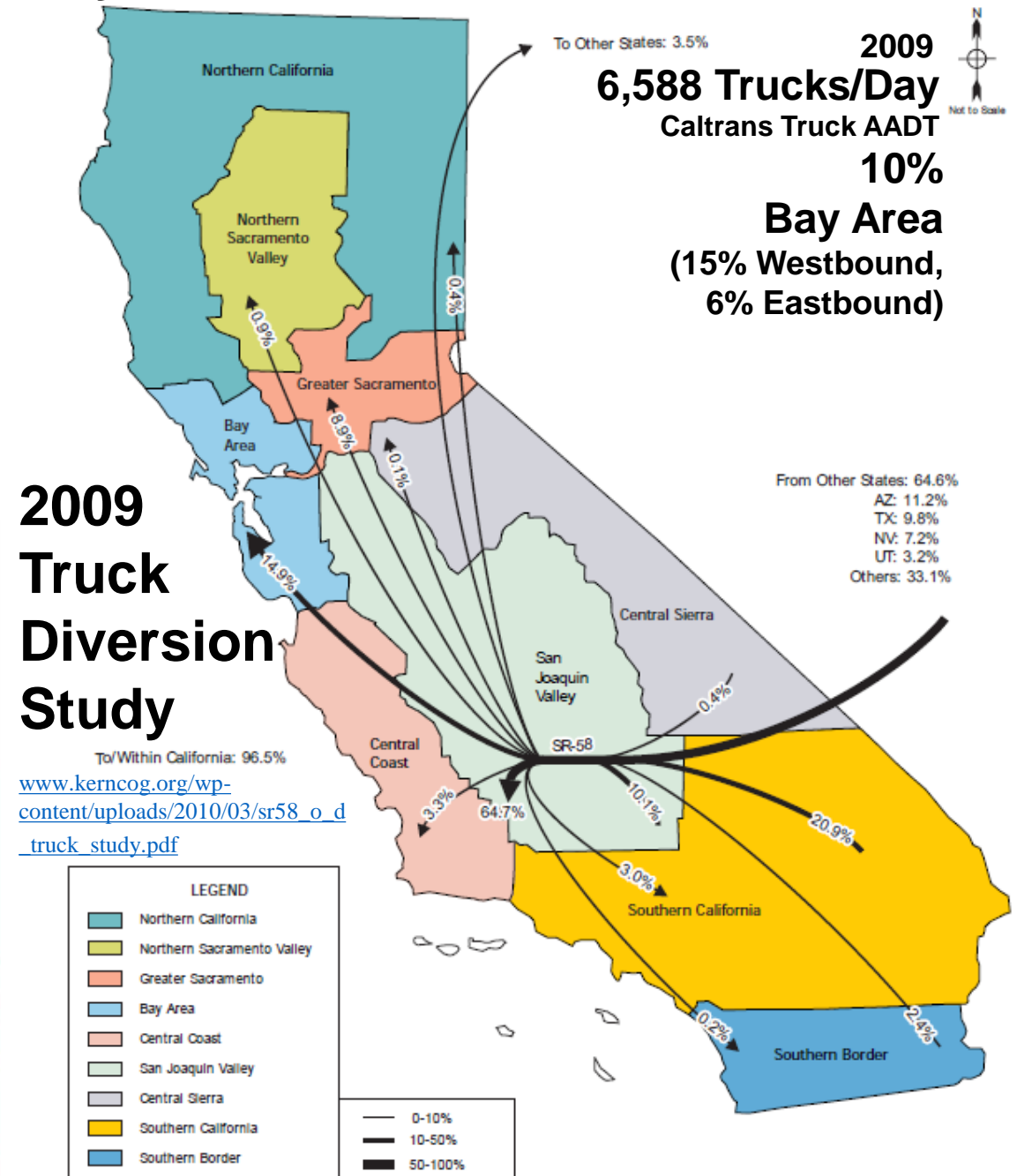
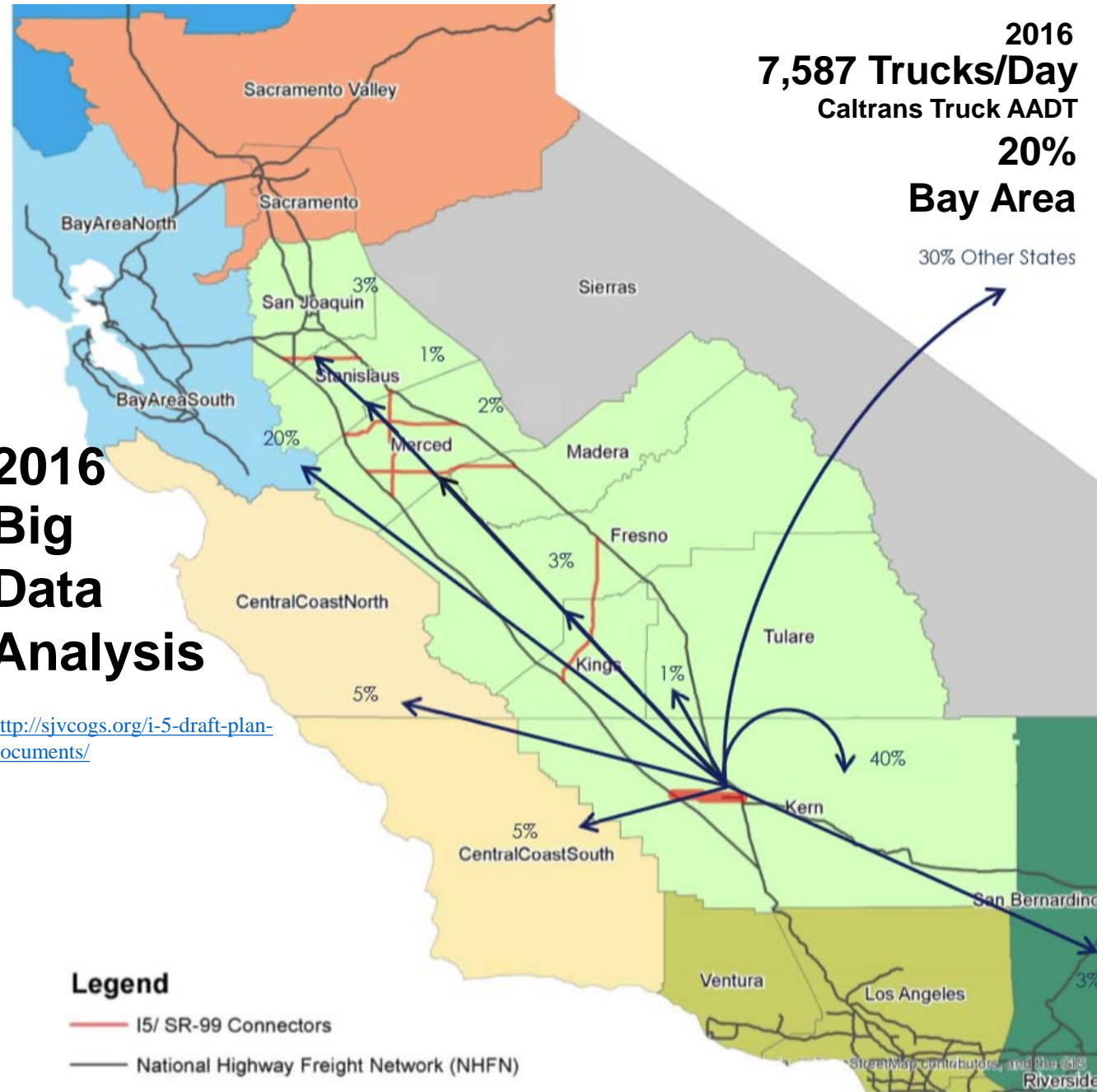


**Centennial
Project at the
North-South/
East-West
Crossroads
Connecting
National
Trucking
Corridors
I-5, I-15,
I-40 &
Others**



Adapted from http://ops.fhwa.dot.gov/FREIGHT/freight_analysis/faf/index.htm

SR 58: 1000 More Trucks/Day in Last 7 yrs. – Bay Area’s Share of Trucks Doubles



Centennial Corridor Project Will Reduce Travel between I-40/I-580 by an Average of 12 Mi. for 8000 Trucks Per Day by 2038

Distances based on Google Maps - March 2016
<https://www.google.com/maps/dir/California/Interstate+580,+California/California/>



Vehicle Miles Traveled By Routes Connecting I-40/SR58 to Bay Area and Port (I-580)

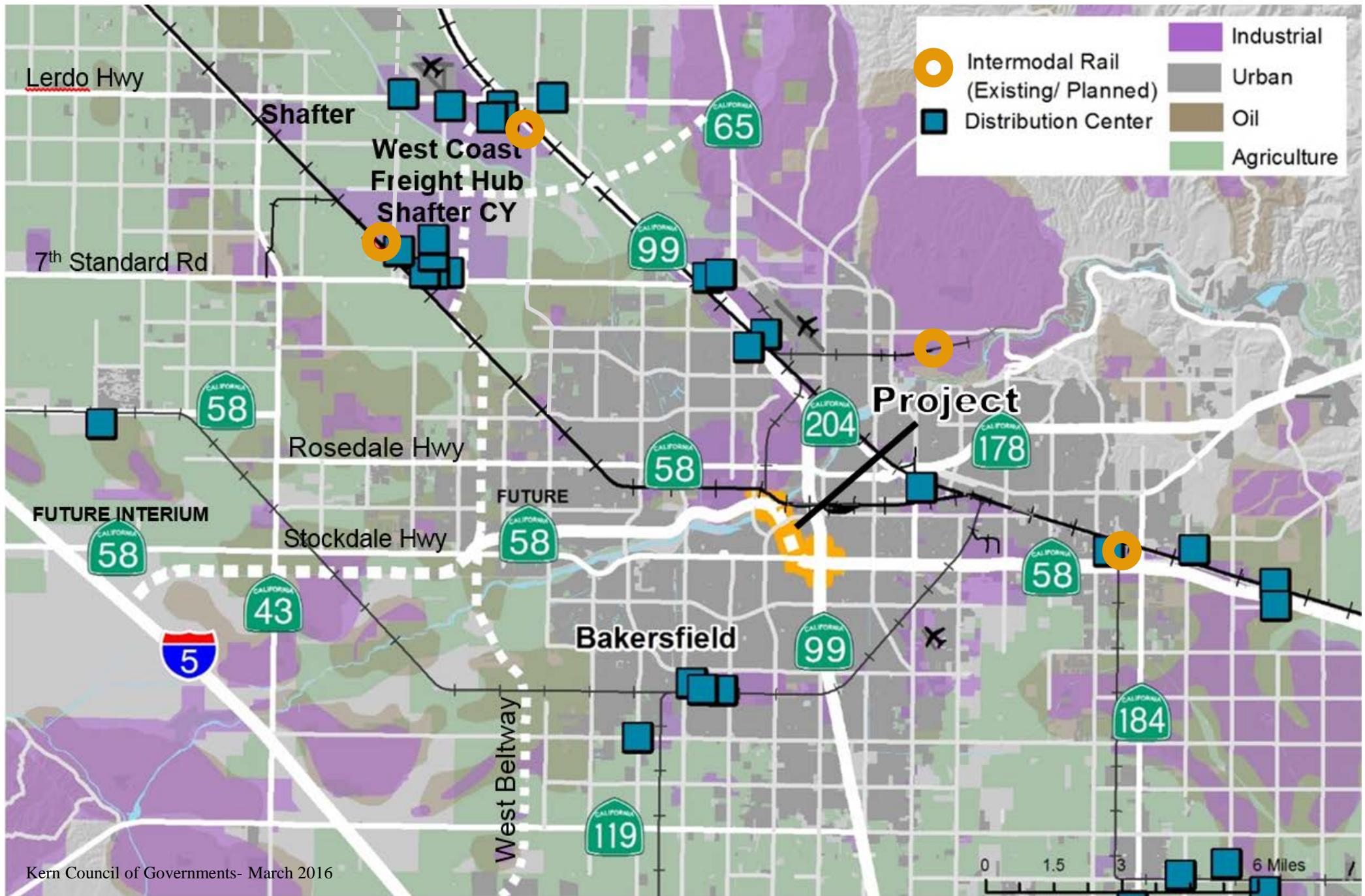
Truck Route Alternatives	Miles*	Stops/ Signals
58, Centennial , I-5, 580	228	1**
58, 99, 120/205, 580	240	0
58, 99, 152, I-5, 580	245	14
58, 99, 198, I-5, 580	250	2
58, 99, 46, I-5, 580	231	5
58, 99, <u>Lerdo</u> , I-5, 580	231	7
58, 99, 7 th Std., I-5, 580	231	7
58, 99, existing 58, I-5, 580	229	11
58, Stockdale, I-5, 580	228	11

*Distances are from SR99/58 to I-580/205 interchanges
 **To be eliminated with future phase

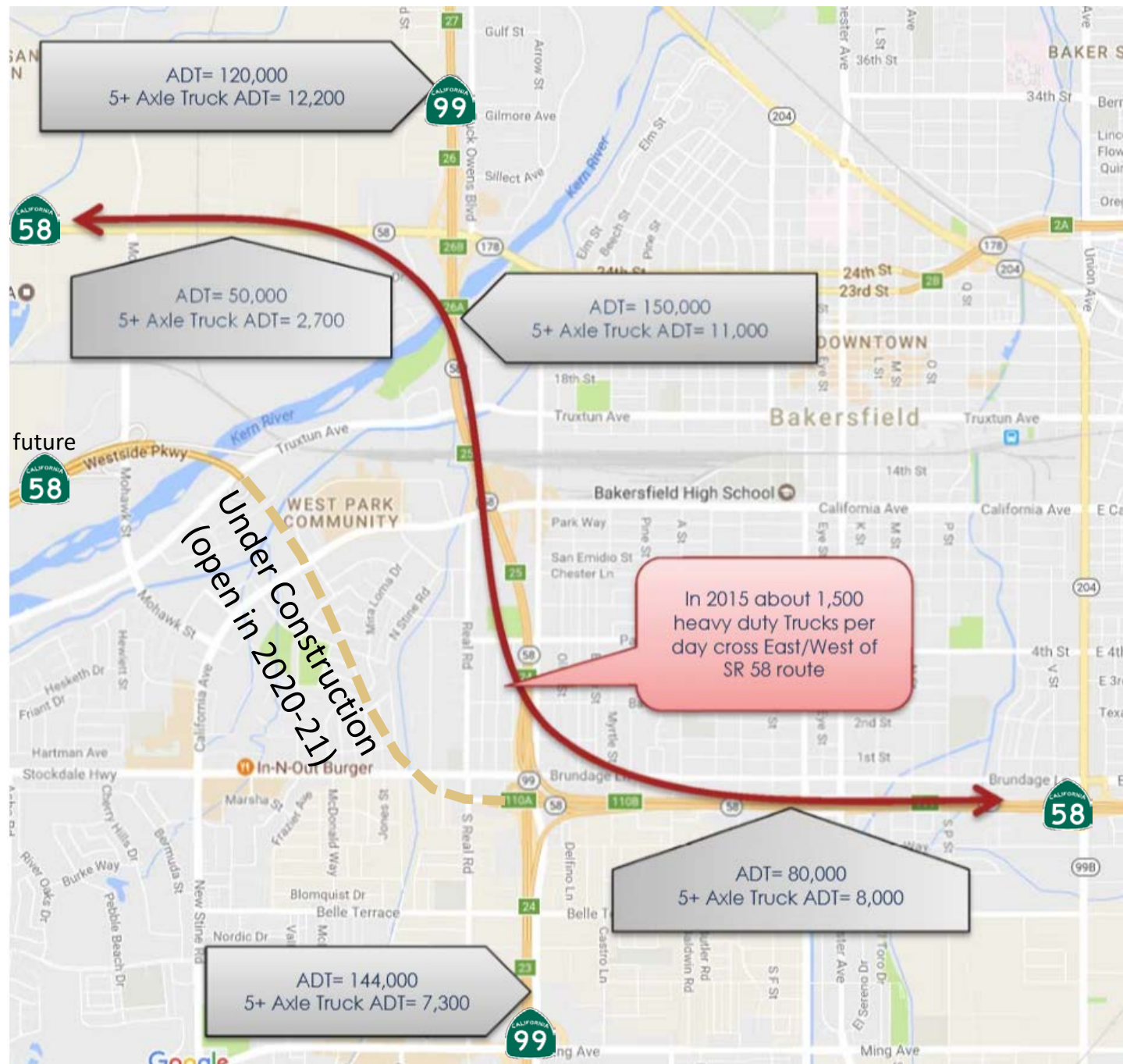
- Intermodal Rail Facilities
- Long Haul (BNSF, UP)
- Freeways/Highways
- Producing Oil Fields
- Producing Ag. Land
- County Boundaries

0 37.5 75 150 Miles

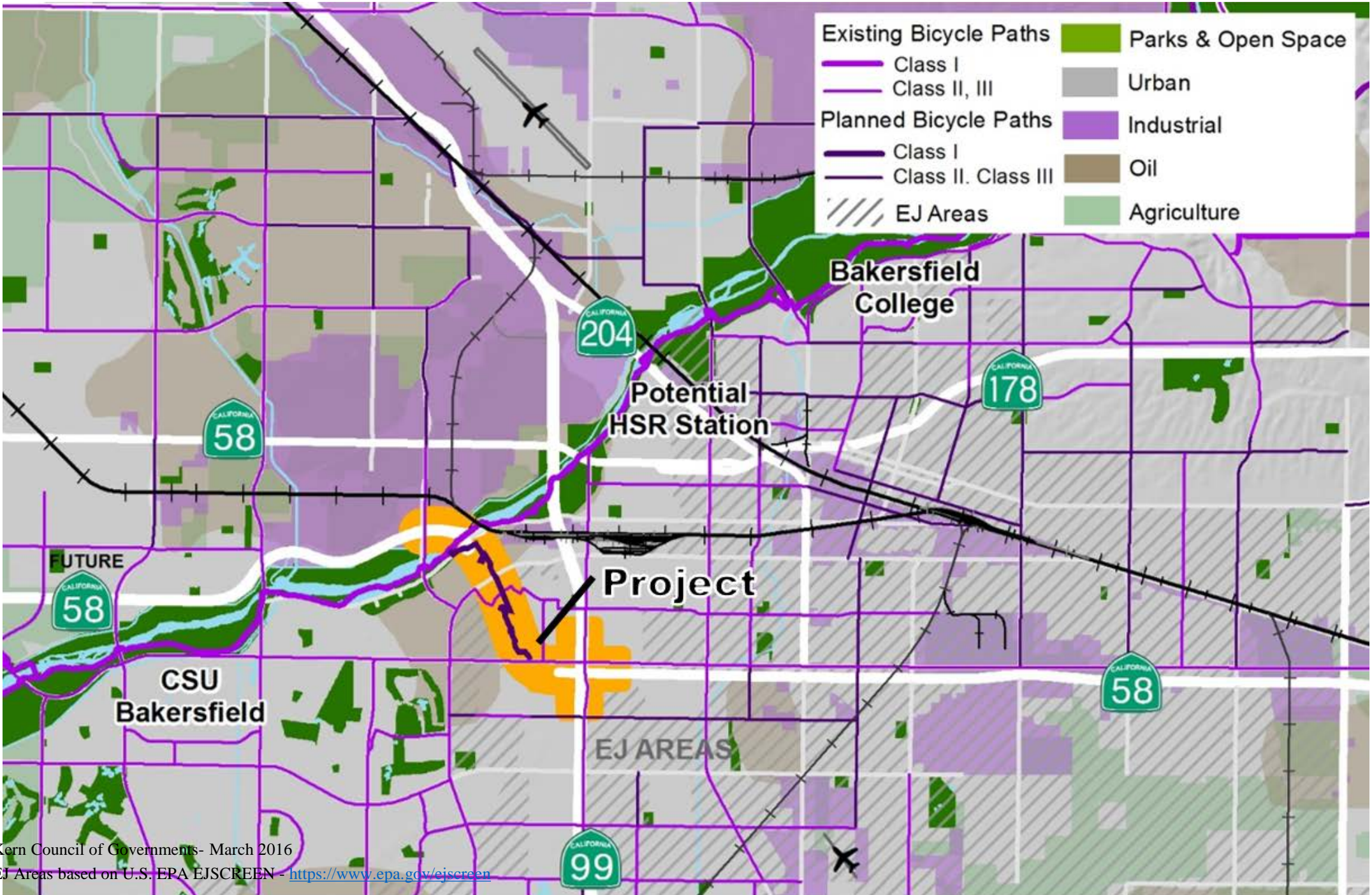
Centennial Connector Project for Major Intermodal Goods Movement Region



**Centennial Connector
Project: Shifts 1,500 trucks
Per day off the Busiest
Segment of SR 99 South of
Sacramento to I-5, Including
Another 100 Trucks Per Day
N. of Bakersfield to I-5 and
up to 8,000 T.P.D. by 2038.**



Connecting Environmental Justice (EJ) Community with a Class I Bike Trail to Recreational Parkway, University and HSR Station – Central Bakersfield Major Land Uses



Kern Council of Governments- March 2016
 EJ Areas based on U.S. EPA EJSCREEN - <https://www.epa.gov/ejscreen>



CALIFORNIA
58

CALIFORNIA
99

Emerging Cleaner Trucking Fleet Technologies

Frito-Lay has 40 Tesla Trucks on Order!

Freightliner Cascadia

Diesel Truck
6X4 Tandem Axle Drive
Long Range
Sleeper
0-60 in about a Minute @ 80k GCW



Image: Freightliner

NIKOLA ONE

Hydrogen Fuel Cell - Electric Truck
Six Motor AWD
Long Range
Large Sleeper
0-60 in 30 Seconds @ 80k GCW



Image: NIKOLA

Tesla Truck

Battery - Electric Truck
Six Motor AWD
Long Range
Large Sleeper
0-60 in <20 Seconds @ 80k GCW



Image: Author

Other Kern Freight Related Projects

- Preserve and expand existing Rail Freight (SJVRR, Borax, Soda Ash, Ag Chemicals)
- 58 Truck Climbing Lanes near 223 and Interchange at 223
- 58 W. bound Weigh Station
- 58 Truck Stops at E. Tehachapi Blvd – Interchange Ramp Improvements
- I-5 Request to Move S. Bound Truck Stop at Tejon W.I.M. Facility.
- I-5 Truck Climbing Lanes at Grapevine
- South Metro Bakersfield Corridor Connecting I-5, 99 & 58 (adopted specific plan line)
- 3 more Rail Siding Turnouts on UP/BNSF Tehachapi Pass
- Senator Beall Proposal for HSR to Build Separate Parallel Tunnel over Tehachapi Pass for Conventional Freight Trains to Reduce Freight Travel Time and Generate Revenue
- Many other projects.