Nevada Freight Plan Update
Freight Advisory Committee Meeting

Tim Mueller, NDOT
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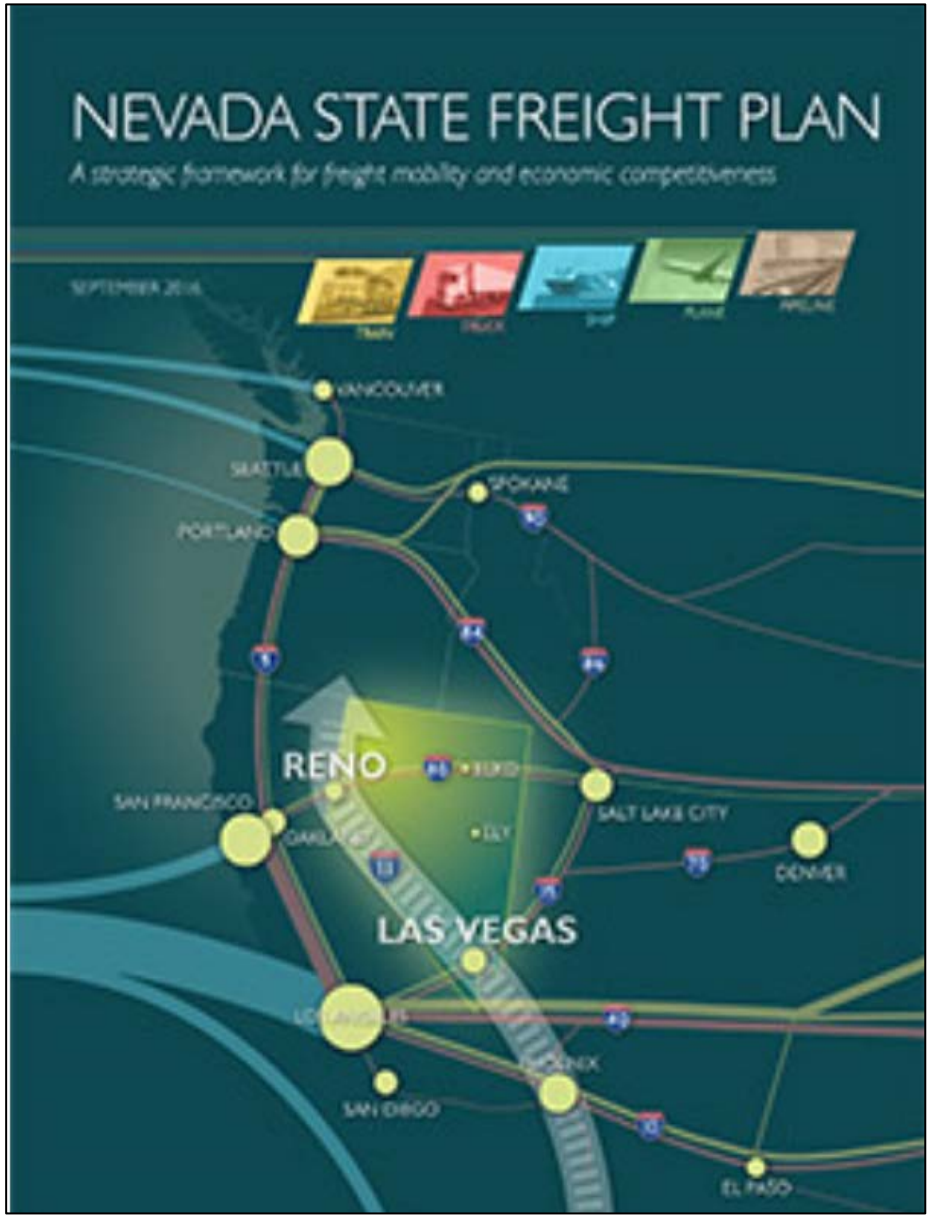
May 4, 2022

Nevada Freight Plan Update Objectives

- This update will meet FAST Act/BIL requirements
- Support eligibility for federal funding
- Identify key freight infrastructure investments

Nevada Freight Plan Update
2-Step Approach

- FHWA Approved the Nevada State Freight Plan in January 2017
- This plan officially expired in January 2022
- Based on discussions with FHWA and to maintain eligibility for federal freight funding, NDOT is approaching the Freight Plan Update in two-steps:
  - Prepare an **Interim/Immediate Update** to the Nevada Freight Plan by May/June 2022
  - Prepare an amended complete **Final Update** by November/December 2022

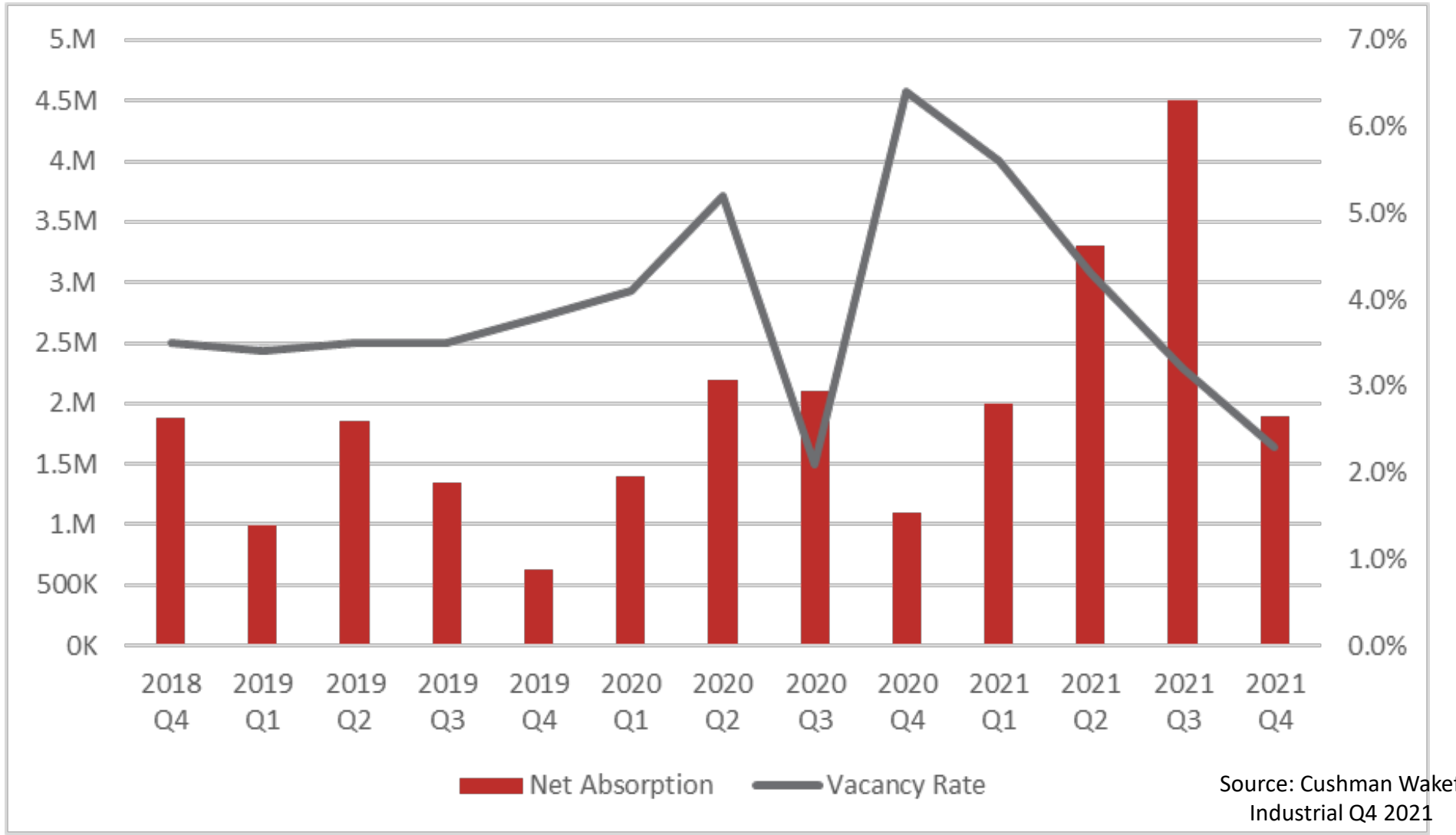


Nevada Freight Plan Update
Key Tasks

- The reason for this **Interim/Immediate Update** is that several items of analysis cannot be completed within the necessary timeframe. These include:
  1. Truck GPS analysis
  2. Update to the critical urban and rural freight network
  3. Extended coordination with MPOs
- **Final Freight Plan Update** will be completed in November/December 2022
- Both (Interim & Final) plans will be FAST Act/BIL compliant

Nevada Freight Plan Update
Industrial Real Estate, Las Vegas Market

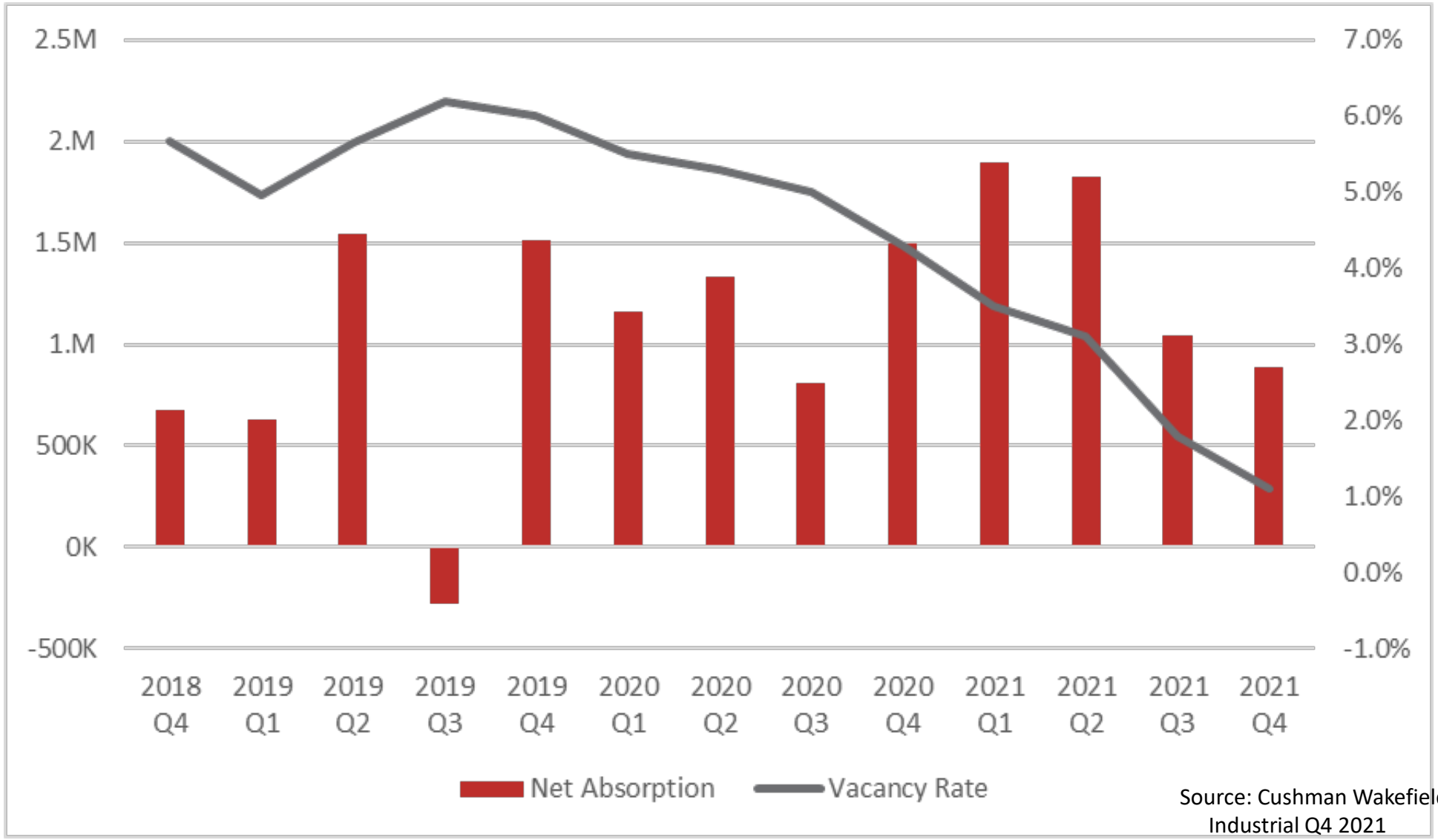
4.8M Square Feet Under Construction Q4 2021



Source: Cushman Wakefield Marketbeat, Reno Industrial Q4 2021

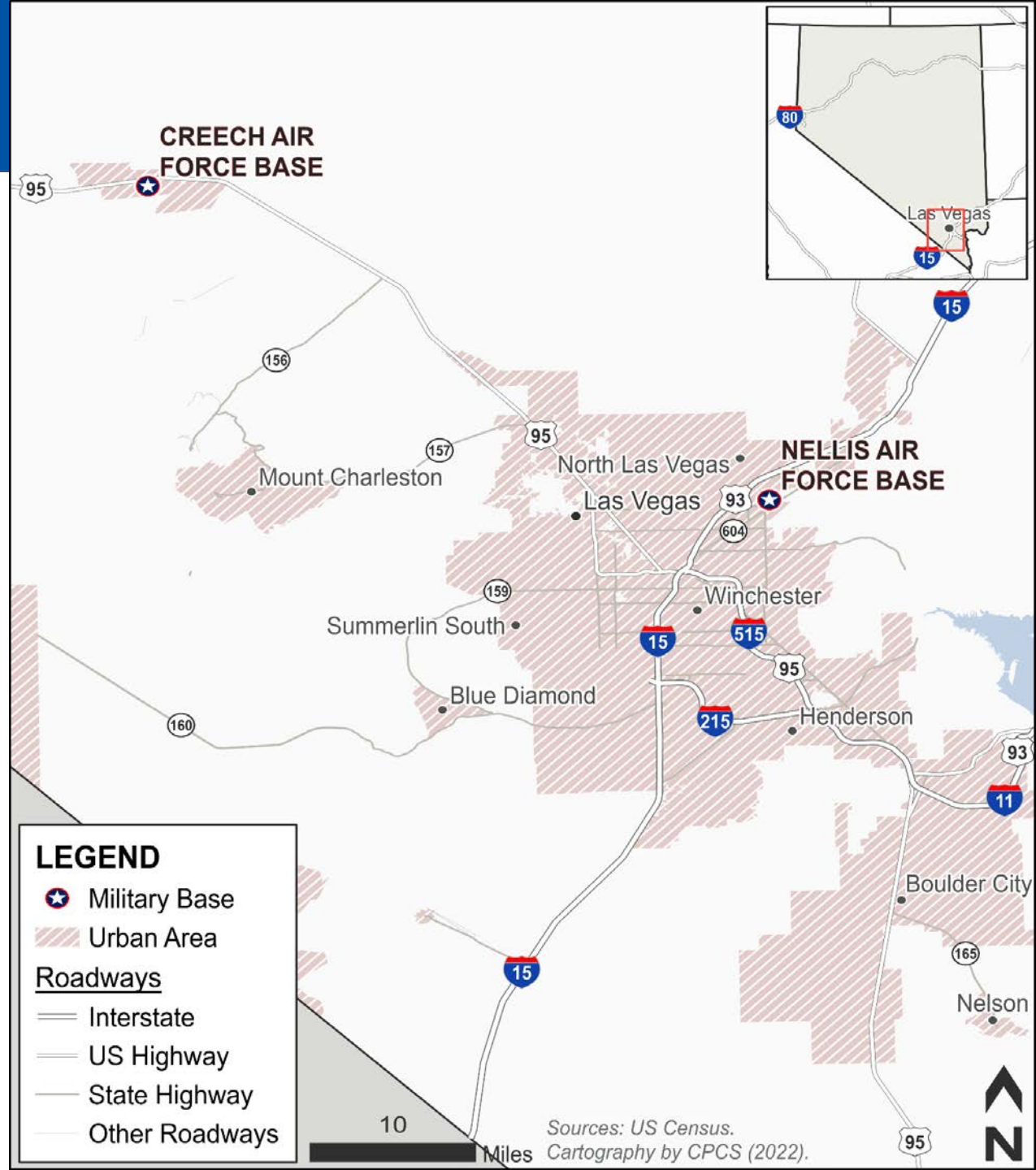
Nevada Freight Plan Update
Industrial Real Estate, Reno Market

3.6M Square Feet Under Construction Q4 2021



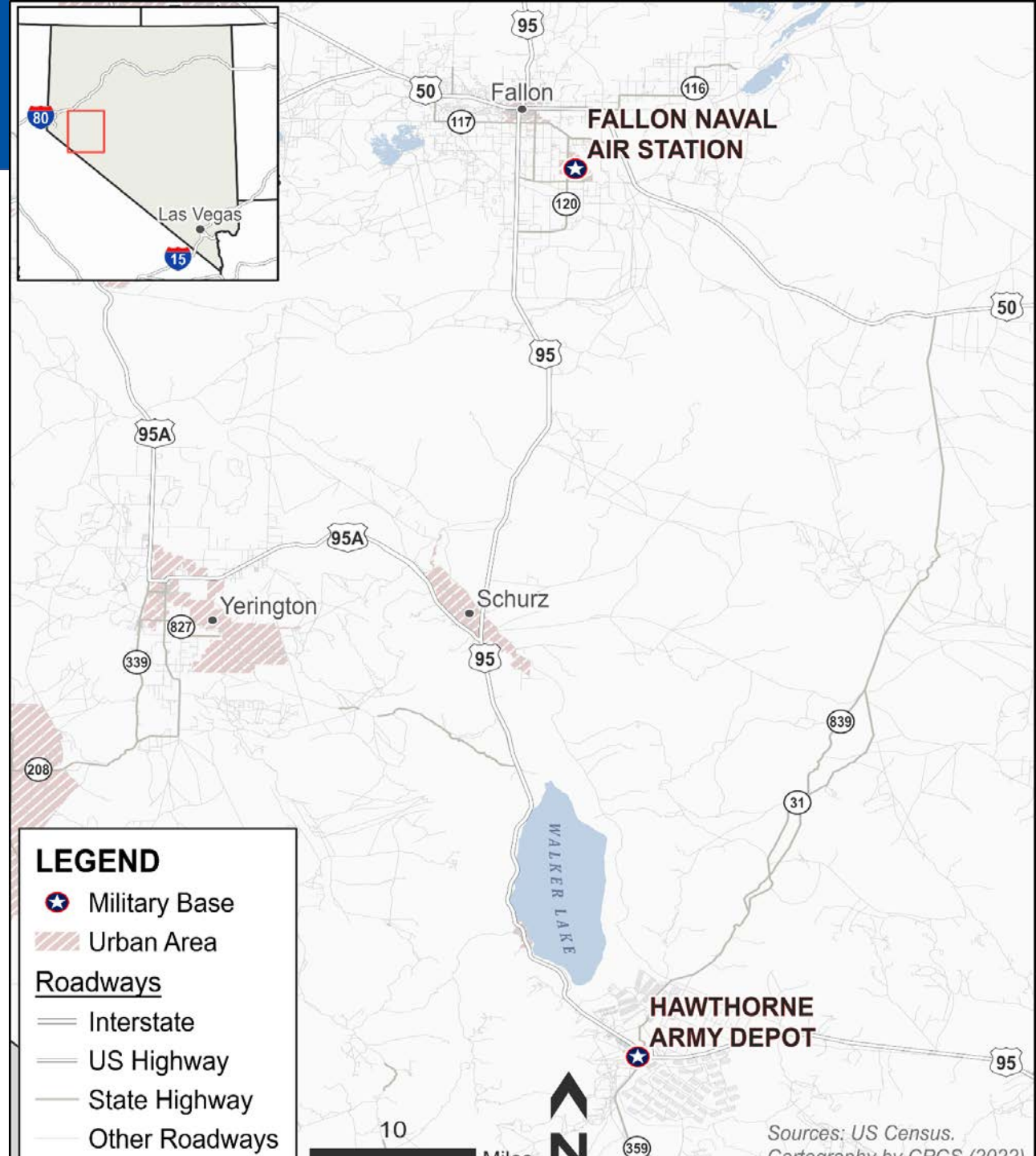
Source: Cushman Wakefield Marketbeat, Reno Industrial Q4 2021

Military Freight Needs
Southern Nevada

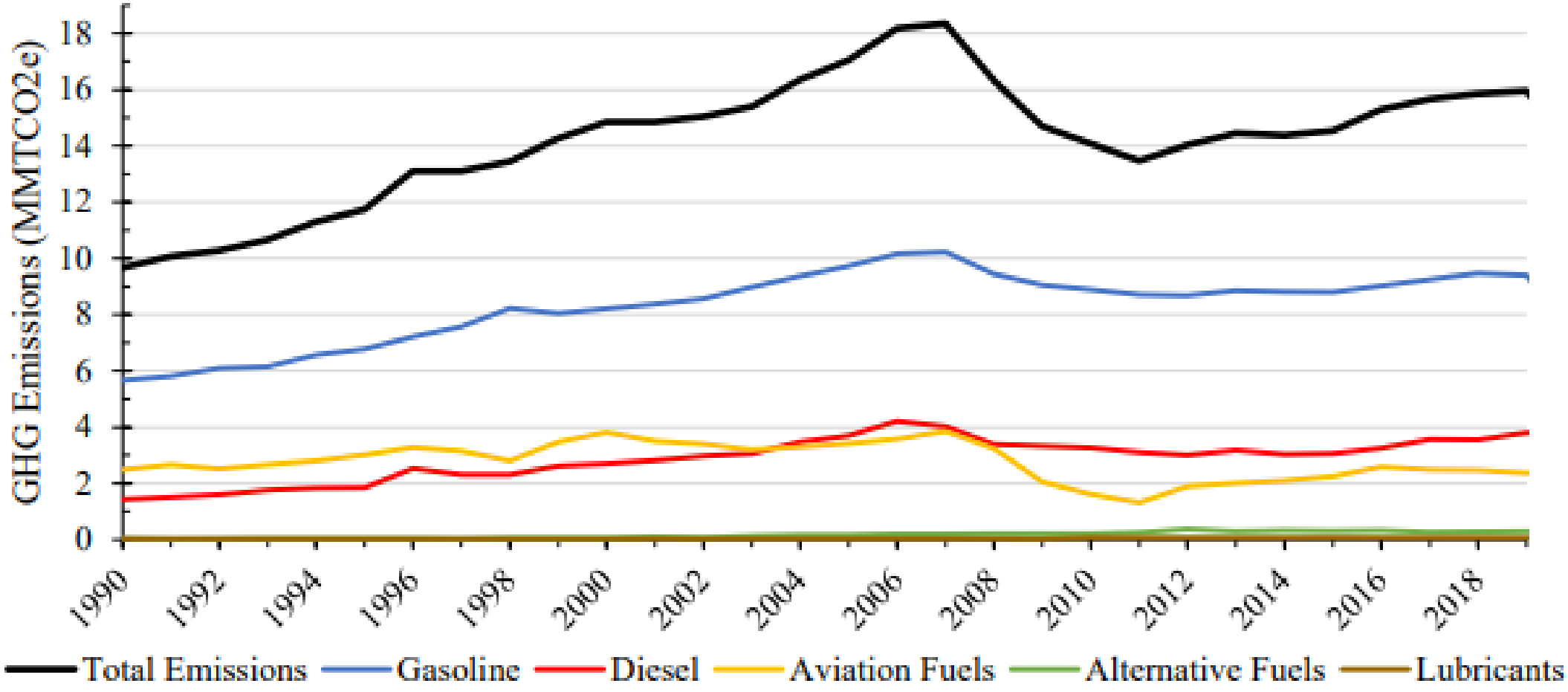


NEVADA DOT
SAFE AND CONNECTED

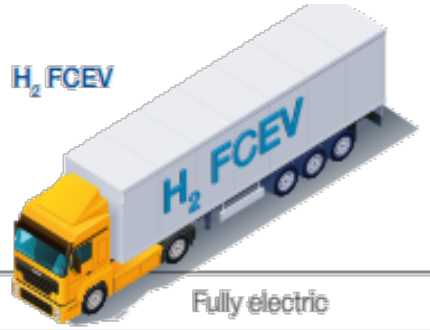
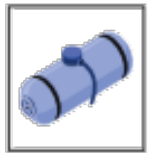
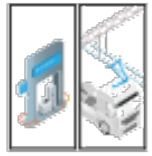
MILITARY FREIGHT NEEDS
NORTHERN NEVADA



Transportation Sector GHG Emissions by Fuel Type, 1990-2019

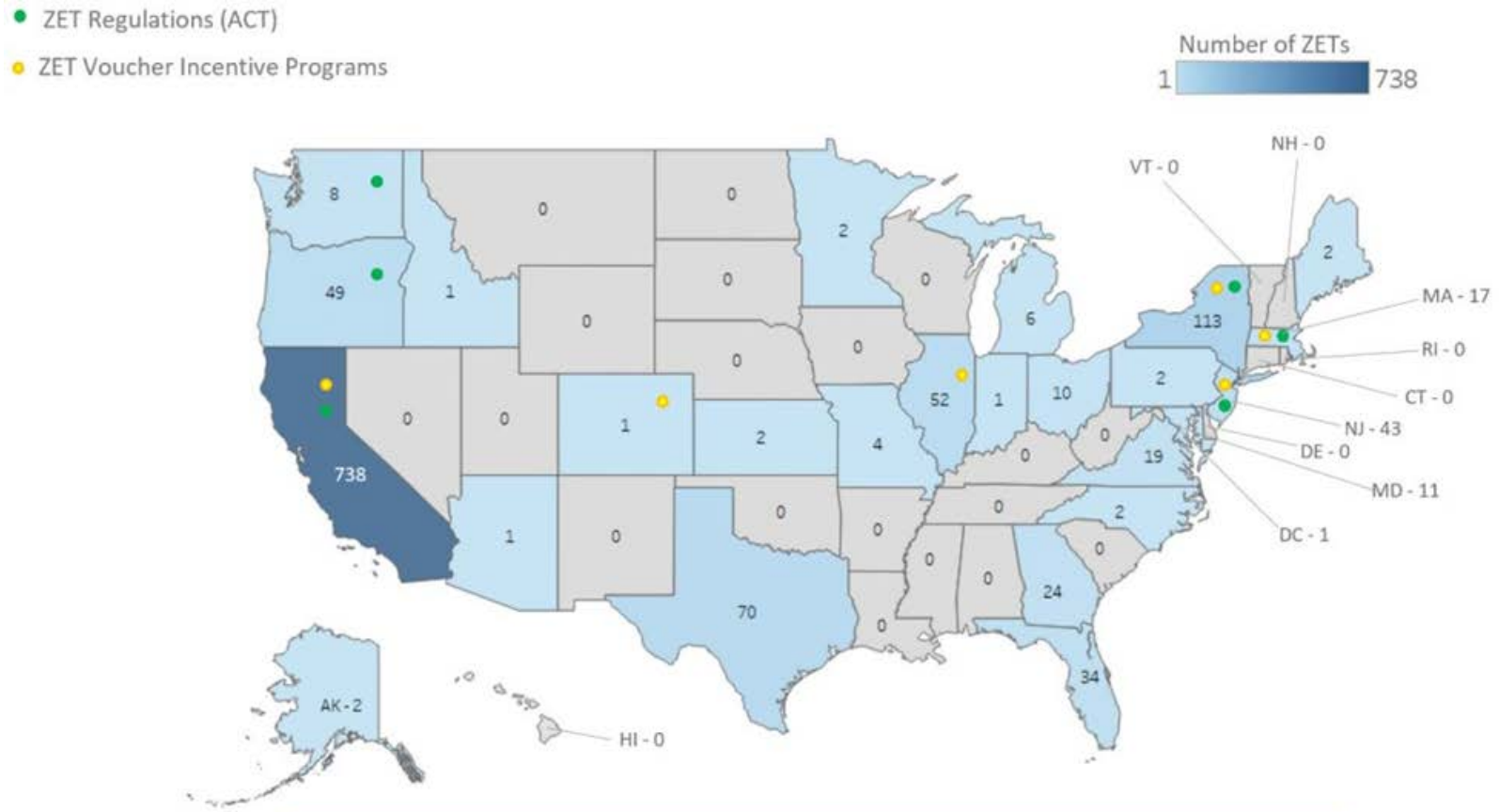


Zero Emission Truck Technology

	BEV	H_2 FCEV
		
Powertrain	Fully electric	Fully electric
Main energy storage system	 Battery	 Liquid or gaseous Hydrogen
Main energy supply system	 – Electric chargers – Catenary charging	 – Hydrogen fill stations
Availability	Several (<10) models currently available	Only 1 model available commercially
Main advantages	– Currently widely available – Compelling TCO when battery size can be minimized	– High energy density of hydrogen – easier to design for long distance – Fast refueling
Main drawbacks	– Size weight and cost of battery – more pronounced for long range vehicles – Longer recharging times	– Current lack of availability of vehicles – Current high price of hydrogen – Lack of hydrogen infrastructure

Which technology has the best TCO for a specific use case will depend on many factors and potentially change over time
Many in the wider ZEV industry expect the future market to include a mix of both technologies

Zero Emission Registrations by State For Medium and Heavy-Duty Trucks



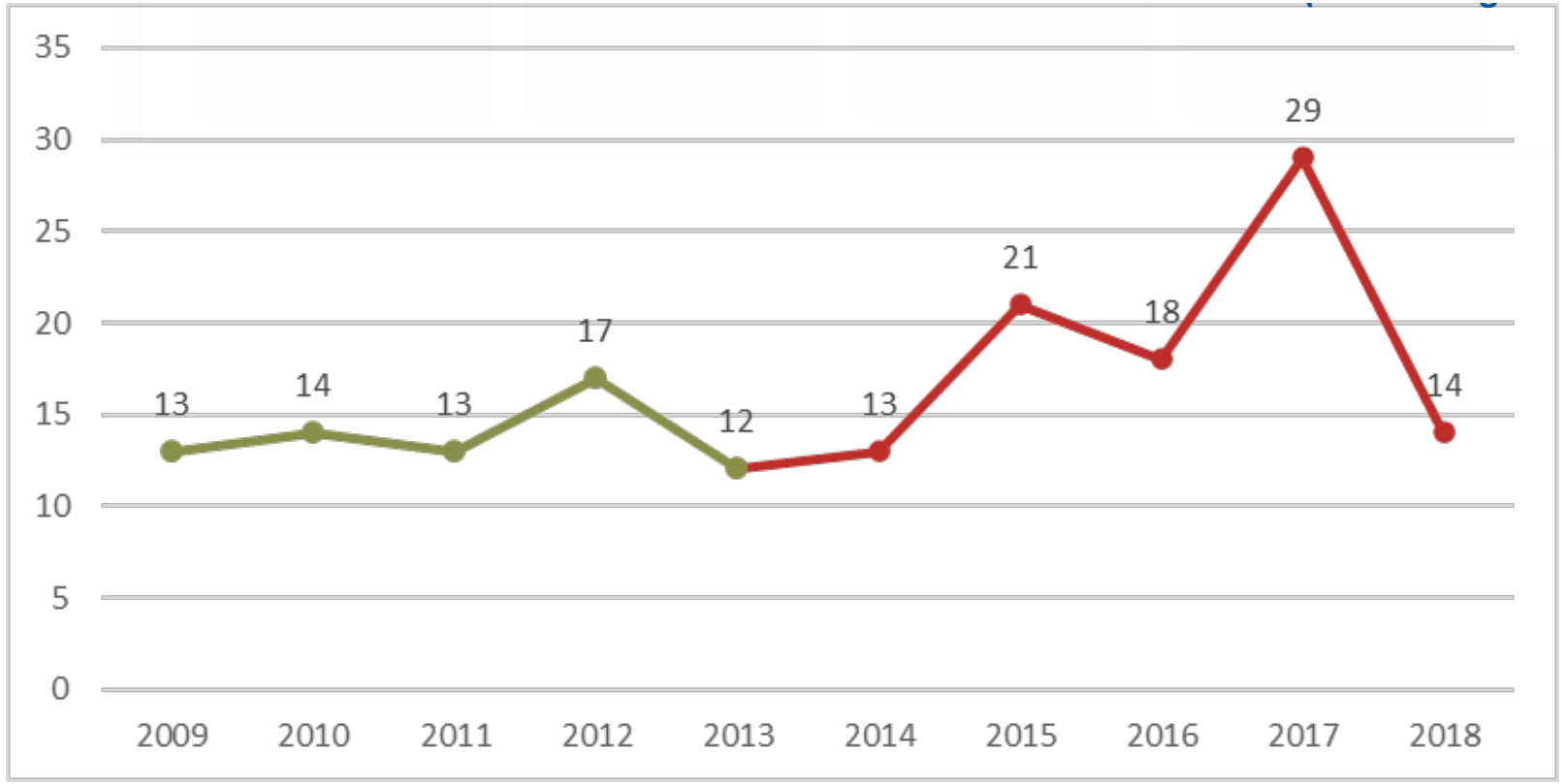
CALSTART. Zeroing In On Zero-Emission Trucks. Retrieved from https://calstart.org/wp-content/uploads/2022/02/ZIO-ZETs-Report_Updated-Final-II.pdf

Heavily Congested Freight Bottlenecks

Roadway	Dir	Interchange or Intersection	AADTT
I-15	SOUTHBOUND	CHARLESTON BLVD/EXIT 41	20,791
I-15	SOUTHBOUND	SAHARA AVE/EXIT 40	20,791
US-95	SOUTHBOUND	I-15/EXIT 76B	18,442
I-515	NORTHBOUND	EASTERN AVE/EXIT 73	13,209
I-515	NORTHBOUND	LAS VEGAS BLVD/EXIT 75	13,209
I-515	SOUTHBOUND	I-15/EXIT 76A	13,209
I-580	NORTHBOUND	US-50	2,344
I-580	SOUTHBOUND	US-50	2,344
DOUBLE R BLVD	NORTHBOUND	S MEADOWS PKWY	2,260
DOUBLE R BLVD	SOUTHBOUND	DAMONTE RANCH PKWY	2,260
DOUBLE R BLVD	SOUTHBOUND	S MEADOWS PKWY	2,260
I-580	SOUTHBOUND	FAIRVIEW DR	2,078
US-50	EASTBOUND	NV-207/KINGSBURY GRADE	1,757
US-50	WESTBOUND	CA--NV STATE BORDER	1,757
VISTA BLVD	NORTHBOUND	E PRATER WAY	1,696
VISTA BLVD	SOUTHBOUND	I-80	1,696
DAMONTE RANCH PKWY	EASTBOUND	I-580	1,672
DAMONTE RANCH PKWY	EASTBOUND	S VIRGINIA ST	1,672
DAMONTE RANCH PKWY	WESTBOUND	I-580	1,672
DAMONTE RANCH PKWY	WESTBOUND	S VIRGINIA ST	1,672

Nevada Freight Plan Update
Safety Update

10,396	95	19
Truck Crashes (2014-2018)	Fatal Truck Crashes (2014-2018)	Average Fatal Truck Crashes (2014-2018)



Nevada Freight Plan Update
Railroad Crossings

Between 2011 and 2021, five out of 22 railroad crossing crashes involved trucks, one of which was fatal.

22	5	1	
Railroad Crossing Crashes (2011-2021)	Truck-Involved Railroad Crossing Crashes (2011-2021)	Fatal Truck-Involved Railroad Crossing Crashes (2011-2021)	Fail to meet the performance target (Eliminate Truck Fatalities at Highway-Rail Crossings)

	2000-2010	2011-2021	Trend
Total at-grade rail crossing crashes	30	22	↓
Total truck-involved at-grade rail crossing crashes	6	5	↓
Total at-grade rail crossing fatalities	3	9	↑
Truck-involved at-grade rail crossing fatalities	0	6	↑

Freight Investment Plan Update

- Draft Projects for FY 2023-2024*
  - I-15 NB Truck Climbing Lane at MP 68.5 to 69.7
  - I-15 SB Truck Climbing Lane at MP 64.4 to 66.1
  - I-80 Truck Climbing Lane at Beowawe
  - Statewide TPAS Ph 1
    - 6 locations on I-15 and I-80

**Preliminary and subject to change*

Passing and Climbing Lane Prioritization Study
Freight Advisory Committee

Jordan Daker – Supervisor III Associate Engineer

5/4/2022

WHY ARE WE DOING THIS STUDY?

- A lack of passing opportunities can increase frequencies of unsafe passing maneuvers by motorists
- An increase in unsafe passing maneuvers directly results in increased crashes such as head-ons, sideswipes, and run-offs
- Studies conducted over two decades reported that the addition of passing and climbing lanes directly reduced these types of crashes
- NDOT is conducting this study to help identify and prioritize a list of candidate locations to enhance safety and mobility on Nevada's highways and high-risk rural roadways

WHY ARE WE DOING THIS STUDY?

Passing and climbing lanes are one of the most common concerns we hear from rural communities

From 2015-2019

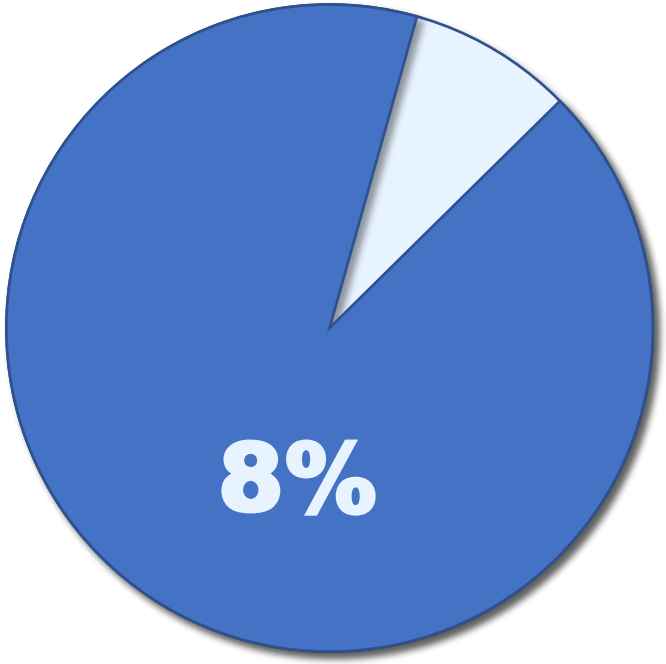
1,111 total crashes on Nevada's rural roads

312 of these were injury crashes

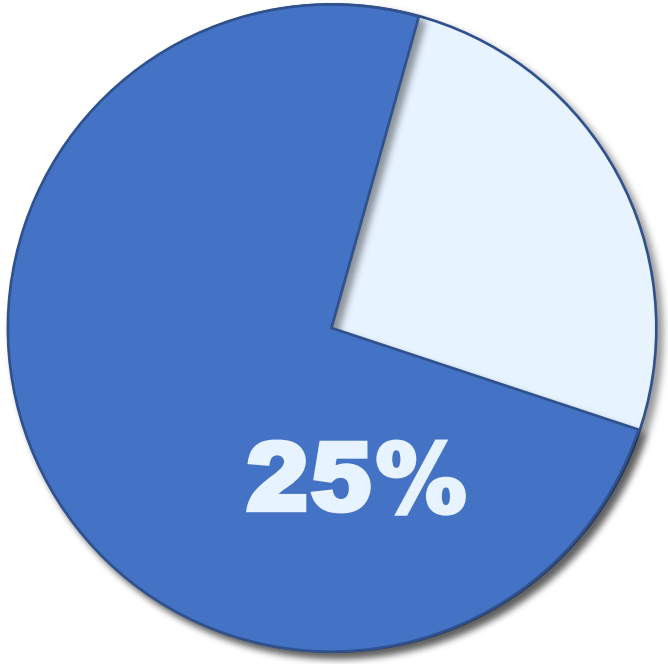
55 total fatalities

Source: Las Vegas Review-Journal

WHY ARE WE DOING THIS STUDY?



Rural crashes leading to a fatality



Passing related crashes leading to a fatality

Study Overview

- Prepare an inventory of existing passing and climbing lane locations to help create a proper distribution
- Develop a methodology that attributes risk to potential locations on 2-lane and multilane highways
- Systematically identify and prioritize locations coinciding with Traffic Safety Engineering and Federal data-driven goals
- Create an implementation and phasing plan that takes factors such as constructability and right-of-way into account
- Recommendations will be considered across other statewide safety and One Nevada Transportation Plan priorities

Study Process

1. Select Facilities
2. Prioritization Methodology
3. GIS Compilation
4. Risk-Based Prioritization
5. Phasing and Implementation

Study Process: Select Facilities

Facility Selection Factors

- Traffic volumes
- Percentage of trucks
- Urban boundaries
- Rural “Main Street” locations

Study Process: Prioritization Methodology

Custom Prioritization Methods

- Passing Lanes: Single Lane
- Climbing Lanes: Single Lane
- Climbing Lanes: Multi-Lane

Study Process: GIS Compilation

Leverage GIS Methods

- Convert all datasets to GIS
- Visualize prioritization results
- No specialized licensing

Study Process: Risk-Based Prioritization

Apply Prioritization Methods

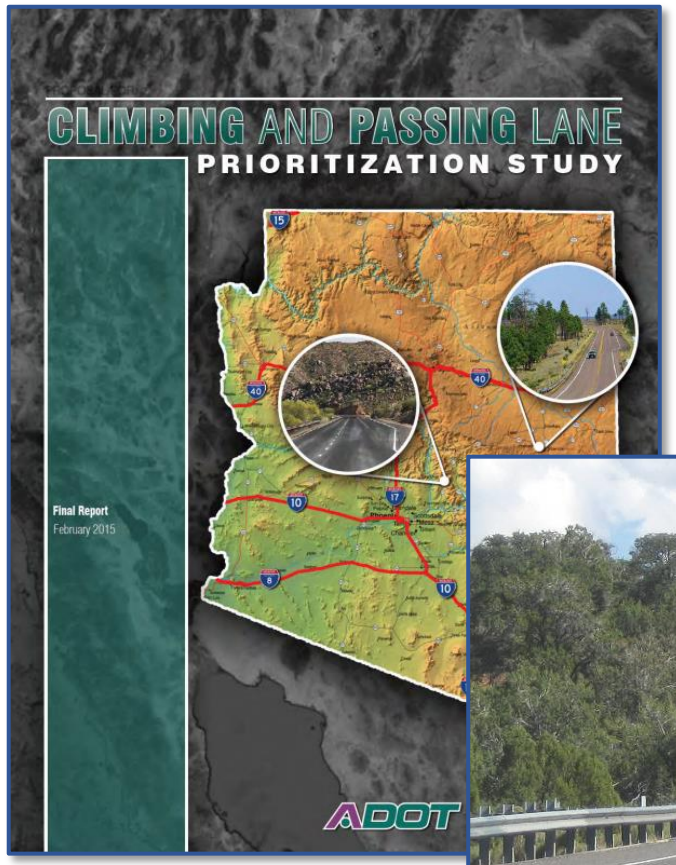
- 5 potential traffic factors
- 4 potential safety factors
- Factors may be weighted to emphasize issues (e.g. safety)

Study Outcomes

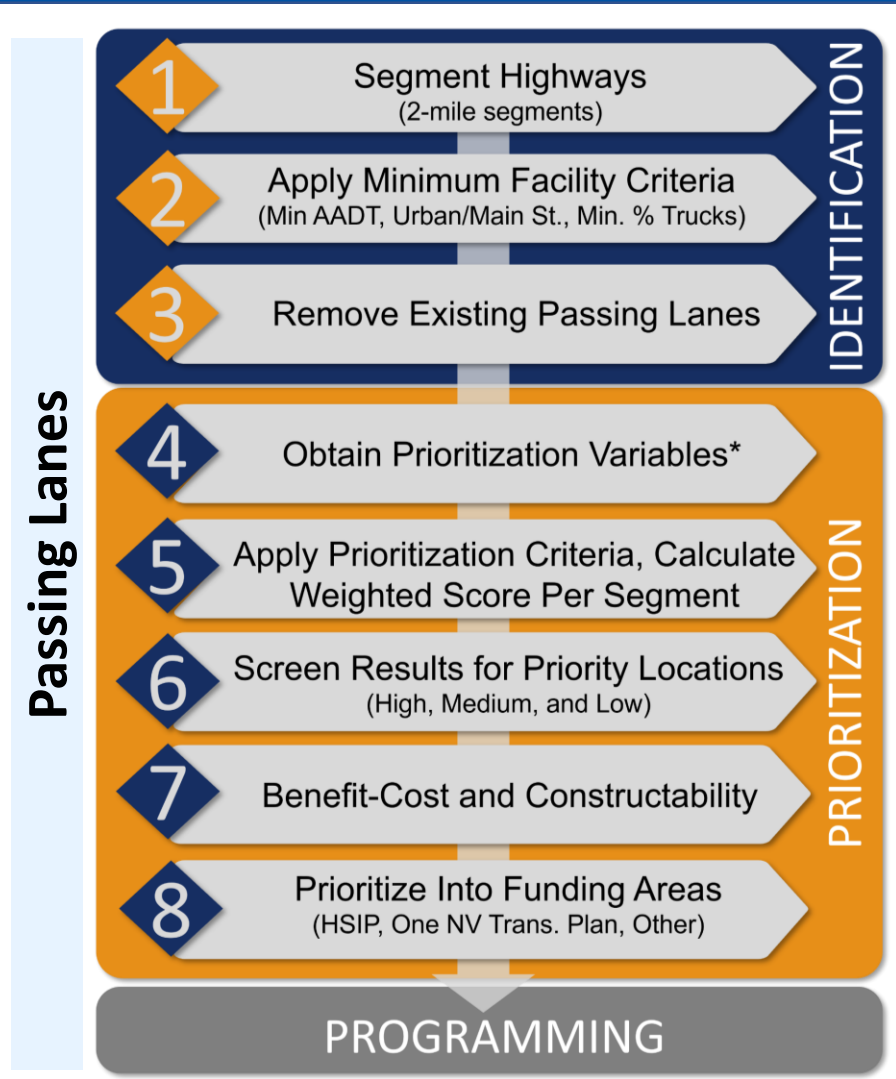
- Provides a data-driven process and implementation plan coinciding with NDOT and Federal goals
- Candidate locations can then be considered for funding through safety, state and other funding sources
- The GIS prioritization model can be updated to account for changing conditions over time
- Achieve process transparency and why certain locations are advanced versus others

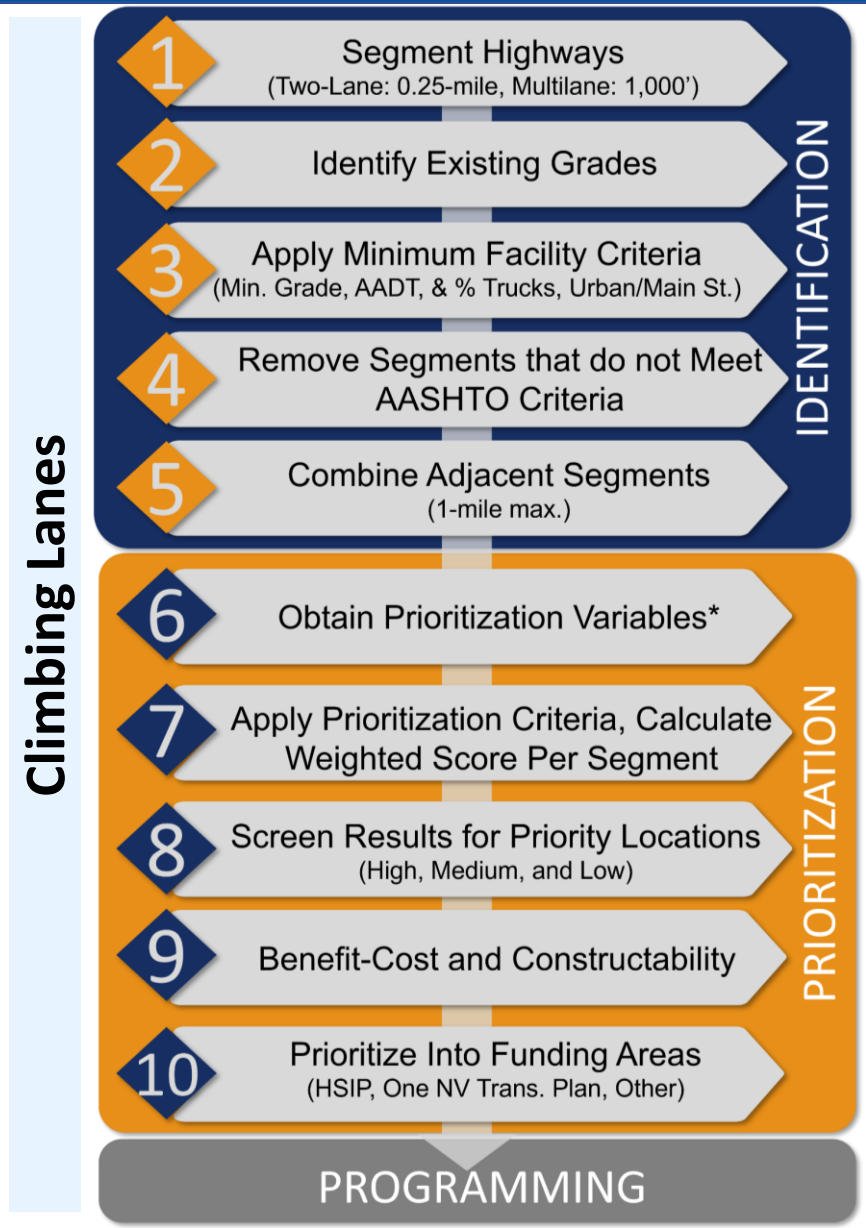
Review Best Practices

Arizona and Utah's Approaches to Passing & Climbing Lane Identification

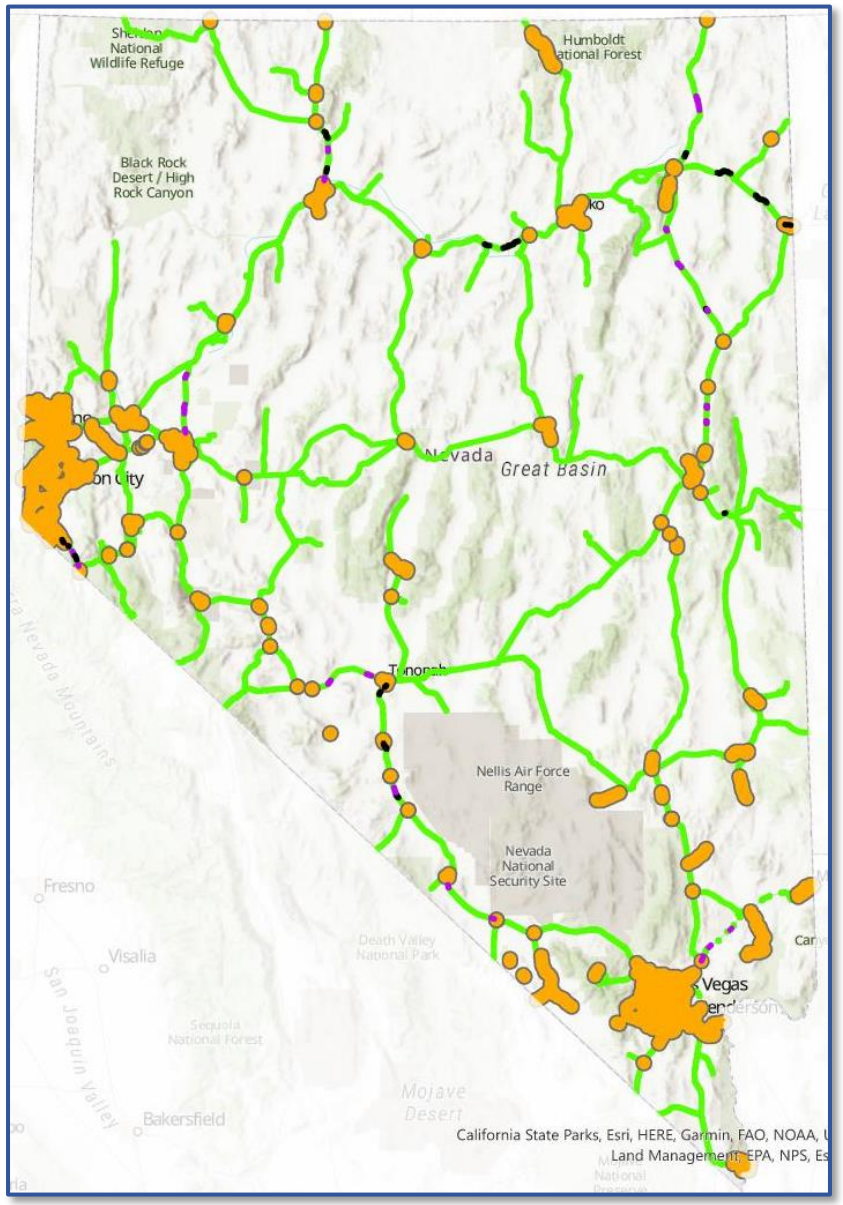


NV Identification & Prioritization Processes

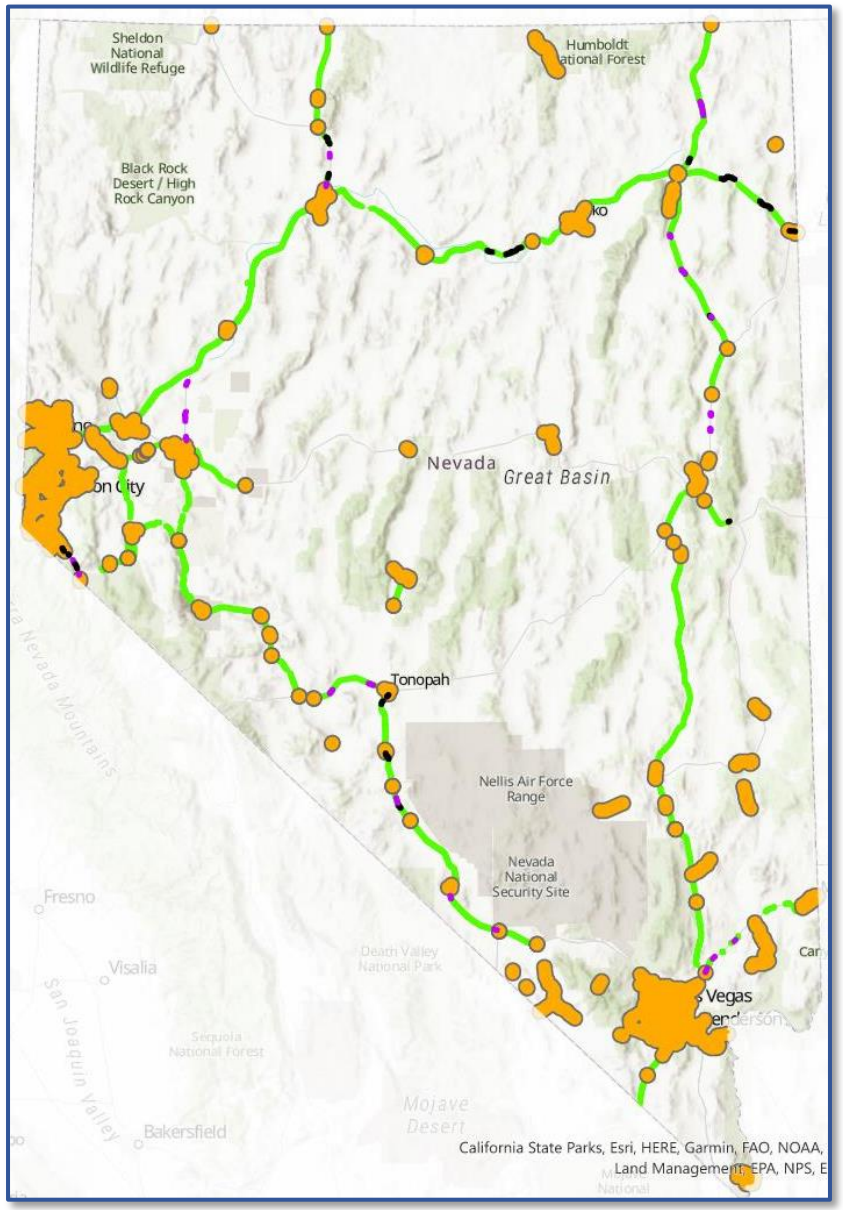




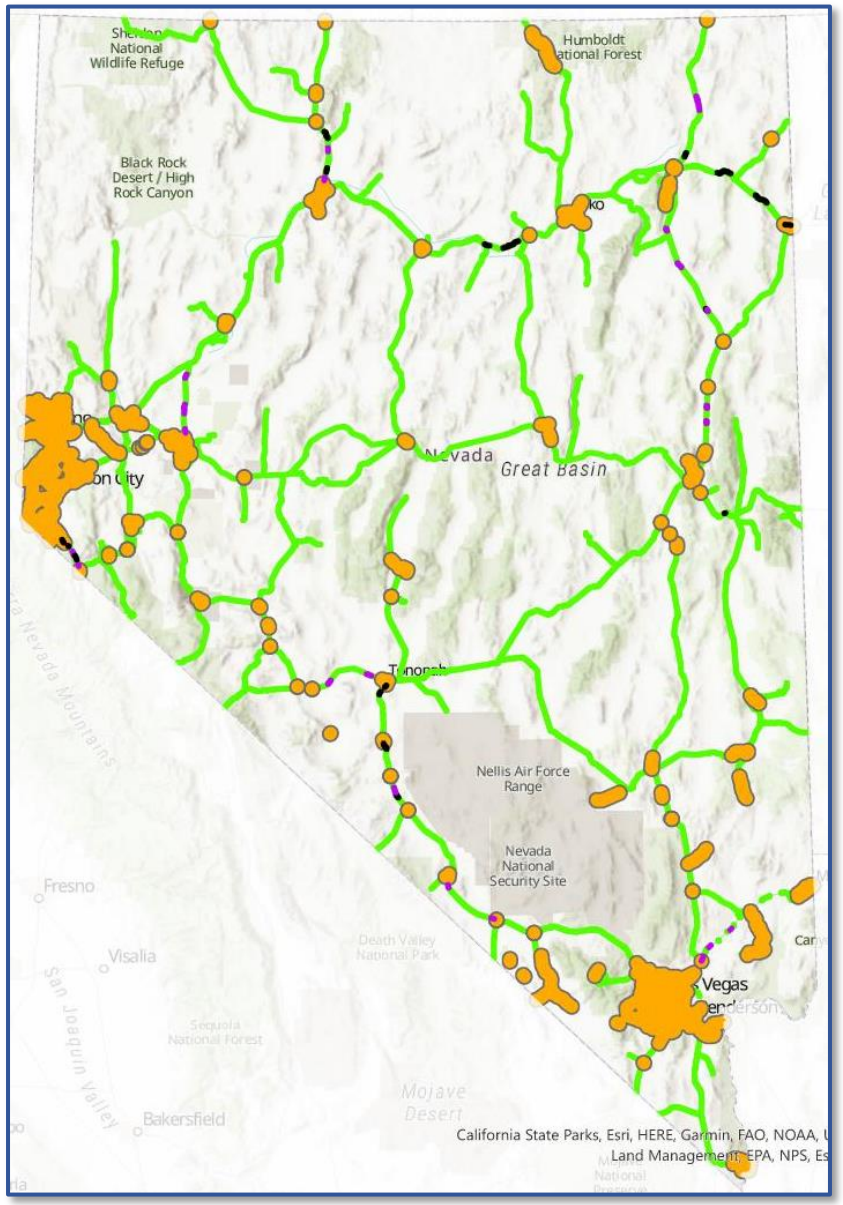
NV Identification Process
Min. Passing Lane Facility Criteria Results



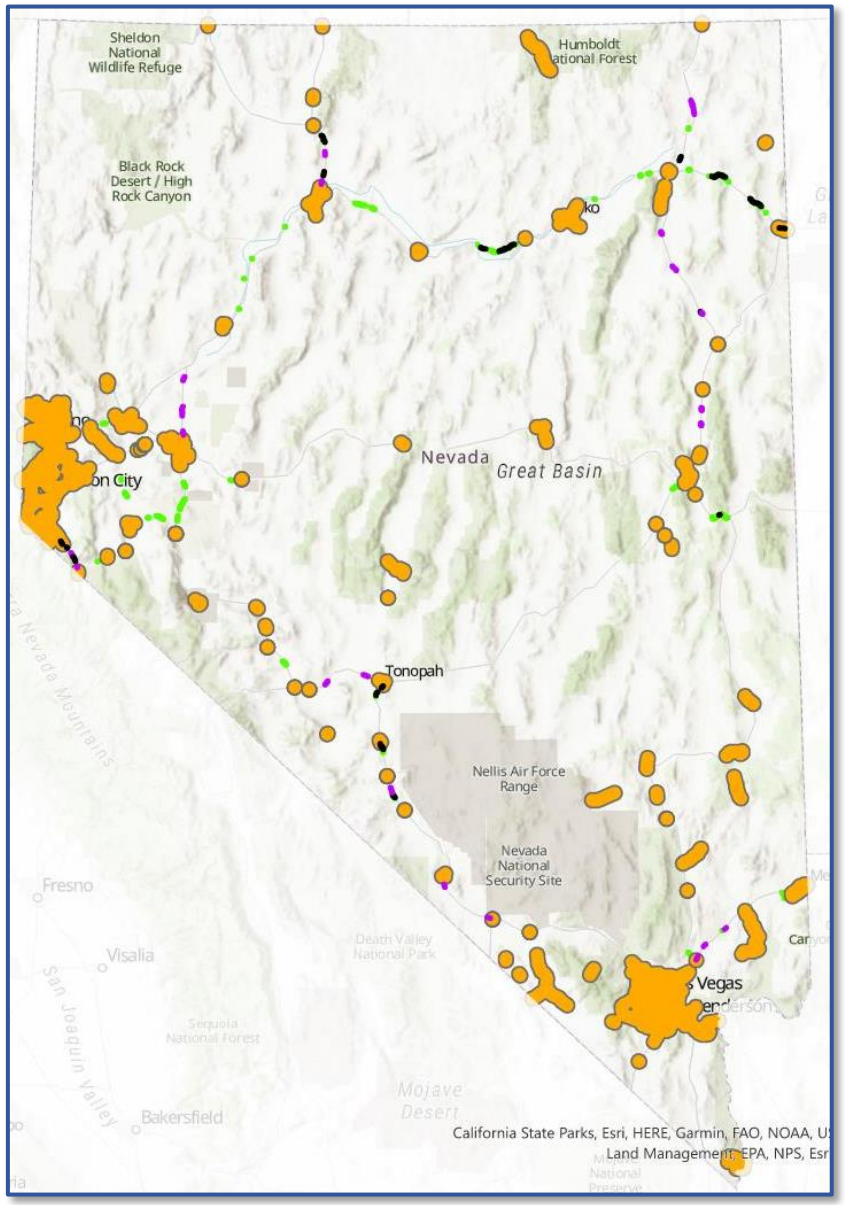
Facility Criteria Applied



NV Identification Process
Min. Climbing Lane Facility Criteria Results



Facility Criteria Applied



NV Prioritization Process

Risk-Based Approach

PCLP = (Exposure Factors x Severity Factors) + Historical Crash Factors

NV Prioritization Process

Risk-Based Approach

Exposure Factors

- Passing AADT
- Total AADT
- LOS
- PTSF

×

Severity Factors

- Avg. Travel Speed
- Hospital Proximity

+

Historical Crash Factors

- EPDO
- Existing Crash Rate
- Existing Passing Crash Rate

Highway Safety Improvement Program (HSIP) Prioritization

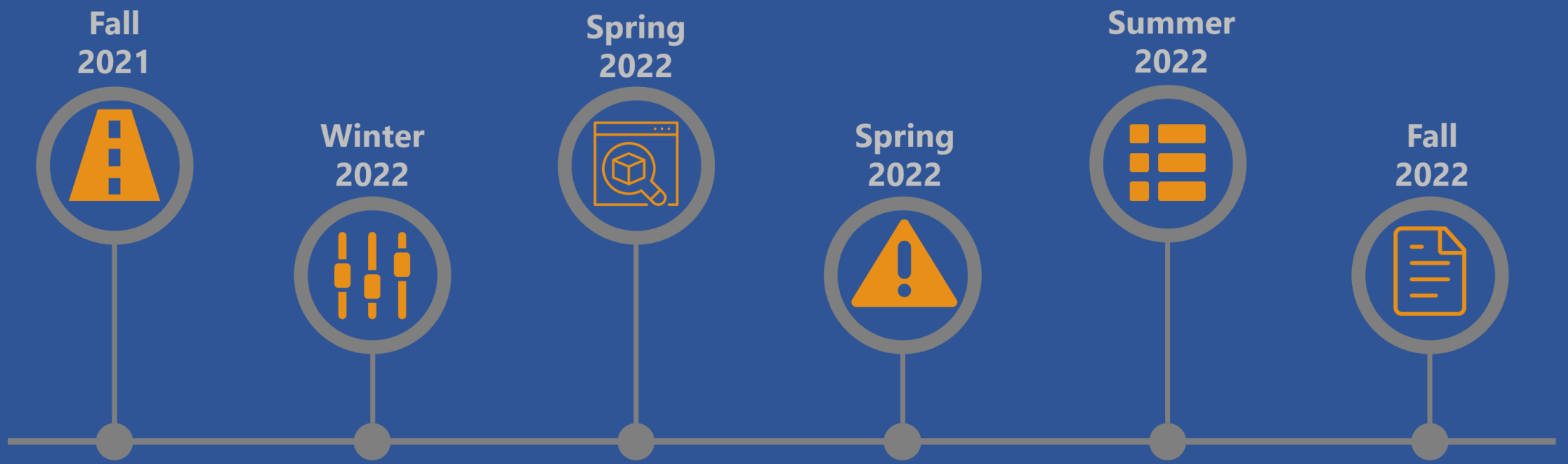
- Federal-aid program administered by FHWA
- Funds projects that advance highway safety goals in Nevada
- Goal is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands.
- Requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance.

Statewide One Nevada Prioritization

One Nevada Goal Area Criteria(s) Used for Prioritization

Goal Area	Criteria
Enhance Safety	Crash Reduction Potential
Preserve Infrastructure	Pavement Condition Improvement
	Bridge Risk Reduction Score
	Other Asset Improvement
Optimize Mobility	Population Accessibility
	Travel Time Reliability
Transform Economies	Business Accessibility
	Economic Development Potential
Foster Sustainability	Reduce Environmental Risk
	GHG Emission Reductions
	Environmental Enhancements
	Resilience
	Reduce Future Maintenance
Connect Communities	Project Connectivity
	Multimodal Access
	Access to Community Destinations
	Equity

Study Timeline



We Are Here

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