

NEV Plan Template

Prepared for:
SBCCOG

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LB22-0065

FEHR  PEERS

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1. Introduction

Overview

This Template provides South Bay Jurisdictions a starting point for implementing an NEV Plan per the guidance of California Assembly Bill (AB) 2432. This template is intended for jurisdictions wishing to adopt an NEV Plan, in line with the South Bay Cities Council of Governments’ (SBCCOG) vision for mobility across the region. Two or more jurisdictions may submit a single joint NEV plan. The following pages of this document provide NEV Plan content, consistent with AB 2432, along with suggestions for further customization.

NEV plan requirements, per AB 2432, are listed below, along with their corresponding location in this template:

Table 1. NEV Plan Requirements

NEV Plan Requirement	NEV Plan Template Location
1966.13 (a) Route selection	Section 3. Route Selection
1966.13 (b) Transportation interfacing	Section 4. Design Guidelines: Mobility Hubs
1966.13 (c) Provision for NEV-related facilities	Section 4. Design Guidelines
1966.13 (d) Provisions for parking facilities	Section 4. Design Guidelines: Parking Facilities
1966.13 (e) Provisions for special paving, road markings, signage, and striping for NEV travel lanes	Section 4. Design Guidelines
1966.13 (f) Provisions for NEV electrical charging	Section 4. Design Guidelines: Charging Facilities

NEV Plan Requirement	NEV Plan Template Location
1966.13 (g) Community involvement in planning	Section 2. NEV Plan: Community Involvement & Plan Development Process
1966.13 (h) A map showing the NEV route network	Section 3. Route Selection: LTN Overview
1966.14 (a) Minimum general design criteria for NEV lanes	Section 4. Design Guidelines
1966.14 (b) Uniform specifications and symbols for signs, markers, and traffic control devices to control NEV traffic	Section 4. Design Guidelines
1966.15 (a)(1) NEVs eligible to use NEV lanes shall meet the safety requirements for low-speed vehicles	Section 2. NEV Plan: Safety Standards
1966.15 (a)(2) Minimum safety criteria for NEV operators, including, but not limited to, requirements relating to NEV maintenance and NEV safety	Section 2. NEV Plan: Additional Policies Adopted for this NEV Plan
1966.15 (a)(3) Restrictions limiting the operation of NEVs to NEV routes identified in the transportation plan	Section 2. NEV Plan: Additional Policies Adopted for this NEV Plan
1966.16 (a) The entity adopting the plan shall submit a report to the Legislature within two year of the date of adoption	Section 5. Evaluation and Monitoring

Content that is italicized is intended to instruct further or to provide required and optional recommendations:

[Sample Text – with “Required” or “Optional” Tag where additional content is needed.]

References to “City” should also be appropriately updated at the start of Plan sections for greater specificity.

Once this plan is finalized, it should be reviewed by the Southern California Association of Governments (SCAG) and any agency having traffic law enforcement responsibilities in the plan area, per AB 2432. AB 2432 also requires the entity adopting the plan to submit a report to the Legislature within two years of the plan’s adoption.

2. NEV Plan

Purpose

This Neighborhood Electric Vehicle (NEV) Plan was developed as a component of the South Bay Local Travel Network (LTN), a network of routes designed to accommodate a growing market of personal zero-emission low-speed vehicles. The NEV Plan aims to support the LTN in promoting a mobility option that will help decrease greenhouse gas emissions, reduce congestion, reduce travel costs, and provide greater choice for residents traveling within the City.

The LTN will support travel by low-speed (up to 25 mph) electric vehicles primarily within the City, but also between South Bay jurisdictions and other further destinations.

This Plan will describe the specific duties required of NEV operators and the key design parameters that will make NEVs a practical option for mobility throughout the City.

Definitions

Existing State law defines a low-speed vehicle (LSV)¹ as a “motor vehicle with 4 wheels that is capable of a minimum speed of 20 miles per hour and a maximum speed of 25 miles per hour on a paved level surface and that has a gross vehicle weight rating of less than 3,000 pounds.”² Per AB 2432, relevant definitions for the NEV Plan include:

1. “Plan area” means any portion of the County of Los Angeles, or any portion of any city in the county, and any streets and roads under the jurisdiction of the county or a city, to the extent the County of Los Angeles or a city has adopted an NEV transportation plan pursuant to Section 1966.12, including the privately owned land of any owner that consents to its inclusion in the plan.
2. “Neighborhood electric vehicle” or “NEV” means a low-speed vehicle as defined by Section 385.5 of the Vehicle Code.
3. “NEV lanes” means all publicly or privately owned facilities that provide for NEV travel, including roadways designated by signs or permanent markings that are shared with pedestrians, bicyclists, and other motorists in the plan area.

¹ Low-speed vehicle is a relatively new motor vehicle classification created by the National Highway Traffic Safety Administration (NHTSA) in 1998 to permit the manufacture and circulation of small, four-wheeled motor vehicles with top speeds of 20-25 miles per hour. This new classification is codified as Section 571.500 Title 49 code of Federal Regulations and California Vehicle Code Section 385.5. LSVs are required to have California license plates to utilize public roads.

² AB 2432

The following links provide additional information on NEVs:

National Highway Traffic Safety Administration

<https://one.nhtsa.gov/cars/rules/rulings/lsv/lsv.html#lsv3>

California Department of Motor Vehicles (DMV)

<https://www.dmv.ca.gov/portal/driver-education-and-safety/educational-materials/fast-facts/neighborhood-electric-vehiclenev-low-speed-vehicle-lsv-and-golf-cart-registration-ffvr-37/>

[Optional - Throughout this plan, "City" refers to the jurisdiction where the NEV Plan will be implemented and can be used interchangeably with "Plan Area." This language can be updated for greater specificity.]

Existing Regulations

- NEVs cannot be operated on any roadway with a speed limit in excess of 35 miles per hour, except on designated NEV facilities in areas where a neighborhood electric vehicle transportation plan has been adopted (see AB 2432 below).³
- NEVs may cross a roadway with a speed limit in excess of 35 miles per hour if the crossing begins and ends on a roadway with a speed limit of 35 miles per hour or less and occurs at an intersection of approximately 90 degrees.⁴
- NEVs can only cross a state highway with the approval of the agency having primary traffic enforcement responsibilities.⁵
- Local law enforcement or the CHP may prohibit the operation of NEVs on any roadway under its jurisdiction in the interest of public safety. Signs must be erected giving notice that NEVs are prohibited.
- Drivers of NEVs must hold a valid California Driver License.⁶
- NEVs must be registered and licensed with the DMV.⁷
- Cities that are interested in developing NEV plans allowing NEVs to operate on streets with speed limits greater than 35 miles per hour, must have legislative approval. In August 2022, AB 2432 became law, which authorized the City to prepare an NEV plan. One of the requirements of this legislation is to prepare a performance report for the legislature.

³ CVC Section 21260 (a)

⁴ CVC Section 21260 (b)(2)

⁵ CVC Section 21260 (b)(2)

⁶ AB 2432

⁷ DMV, <https://www.dmv.ca.gov/portal/driver-education-and-safety/educational-materials/fast-facts/neighborhood-electric-vehiclenev-low-speed-vehicle-lsv-and-golf-cart-registration-ffvr-37/>

Additional Policies Adopted for this NEV Plan

- NEVs eligible to use NEV lanes shall meet the safety requirements for low-speed vehicles as set forth in Section 571.500 of Title 49 of the Code of Federal Regulations.
- NEV operators shall maintain and operate their NEVs safely. Operators are required to possess a valid California driver's license and to comply with the financial responsibility requirements established pursuant to Chapter 1 (commencing with Section 16000) of Division 7 of the Vehicle Code.
- Operation of NEVs is limited to NEV routes identified in this Plan, and only those NEVs that meet the safety equipment requirements specified in this Plan are to be operated on those routes.
- Any person operating a NEV in the plan area in violation of the above policies is guilty of an infraction punishable by a fine not exceeding one hundred dollars (\$100).

Safety Standards

NEVs must meet all safety standards for low-speed vehicles as defined by the Federal Motor Vehicle Safety Standard (FMVSS) No. 500.⁸ Standards include headlamps, front and rear turn signal lamps, taillamps, stop lamps, a parking brake, a windshield, and seatbelt assemblies, among others. All commercially-available vehicles sold as NEVs, such as the GEM, meet these safety standards.

Legislative Context

Several California cities and unincorporated areas (e.g. Lincoln, Rocklin, Rancho Mission Viejo, Coronado, La Quinta, among others), have developed NEV Plans with various goals such as reducing reliance on gasoline, reducing vehicle emissions, reducing roadway wear and tear, and creating more sustainable communities.

The City's NEV Plan has been developed in part by following examples of other communities that have established NEV programs, documented best practices researched by SBCCOG, and State guidance for the following items:

- NEV Facility Concepts – As previously described, NEV's are not currently allowed on roadways with speeds greater than 35 mph. Special State legislation is required to provide NEV facilities on roadways with speeds greater than 35 mph. This was granted for all jurisdictions within Los Angeles County via AB 2432 and adoption of this plan will allow NEVs to operate on higher speed roadways assuming specific roadway design requirements are met.
- NEV Roadway Signage – All roadway signs posted in California should meet the guidelines of the State's Manual on Uniform Traffic Control Devices (California Department of Transportation,

*California Assembly Bill No. 2432
(AB 2432)*

AB 2432 authorizes the County of Los Angeles or any of its jurisdictions to establish an NEV Plan, allowing NEV operation on public streets with speed limits.

The full text of the bill is provided for reference at the end of this document.

⁸ <https://www.govinfo.gov/app/details/CFR-2021-title49-vol6/CFR-2021-title49-vol6-sec571-500/>

2014). Some NEV-specific signage is included in the in the State’s traffic control devices manual. AB 2432 authorized the creation of special signs for this purpose.

- *NEV Roadway Striping* – Similar to signage, roadway striping should meet the State’s guidelines. Currently the State does not have guidelines for NEV roadway striping. AB 2432 authorized the creation of unique striping concepts for this purpose.

Municipal Code Considerations

[Optional: This section is intended to provide a consistency review for existing local regulations regarding NEVs and their operation. This section can help identify any potential conflicts with existing regulations.]

Community Involvement & Plan Development Process

SBCCOG has completed a plan for a proposed Local Travel Network (LTN), which includes NEVs. The outreach conducted, as part of the South Bay LTN, forms the basis of this NEV Plan. From 2019 to 2023, SBCCOG gathered stakeholder input regarding the development of the LTN, working in collaboration with South Bay Cities staff and community leaders. Public events were cancelled due to COVID-19 restrictions and community input was gathered via online survey, resulting in 245 completed surveys, as well as workshops and one-on-one discussions with local city staff and elected leaders.⁹

[Required: Per AB 2432, community involvement in planning is required. This section should include further documentation on engagement conducted by the City with:

1) Partnering entities

2) The general public

We recommend that all relevant partnering entities (e.g. schools, law enforcement, bicycle advocates and major employers) and local residents be included in the development of this plan, which may result in a number of meetings.

There is data available by city from the initial online survey (conducted as part of the SBCCOG Route Refinement Study), that may provide initial insights.]

⁹ SBCCOG Route Refinement Study, 2021, <https://southbaycities.org/sites/default/files/SBCCOG%20Route%20Refinement%20Study%20for%20a%20South%20Bay%20Local%20Travel%20Network.pdf>.

3. Route Selection

This section of the Plan documents the methodology behind NEV route selection, which occurred in collaboration with SBCCOG through the LTN planning process, and also shows which routes have been selected.

LTN Overview

The South Bay LTN is planned to be a low cost, fast deploying street adaptation that will accelerate the market for electric vehicles, help reduce street congestion and, importantly, aim to improve safety. Co-benefits envisioned for implementation of the LTN will provide for affordable high-quality door-to-door, on-demand mobility services to create a more personalized option for residents of disadvantaged neighborhoods – and generally support multi-modal mobility options involving NEVs and their infrastructure.

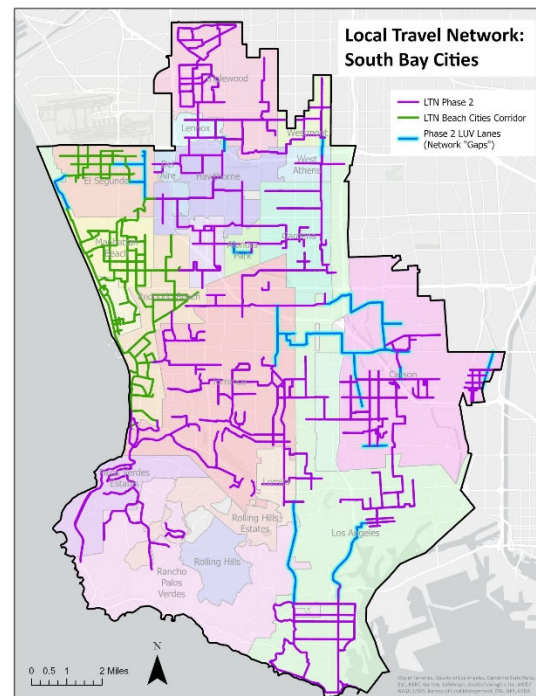
Key considerations for the development of the LTN include:

- Establishing safer routes for smaller vehicles
- Connecting neighborhoods with destinations (e.g. schools, shopping centers and employment centers)
- Separating local traffic from thru traffic
- Expanding access to bike lanes to all forms of micromobility
- Promoting micromobility

Route selection was based upon using a data-driven approach, expanding connectivity, and emphasizing a slow speed and low volume network. The goal of the LTN is to provide connection at three different levels:

1. Regional (getting around the South Bay)
2. Sub-Regional (getting around the City)
3. Local (getting around a neighborhood)

The LTN was developed with these metrics: posted speed, overlap with bike facilities, proximity to destinations, proximity to employment, proximity to transit, neighborhood-level socioeconomic factors,



[Proposed South Bay LTN as of February 2024.](#)

pollution/environmental factors and collision history. After initial development, the LTN was refined after multiple rounds of feedback from municipal and community stakeholders. Routes were selected to accommodate NEVs without an adverse impact upon traffic safety and to consider the travel needs of commuters and other users, with particular emphasis on routes with low posted speeds, low vehicle volumes and controlled crossing locations at arterials.

In May of 2021, the SBCCOG Board of Directors passed a resolution supporting implementation of a Local Travel Network for the South Bay. SBCCOG has begun "Phase 1" of the implementation process to approve route segments, secure funding, and construct a sharrow system on local streets.

NEV Routes

NEV routes can be developed along the following facilities (which can be shared by bikes):

- Shared off-street paths (Class I) – provide for a completely separate right-of-way for the use of NEVs
- Shared Class III routes – provide for shared use by NEVs with conventional vehicles traffic on streets with speeds limits of 35 miles per hour or less
- Shared Class II, Class II+, or Class IV lanes – provide for a separate striped lane adjacent to roadways with speed limits of 55 miles per hour or less

The majority of the Local Travel Network follows existing Class III routes or those suitable for Class III implementation, while a smaller share follows existing Class II routes or those suitable for Class II implementation.

[Required: Contact SBCCOG for the most current LTN Map and include a detailed map for your city. Existing or proposed Class II routes will need to be noted by the City. Mapped routes will be assumed to be Class III unless noted otherwise. Additional documentation should also reflect any route prohibitions if needed.]

Optional: We recommend reviewing the City's General Plan for consistency and targeted discussion of overall circulation and mobility goals.

For example:

Adding language where appropriate that mirrors the goals and policies of the City. For example, "The City has a General Plan goal of prioritizing long-term sustainability, by reducing reliance on single-occupancy vehicle trips and improving multi-modal transportation networks with the intention of reducing air pollution and greenhouse gas emissions. NEVs are one form of non-auto travel that offers many environmental benefits."^{10]}

¹⁰ This language was adapted from the City of Gardena Circulation Element, 2016, <https://cityofgardena.org/wp-content/uploads/2016/04/Circulation-Plan-2020-Update.pdf>.

4. Design Guidelines

This section of the Plan is intended to assist the City with the selection and design of NEV facilities.

Typical NEV Features & Design Considerations

Body Type

There is a growing range of NEV types becoming commercially available. For example, GEM NEV body types vary by: the presence of doors, the presence of windows, the number of seats (2 – 6) and/or the presence of a storage bed (typically used for working purposes).

Dimensions

A typical golf cart is 47 inches wide. By comparison, the commonly-found NEVs range in width from 45 to 55.5 inches (GEM).¹¹ For example, vehicles can range in length from 103 (GEM e2) to 167 inches (GEM e6).

Speed

On-Street

The NEV travels at a top speed of 25 mph. When an NEV travels at this speed, it will not hold up other traffic in shared-lane conditions (25 mph streets).

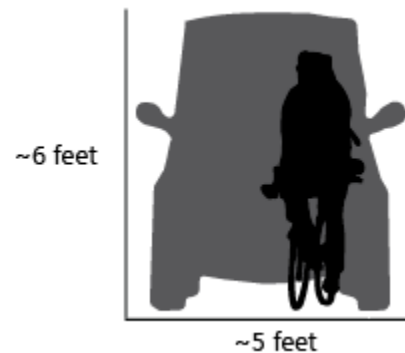
Off-Street

It may be appropriate to limit the speed of NEV's on certain facilities within the City. Circumstances that might warrant a speed limit below 25 mph include:

- Areas where an NEV pathway crosses another path
- In areas with significant pedestrian or automobile activity (such as near retail or community centers)
- Along a heavily used local (non-regional) off-street facility



Example of a 2-seater NEV with an open body style.



Comparison of NEV size to cyclist.

¹¹ GEM vehicle specifications, <https://www.gemcar.com/>

Facility Classification

This section of the Plan provides guidelines based on speed (see **Table 2**) and documents the required, recommended and proposed features of NEV facilities by type (see **Table 3**).

[Required – For Table 1 below, the City should review the “Recommended Features” column and update the “Proposed” column if needed.]

There are three NEV facility classifications:

- 1. Shared Class I Path**
- 2. Shared Class III Route**
- 3. Shared Class II, Class II+, or Class IV lanes**
 - a. Class II: bicycle lane
 - b. Class II+: buffered bicycle lane
 - c. Class IV: on-street separated bikeway (has a vertical separation element)¹²

¹² CA Department of Transportation, https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib-89-01_kf-a11y.pdf. Vertical separation elements include grade separation, flexible posts, inflexible barrier, on-street parking, or a raised island.

The table below summarizes roadway design guidelines by speed and provides comparison to existing NEV Plan design guidelines.

Table 2. Existing NEV Plan Guidance & Proposed Design Guidelines

Posted Speed	Existing NEV Plan Guidance			Proposed SB LTN Design Guidance		
	Lincoln, CA ¹	Coachella Valley, CA (CVAG) ²	Rancho Mission Viejo, CA ³	Facility Type	Min. Width of Class II/II+ /IV ^{4,5}	Min. Width of Striped Buffer
0-25	Class III (shared)	Class III (shared)	Class III	<u>Class III</u>	N/A	N/A
30-35	Class III (shared)	Class II (7' NEV lane)	Class II or Class III	<u>Class II/II+/IV or Class III</u>	7 ft	N/A
40-45	Class II (7' NEV/bike lane)	Class II (7' NEV/bike lane) + buffer where feasible	Class II or Class I	<u>Class II+/IV</u>	7 ft	2+ ft
50+	Not specified	Class II (7' NEV/bike lane) + buffer where feasible	Class II or Class I	<u>Class II+/IV</u>	7 ft	3 ft

Source: Fehr & Peers.

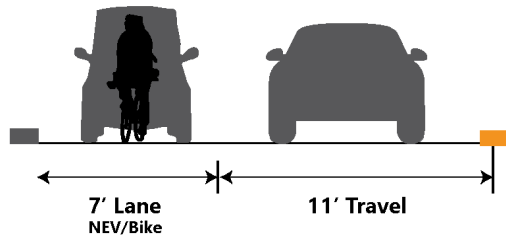
Notes:

- 1) The City of Lincoln pioneered the first NEV plan, which was granted permanent status by the California State Legislature in 2015.
- 2) Coachella Valley has established a plan for multiple areas within Riverside County.
- 3) Rancho Mission Viejo established an NEV plan in August 2017.
- 4) Includes gutter pan. The California Highway Design Manual requires 3' minimum bike lane width excluding the gutter pan to mitigate against the hazard of a "lip" forming as a result of asphalt next to the more rigid concrete gutter. The NEV/bike lane widths proposed here exceed this standard.
- 5) Class II, II+ and IV Includes gutter pan. The California Highway Design Manual requires 3' minimum bike lane width excluding the gutter pan to mitigate against the hazard of a "lip" forming as a result of asphalt next to the more rigid concrete gutter. The NEV/bike lane widths proposed here exceed this standard.

Sample Cross Sections

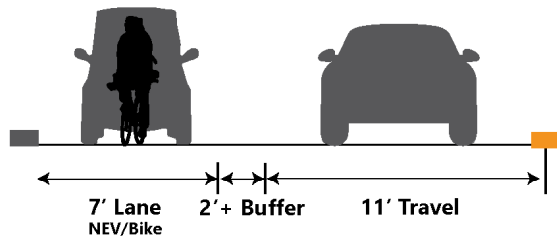
Class II

For roadways with a max speed limit of 40 mph.



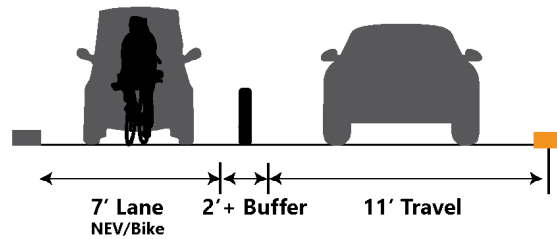
Class II+

For roadways with a speed limit between 40-55 mph.
2ft+ buffer for 40-45 mph & 3ft Buffer for 45+ mph.



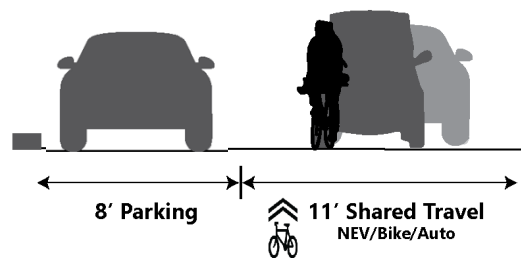
Class IV

For roadways with a speed limit between 40-55 mph.
2ft+ buffer for 40-45 mph & 3ft Buffer for 45+ mph.



Class III



For roadways with a max speed limit of 35 mph.



Source: Fehr & Peers.

Note: Left-hand side of cross-sections represents the curb and right-hand side represents the center line.

Table 3. Detailed NEV Design Guidance by Facility Type

		Required Features	LTN Design Guidance
<p>Class III NEV/Bike Route Provides for shared use by NEVs with conventional vehicle traffic and bicyclists on streets with a posted speed limit of 35 miles per hour or less.</p>			
 <p><i>Example of a Shared Class III route in the South Bay.</i></p>	Lane Width		
	Not applicable.		
	Placement & Designation		
	<ul style="list-style-type: none"> • Shall not be used on shoulders, in designated lanes, or to designate bicycle detection at signalized intersections • NEVs can share a lane with vehicular traffic on roadways with a posted speed limit of 35 mph or less 	<ul style="list-style-type: none"> • Placed 50 to 100 feet on busier streets, up to 250 feet or more on low traffic routes • Preferred placement is in the center of the travel lane, lateral positioning requirements vary based on context, but should comply with MUTCD Sec. 9C.07.I • Not preferred on 35 mph roads with vehicle volumes higher than 3,000 vehicles per day 	
Markings & Striping¹³			
<ul style="list-style-type: none"> • Shared Lane Marking or “sharrow” illustrated in MUTCD Section 9C.07 	<ul style="list-style-type: none"> • Green-backed “sharrows” are a more conspicuous marking option, and are now permitted in the CA MUTCD 		

¹³CA MUTCD Section 9C

Required Features	LTN Design Guidance
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Class II/ IV NEV/Bike Lane

Provides for shared use with bicyclists on a separate striped lane adjacent to roadways with speed limits of 55 miles or less.



Example of a Class II+ NEV lane from La Quinta, CA with custom NEV marking

Lane Width

<ul style="list-style-type: none"> • 6 feet width from curb face • Bike lane next to parking lane shall be at least 5 feet wide, reach from curb face to the edge of the bike lane (including parking lane, bike lane, and optional buffer) is 14.5 feet; absolute minimum reach is 12 feet 	<ul style="list-style-type: none"> • Provide wider lane than minimum widths (at least 7 feet width from curb face), to accommodate NEVs and provide additional comfort
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Markings & Striping¹⁴

<ul style="list-style-type: none"> • Bicycle lane word and/or symbol and arrow markings shall be used to define lane • Solid white lane line marking shall be used to separate motor vehicle travel lane from bike lane 	<ul style="list-style-type: none"> • 4-inch or 6-inch wide solid white stripe when bike lane is placed next to parking • Separation should be provided between bike lane striping and parking boundary markings to reduce door zone conflicts • Separation should be provided between bike lane striping and parking boundary markings to reduce door zone conflicts • Class II should be provided on roadway with a max speed limit of 40 mph • Class II+/Class IV buffer should be more than 2 feet wide on roadways between 40-45 mph • Class II+/Class IV buffer should be at least 3 feet wide on roadways between 45-55 mph, or where parking is present • If custom NEV marking is used, requires experimentation status with the CTCDC and approval to implement¹⁵
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¹⁴ CA MUTCD Section 9C.04. For Class IV facilities refer to: Caltrans Design Information Bulletin 89-01, CA MUTCD Section 9C.102 and FHWA "Separated Bike Lane Planning and Design Guide."

¹⁵ See CA MUTCD Sect 1A.10 for Experimentation Guidelines

Required Features		LTN Design Guidance
	Other	
	<ul style="list-style-type: none"> A through bike lane should not be positioned to the right of a right turn only lane or to the left of a left turn only lane 	<ul style="list-style-type: none"> Gutter seams, drainage inlets, and utility covers should be flush with ground and oriented to prevent gaps large enough to present a hazard for bicycle tires
<p>Class I NEV/Bike Path Provides for a separate right-of-way for the use of NEV's, away from automobile traffic. This right-of-way can be shared with bicyclists or pedestrians.</p>		
	Not applicable because the LTN does not currently include off-street paths.	

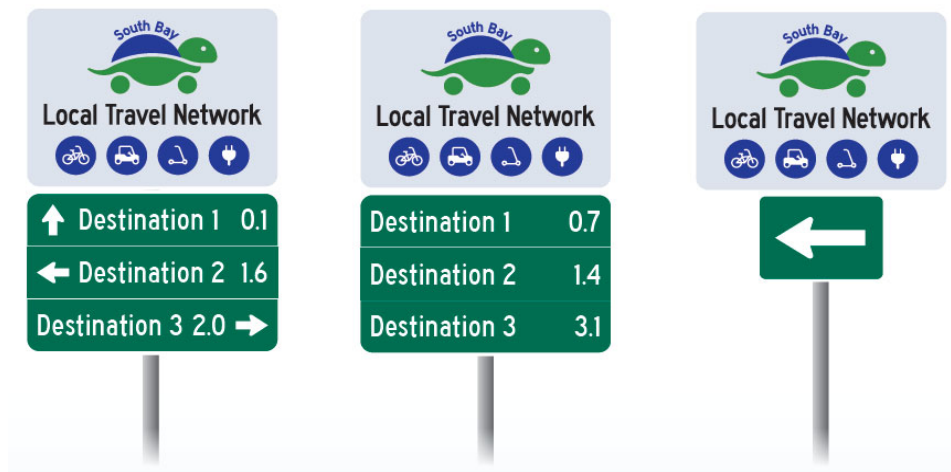
Source: Fehr & Peers, CVC, NACTO Urban Bikeway Design Guide, & CA MUTCD.

Pavement Markings & Signage

Pavement markings and signage recommendations have been provided by SBCCOG based on best practices. A number of experimental options are in use throughout the State and the City will coordinate with the California Traffic Control Devices Committee (CTCDC) if or when implementing custom markings and signage as described below.

Wayfinding Signage

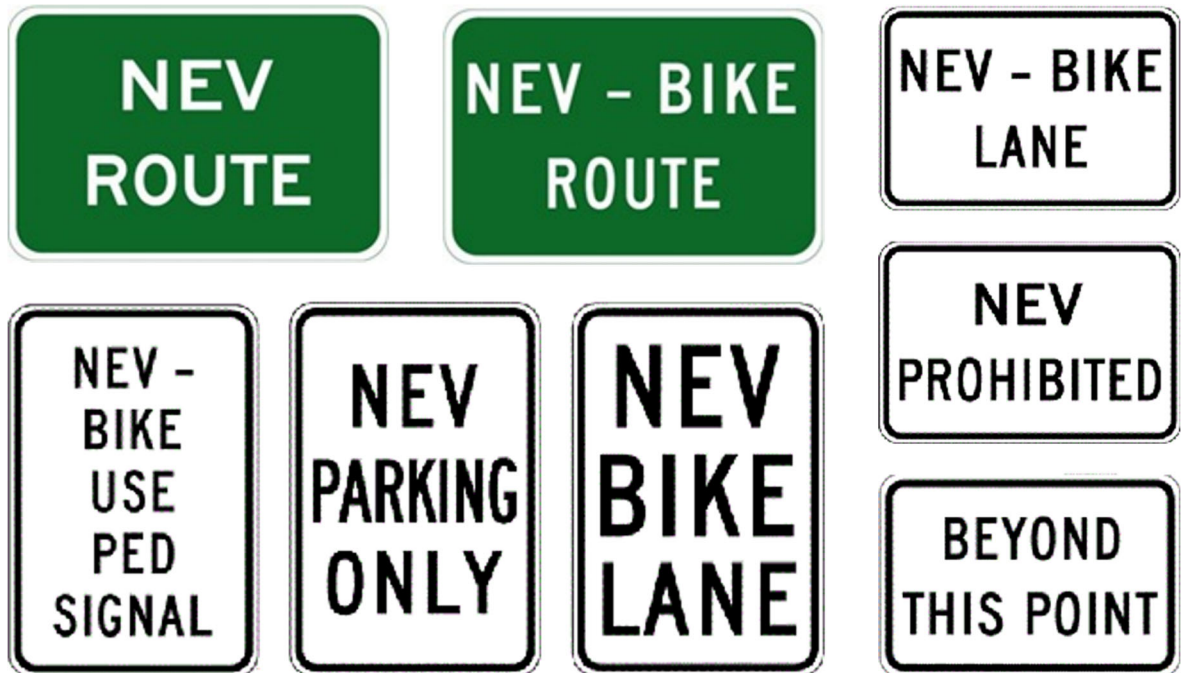
SBCCOG has developed LTN branded and wayfinding signs shown below.



LTN wayfinding signage concept.

Shared Class III routes for bikes and NEVs

In addition to LTN branded signage and standard sharrow markings, NEV-specific signage and markings could be used along NEV routes. Signage previously approved by Caltrans is shown in the figure below, but should be installed in coordination with the State and after adoption of this Plan. Pre-approved markings for Class III shared NEV markings are not currently available, and custom markings would require State approval.



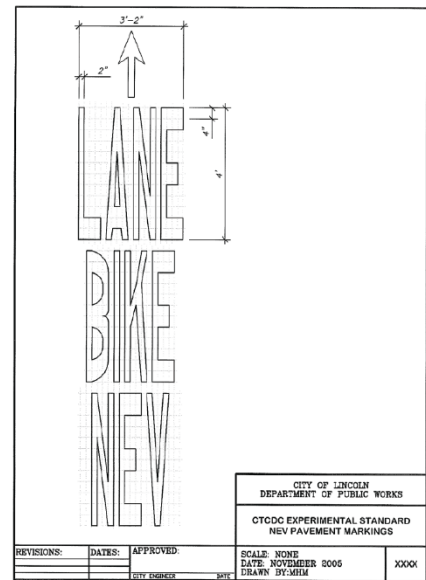
Sample [Caltrans](#) NEV signage.

Shared Class II, Class II+, or Class IV lanes for bikes and NEVs

Signage and markings must be used to designate the lane. Signage previously approved by Caltrans is shown in the figure above, but should be installed in coordination with the State and after adoption of this plan. Pre-approved markings for shared bike/NEV Class II lanes are not currently available, and markings would require State approval. An experimental figure is shown on the right.

Shared off-street paths for bikes and NEVs

If the LTN evolves to include off-street paths for bikes and NEVs, signage should be considered. An example of an implemented sign is shown on the bottom right.



An example of experimental Class II markings from Lincoln, CA.

Crossings & Traffic Calming

Complementary treatments can enhance the safety of the LTN network. Potentially applicable design considerations by goal are listed below for major and minor crossings:

[Optional: The City should review the list below and identify which treatments are context appropriate given certain features (e.g. volumes, signalization, and roadway geometry) and refine the list below as needed.]

Major Crossings

1. Slow down vehicle speed
 - a. Bulbouts
 - b. Signal timing and coordination (e.g. Slow Green Wave)
 - c. Speed feedback signs
2. User detection
 - a. Mode-specific detection
3. Reduce vehicle volumes
 - a. Diverters or partial/full closures on roadways
4. Increase visibility
 - a. Lighting at intersection
 - b. Leading Pedestrian Intervals (with "NEV-BIKE USE PED SIGNAL" sign)
 - c. Signalized intersection control
 - d. Intersection crossing markings (e.g. Crossbike marking)
 - e. Raised crossing



Caltrans-approved signage for a separate NEV-bike signal.

- f. Bike box for advance stop staging
- 5. Reduce conflicts with turning vehicles
 - a. Bike/NEV facility placed to the left of right-turning vehicles
 - b. Mixing/conflict zones markings
 - c. Separate signal phases
 - d. Restrict right turns on red

Minor Crossing

- 1. Slow down vehicle speed
 - a. Bulbouts
 - b. Traffic circle
 - c. Speed humps
 - d. Chicanes
 - e. Median islands
- 2. Reduce vehicles volumes
 - a. Diverters or partial/full closures
- 3. Increase visibility
 - a. Lighting at intersection
 - b. Provide clear sightline approaches
 - c. Raised crossing
 - d. Daylighting (e.g. red curb)



Minor crossing application, traffic circle, from Seattle, WA.

Parking Facilities

Preferential parking should be provided to NEV drivers in public parking facilities, including on-street or in public lots such as at City buildings or parks (NEV parking in private facilities such as shopping centers and residential developments can be addressed through the zoning code). Given that NEVs can serve the same purposes as a standard vehicle and would therefore have no impact on parking supply and demand, parking should be permitted in any space.

NEV drivers with the appropriate placards may use standard accessible parking spaces. No additional accessible parking provision beyond the standard design and availability requirements is necessary for NEVs within the Americans with Disabilities Act (ADA). Additional information may be available via the Pacific ADA Center at <https://www.adapacific.org/>.

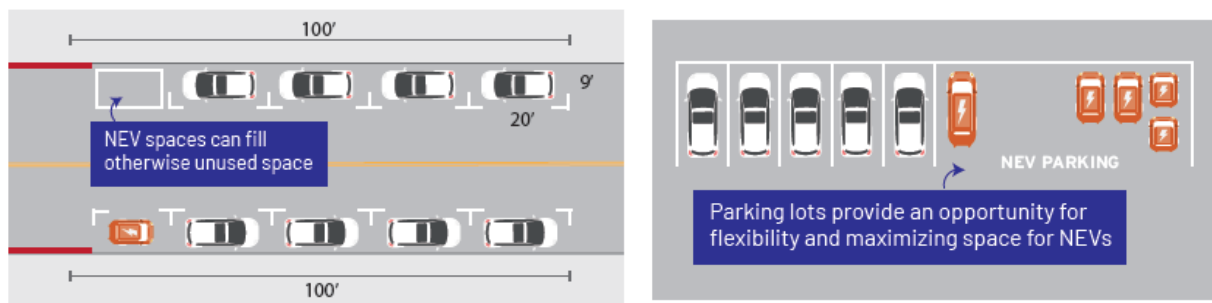


Preferential NEV parking at El Segundo City Hall, part of LTN pilot project.

NEVs require parking spaces approximately 10' in length and 5' in width, in comparison to 18-20' in length and 8.5-9' feet in width for standard vehicles, equal to a reduction in required square footage per space of approximately 70%. NEVs occupy less physical space than standard passenger vehicles, so a relatively higher number of NEV spaces can be accommodated in a given parking area. This means that NEVs may also be able to utilize existing spaces more efficiently, in a wider assortment of configurations, both on-street and in private lots and garages. The smaller size of NEVs could allow for creative configurations within off-street garages and lots, adding supply and better using space that otherwise would be empty.



Another consideration includes NEV parking signage and/or NEV parking space markings (signage may indicate if charging is available).



NEV parking configuration from the LTN Playbook.

Mobility Hubs

Mobility hubs are places where people can make seamless connections between multiple transportation options. Mobility hubs offer visibility to, and connection between, public transit and other mobility services that in turn support sustainability and connectivity. Building mobility hubs at key locations along NEV routes can help provide easy connections to local and regional transit, other mobility options like car share, and conveniently located neighborhood services for people traveling via NEVs. Mobility hubs provide an opportunity to site parking and charging amenities for NEVs, while connecting into the broader transportation network. See the LTN Playbook for additional details.

[Optional: We recommend that the City consider:

- 1) Encouraging co-location with other key destinations such as shopping centers*
- 2) Adopting provisions allowing flexibility and/or requirements for NEV parking (e.g. allowing NEVs to creatively utilize space on and off-street)*

3) Having an NEV-ready building code in place (e.g. defining a ratio of regular parking spaces to required NEV spaces and setting charging requirements)

4) Developing NEV parking incentives (e.g. accelerating permitting policies)

5) Tracking parking locations to monitor NEV parking deployment.]

Charging Facilities

NEV parking locations should be configured with or placed within functional reach of electric vehicle charging stations. On average, daytime opportunity charging can as much as double an NEV's range. NEVs are typically equipped with chargers suited for standard electric vehicles, for easy charging at home. Broadly, they are compatible with Level 1 and Level 2 chargers.

Public chargers could be located at key destinations (e.g. shopping centers and employment sites) where NEVs park during the day, increasing vehicle range while not impacting daytime peak loads on the grid. NEV communities such as Lincoln, CA provide free charging in parking lots through outlets on existing light poles or similar structures. There are also opportunities to utilize solar parking shade structures, allow on- and off-street charging or encourage expansion of residential systems to charge NEVs.

Generally, NEVs can take 6-8 hours to charge. For example, a GEM NEV carries a 10-kilowatt hour (kwh) battery pack. A 3-space charging structure has a 2-kilowatt solar roof capable of 5 collecting hours/day (average in Southern California). This equals 10 kilowatt hours/day, charging:

- One vehicle fully if parked for five hours, or
- Partially charging that vehicle for shorter stays, or
- Partially charging more than one vehicle on a fractional basis



Public NEV parking and charging, Lincoln, CA.



Sample 5 kW solar canopy for EV/NEV charging.

[Optional: We recommend that the City consider strategies encouraging deployment of charging facilities both on and off-street, similar and complimentary to the parking strategies described above. Further considerations include:

- 1) Providing subsidies at target sites*
- 2) Providing a “right-to-install” ordinance allowing tenants to install charging without building owner permission*
- 3) Updating permitting policies to accelerate private installation of charging facilities]*

5. Evaluation & Monitoring

Evaluation identifies possible opportunities to inform future decision-making and meet the reporting requirements of AB 2432. According to AB 2432, after two years of plan submittal, the City must submit a report to the Legislature providing the following:

1. A description of the NEV Plan
2. An evaluation of the effectiveness of the Plan, including impacts to traffic flows and safety
Topics can broadly include: challenges to NEV Plan implementation, conflicts between different road users and NEVs, and status of NEV route deployment.
3. A recommendation whether AB 2432 should be terminated, continued or expanded statewide

Evaluation and monitoring of the NEV plan must be done in consultation with Southern California Association of Governments, Caltrans, the Department of the California Highway Patrol, and any applicable local law enforcement agency. SBCCOG will lead the process in reporting back to these regional and state agencies.