Agenda Item Number: ___

Agenda Report Reviewed by:
City Manager:

CITY OF SEBASTOPOL
CITY COUNCIL
STAFF REPORT

Meeting Date:	October 30, 2018
To:	Honorable Mayor and City Councilmembers
From:	Engineering Manager Henry J. Mikus
Subject:	Informational Item – To provide background information on the History of the Bicycle/Pedestrian Master Plan, explanation of the new bicycle lane markings, and describe Traffic Code considerations related to enforcement.
Recommendation:	Information presentation only, no action requested.
Funding:	Currently Budgeted: _____ Yes _____ No __XX__ N/A
	Net General Fund Cost: N/A Amount: N/A

Background: The City of Sebastopol has been conducting a process, with duration of a decade, to enhance safety and tourism by providing bicycle lane markings along both City-owned streets, and State Highways through the City. Establishment of an integrated bicycle lane system has been a long-term and high priority goal of the Sebastopol City Council, as formally set forth in several documents including, most importantly, the Sebastopol Bicycle & Pedestrian Master Plan which is included in the Sonoma County Bicycle & Pedestrian Master Plan.

Initially, bike lanes on locally-owned streets, as a City project, were added in November 2017, and bicycle markings along SR 116 have been part of a Caltrans repaving project that began in August 2018 and is nearly complete. The last street section to be done is Bodega Avenue, where striping for bicycles is waiting for repaving and other improvements that are part of a partially grant-funded five-year set of capital projects.

The SR 116 work, which includes Gravenstein Highway North, Healdsburg Avenue, N Main Street, S Main Street, Petaluma Avenue, Gravenstein Highway South, and a block of McKinley Street, has resulted both in changes to vehicular lane alignments and striping, and new types of bicycle specific markings. As a result, the City Council asked that staff prepare a report to discuss the following:

- History of the Sebastopol Bicycle & Pedestrian Master Plan, including timeframe for original discussion and adoption of the Plan.
- Amendments to the Plan.
- Description of Bike Lanes (to include graphics/diagrams of what markings mean)
- General Information and Regulations Related to Correct Use of bike lanes and parking regulations related to bike lanes

Discussion: Bicycle Lane planning began in 2006 on a regional basis as the Sonoma County Transportation Authority (SCTA) initiated a County-wide Bicycle & Pedestrian Master Plan. The companion Sebastopol Bicycle & Pedestrian Master Plan was completed in 2008. The next step was completion of a Sebastopol Bicycle Lane Feasibility Study in 2011, which included Caltrans participation and input as the State of California is the owner, and ultimate arbiter, of SR 116 technical matters. The City Plan was amended in

2014 to include many items discussed in the Feasibility Study, which in turn was the basis for the actual bicycle lanes designs. The SR 116 design was substantially done by a AECOM in 2015, and the locally owned streets designs were 100% done by W-Trans in 2017. All SR 116 design work has involved in-depth reviews, comments, and required approvals by Caltrans' District 4 technical staff. It should be noted that through our own City review process, it was recognized that the initial SR 116 design did not incorporate several provisions shown in the 2014 amended Bicycle & Pedestrian Master Plan. As a consequence, the Sebastopol City Council hired W-trans to review and append the SR 116 design to properly reflect the Bicycle & Pedestrian Master Plan and to be respectful of the citizen input and comments made during the formulation of the Plan, its amendment, and the Study. This was done during 2017 and the revised design was what Caltrans utilized as the basis for their paving and striping project.

The 2011 Feasibility Study is a key document as it included numerous robust analyses and discussions by the City and Caltrans of some potentially problematic highway sections, where considerable thought and conversation was given to different alternative alignments to choose the overall most effective and safest layout. For example, the Petaluma Avenue one-way section northbound, and the section of N Main Street just south of Healdsburg Avenue were examined in depth, with the conclusions and reasoning laid out in the study.

The new striping designs were also formulated using the following regulations and standards:

- NACTO (National Association of City Transportation Officials) *"Urban Bikeway Design Guide"*
- Caltrans *"Traffic Manual Chapter 6 – Markings"*
- *"California Vehicle Code"*
- Three Feet for Safety Act (adopted as California Vehicle Code section 21760)
- California *"Manual on Uniform Traffic Control Devices for Streets and Highways"* (MUTCD)

The new markings are different in both layout, and coloring. The green-painted areas are the most obvious new feature, and are intended to:

- Promote the multi-modal nature of a corridor.
- Increase the visibility of bicyclists.
- Discourage illegal parking in the bike lane.
- When used in conflict areas, raise motorist and bicyclist awareness to potential areas of conflict.
- Increase bicyclist comfort though clearly delineated space.
- Increase motorist yielding behavior.
- Help reduce bicycle conflicts with turning motorists.

Steve Weinberger, W-Trans Principal, will be giving a presentation (copy attached) about our City's new bicycle lanes that includes discussion of what the new markings mean and how they are to be used.

Lieutenant Greg Devore, Sebastopol Police, will be giving a briefing on what the new bicycle and lane markings will mean for motorists from a compliance and enforcement perspective.

Recommendation: That the City Council hear and accept this report and the presentations.

Attachments:
List of California Vehicle Code violations common to bike lanes
Police Department Presentation/ Powerpoint
W-Trans Presentation/ Powerpoint

California Vehicle Code violations common to bike lanes:

CVC 21209.

No person shall drive a motor vehicle in a bicycle lane except as follows:

- To park where parking is permitted.
- To enter or leave the roadway.
- To prepare for a turn within a distance of 200 feet from the intersection.

CVC 21211.

No person may stop, stand, sit, or loiter upon the bike lane if it impedes or blocks the normal and reasonable movement of any bicyclist.

No person may place or park any bicycle, vehicle, or any other object upon the bike lane unless the placement or parking is necessary for safe operation.

CVC 21208.

On a roadway with a bike lane, bicyclists traveling slower than traffic must use the bike lane except when making a left turn, passing, avoiding hazardous conditions, or approaching a place where a right turn is authorized.

Cyclists moving as fast as traffic can ride in the traffic lane.

CVC 21650.

Ride with traffic. Bicyclists must travel in the direction of traffic while using the bike lane.

CVC 21966.

No pedestrian shall proceed along a bicycle path or lane where there is an adjacent adequate pedestrian facility. Skateboarders, skaters, and non-motorized scooter riders are pedestrians.

Mopeds and high-speed electric bikes are not like regular bikes. Gas-powered bicycles and type 3 electric bicycles (with top assisted speeds of 28 mph) may not be used in the bike lane. Low-speed electric bicycles (with top assisted speeds of 20 mph) and motorized scooters are allowed to use the bike lane.

CVC 21209

Motor Vehicles and Motorized Bicycles in Bicycle lanes

No person shall drive a motor vehicle in a bicycle lane except as follows:

- To park where parking is permitted.
- To enter or leave the roadway.
- To prepare for a turn within a distance of 200 feet from the intersection.

CVC 21211

Obstruction of Bikeways or Bicycle Paths or Trails

No person may stop, stand, sit, or loiter upon the bike lane if it impedes or blocks the normal and reasonable movement of any bicyclist.

CVC 21208

Permitted Movements from Bicycle Lanes

On a roadway with a bike lane, bicyclists traveling slower than traffic must use the bike lane except when making a left turn, passing, avoiding hazardous conditions, or approaching a place where a right turn is authorized.

CVC 21650

Right Side of Roadway

Ride with traffic.
Bicyclists must travel in the direction of traffic while using the bike lane.

CVC 21966

Pedestrian in Bicycle Lane

No pedestrian shall proceed along a bicycle path or lane where there is an adjacent adequate pedestrian facility. Skateboarders, skaters, and non-motorized scooter riders are pedestrians.

Mopeds and high-speed electric bikes are not like regular bikes. Gas-powered bicycles and type 3 electric bicycles (with top assisted speeds of 28 MPH) may not be used in the bike lane. Low-speed electric bicycles (with top assisted speeds of 20 MPH) and motorized scooters are allowed to use the bike lane.

Timeline of Bike Lane Planning and Installation

2006 – SCTA initiates Countywide Bicycle & Pedestrian Master Plan.

2008 – Sebastopol Bicycle & Pedestrian Master Plan completed. Most streets in question on the bike plan show "Further Study Needed."

2010 – Sebastopol Bike Lane Feasibility Study initiated. Public workshops and Council presentation completed.

May 2011 – Sebastopol Bike Lane Feasibility Study completed.

2012 – NACTO (National Association of City Transportation Officials) published the Urban Bikeway Design Guide which provides technical guidance on over twenty different bicycle infrastructure designs. These include buffered bike lanes, cycle tracks, bike boxes, colored pavement guidance and several other treatments.

2013 – Three Feet for Safety Act adopted (California Vehicle Code section 21760).

2014 – Caltrans endorsed the NACTO Urban Street Design Guide and Urban Bikeway Design Guide as valuable toolkits for designing and constructing safe, attractive local streets and bike facilities.

2014 – Sebastopol Bicycle & Pedestrian Master Plan updated. Bike lanes shown for SR116.

2014 – City initiates design of SR116 bike lanes with AECOM.

May 2015 – 95% Design Plans completed.

2016 – Caltrans informs the City that they are planning on repaving SR116.

August 2017 – City retains W-Trans to update SR116 bike lane design. Staff report indicates: "...City staff reviewed the AECOM design and noticed that in some areas the design varied greatly from the recommended lane geometrics as envisioned in the Sebastopol Bicycle and Pedestrian Plan."

January 2018 – SR116 Design Plans completed after reviews by Caltrans.

February 2018 – Caltrans converts W-Trans plans into their format.

August 2018 – Paving begins.

September 2018 – Striping begins.

Bike Plan Planning Issues

Bike Lane Installation Goals

The City's primary goal was to complete bike lanes without road widening to make the project more practical for the shorter term.

Petaluma Avenue

The Bike Lane Feasibility Study presented options for Petaluma Avenue between the Joe Rodota Trail crossing and the south end of the couplet. The City and Caltrans chose to reduce the cross section to one lane northbound to maintain parking on both sides of the street. (Parking would have had to be eliminated to maintain both existing

lanes.) It should be noted that the same capacity was maintained at the bottleneck for the corridor, the intersection of Sebastopol Avenue/Petaluma Avenue.

North Main Street

The Bike Lane Feasibility Study presented options for North Main Street between the High School Road traffic signal and Wilton Avenue. The City and Caltrans chose to reduce the cross section to one lane southbound to maintain parking on the east side of the street. (Parking would have had to be eliminated to maintain both existing lanes.) It should be noted that the same capacity was maintained at the bottleneck for the corridor, the intersection of Bodega Avenue/Main Street and a similar capacity occurs at North Main Street/McKinley Avenue.

Bike Lane Features

Colored Pavement (per NACTO Guidelines)

Colored pavement within a bicycle lane increases the visibility of the facility, identifies potential areas of conflict, and reinforces priority to bicyclists in conflict areas and in areas with pressure for illegal parking. Colored pavement can be utilized either as a corridor treatment along the length of a bike lane. Color can be applied along the entire length of bike lane or cycle track to increase the overall visibility of the facility. Consistent application of color across a bikeway corridor is important to promote clear understanding for all users.

On SR116, the colored bike lanes have been used at bus stops, longer intersection crossings (such as Covert Lane) and right-turn lane crossovers (such as Petaluma Avenue approaching Sebastopol Avenue).

Also used in Rohnert Park (Expressway at US101), Windsor (Old Redwood Highway), Petaluma (Lakeville) and Santa Rosa (many new locations Citywide).

Colored Pavement Benefits

- Promotes the multi-modal nature of a corridor.
- Increases the visibility of bicyclists.
- Discourages illegal parking in the bike lane.

- When used in conflict areas, raises motorist and bicyclist awareness to potential areas of conflict.
- Increases bicyclist comfort though clearly delineated space.
- Increases motorist yielding behavior.
- Helps reduce bicycle conflicts with turning motorists.

Typical Applications

- Within bike lanes or cycle tracks.
- Across turning conflict areas such as vehicle right turn lanes.
- Across intersections, particularly through wide or complex intersections where the bicycle path may be unclear.
- Across driveways and Stop or Yield-controlled cross-streets.
- Where typical vehicle movements frequently encroach into bicycle space, such as across ramp-style exits and entries where the prevailing speed of turning traffic at the conflict point is low enough that motorist yielding behavior can be expected.
- Color may be applied along an entire corridor, with gaps in coloring to denote crossing areas.
- Facility designers should match coloring strategy to desired design outcomes of projects.
- May not be applicable for crossings in which bicycles are expected to yield right of way, such as when the street with the bicycle route has Stop or Yield control at an intersection.

Buffered Bike Lanes (per NACTO Guidelines)

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.

On SR116, the buffered bike lanes have been used on several locations including South Main Street, Petaluma Avenue and Gravenstein Highway North.

Buffered Bike Lane Benefits

- Provides greater separation between motor vehicles and bicyclists.

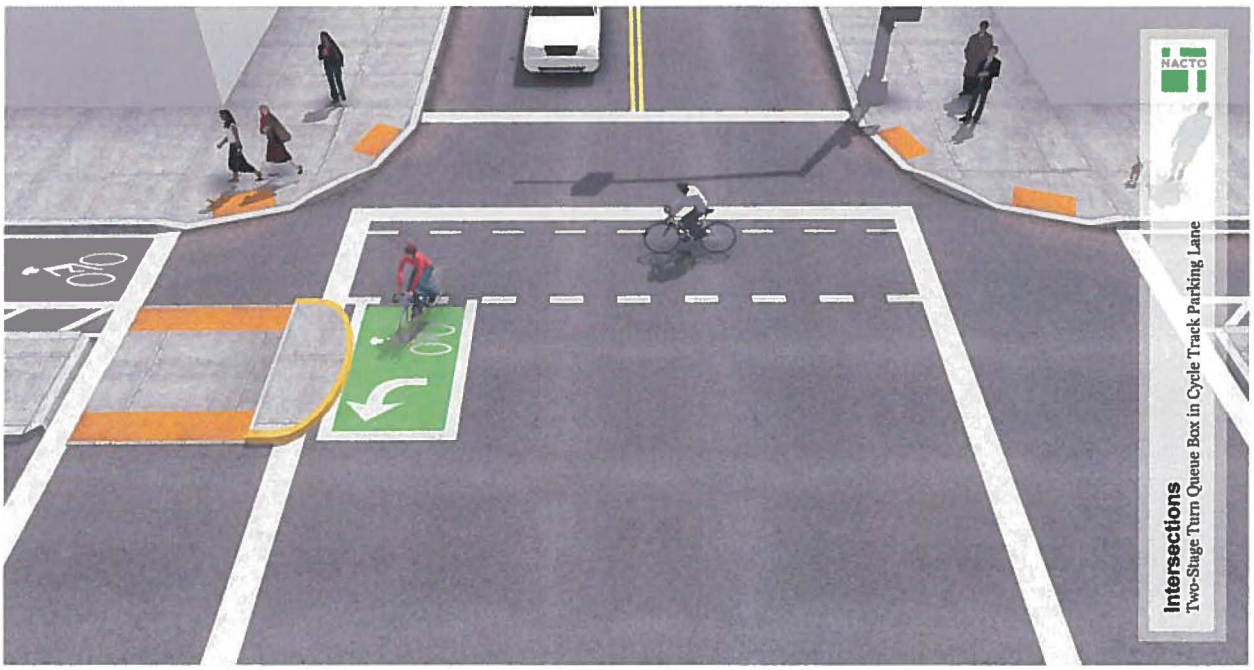
- Provides space for bicyclists to pass another bicyclist without encroaching into the adjacent motor vehicle travel lane.
- Encourages bicyclists to ride outside of the door zone when buffer is between parked cars and bike lane.
- Provides a greater space for bicycling without making the bike lane appear so wide that it might be mistaken for a travel lane or a parking lane.
- Appeals to a wider cross-section of bicycle users.
- Encourages bicycling by contributing to the perception of safety among users of the bicycle network.

Typical Applications

- Anywhere a standard bike lane is being considered.
- On streets with high travel speeds, high travel volumes, and/or high amounts of truck traffic.
- On streets with extra lanes or extra lane width.
- Special consideration should be given at transit stops to manage bicycle & pedestrian interactions.

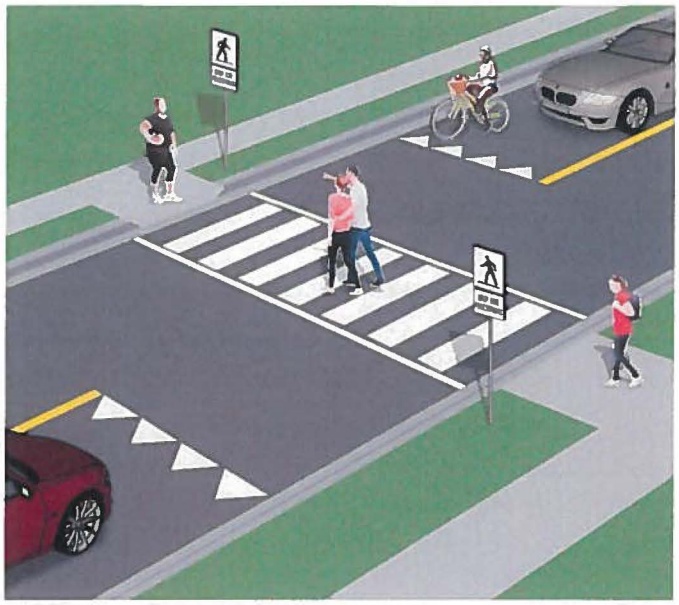
Two-Stage Turn Queue Box (per NACTO Guidelines)

Two-stage turn queue boxes offer bicyclists a safe way make left turns at multi-lane signalized intersections from a right side cycle track or bike lane, or right turns from a left side cycle track or bike lane. Two-stage turn queue boxes may also be used at unsignalized intersections to simplify turns from a bicycle lane or cycle track, as for example, onto a bicycle boulevard. At midblock crossing locations, a two-stage turn queue box may be used to orient bicyclists properly for safe crossings. Multiple positions are available for queuing boxes, depending on intersection configuration. In Sebastopol, this was used at the intersection of Petaluma Avenue/McKinley Avenue.



Advance Yield Markings (aka Shark's Teeth)

An advanced yield line, also called Shark's teeth, is a type of marking used to inform drivers of the point where they need to yield and give priority to conflicting vehicle or pedestrian traffic at an uncontrolled intersection where vehicles do not have a stop sign or traffic signal.



Construction/Installation

Sequencing of Installation

The sequence of striping improvements has not been ideal. Temporary markings were placed to follow the old striping geometrics; when the layouts for the new markings were put down there were multiple conflicts with the old alignments. The green markings were installed before the bike lanes were striped with white paint as two paint colors could not be applied next to each other at the same time. Bike markings and cross hatch markings were the last elements to be installed.

Construction Difficulties

Some striping was not laid per plans, so the City and W-Trans have been informing Caltrans of these issues and have been troubleshooting as they have come up.

DESIGN AND IMPLEMENTATION OF SR 116 BIKE LANES

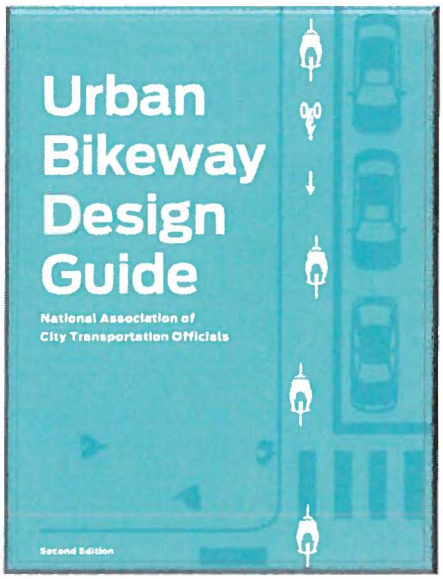
Sebastopol City Council
October 30, 2018

IMPORTANCE OF BIKE LANES FOR SEBASTOPOL

- **Safety** – Among 67 California cities with 2,501-10,000 residents, Sebastopol ranked:
  - 3rd worst in injury collisions involving bicyclists
  - 9th worst among bicyclists <15 years old
  - 6th worst in injury collisions related to speeding
- **Mobility Options**
  - Enhanced mobility for non-vehicle owners and non-drivers, including children
  - National studies show that over 50% of people are interested in bicycling but are afraid to do so, primarily because of traffic
- **Greenhouse Gas Emissions Reduction**
  - Transportation emissions in Sonoma County increased by 9% from 2010-2015
  - Transportation responsible for 59% of all GHG emissions
- **Public Health**
  - Approximately 1/3 of students in Sonoma County are overweight or obese.

STATE-LEVEL SUPPORT FOR BICYCLING

- **2012:** NACTO (National Association of City Transportation Officials) published the *Urban Bikeway Design Guide* which provides technical guidance on over 20 different bicycle infrastructure designs.
- **2013:** Three Feet for Safety Act adopted (California Vehicle Code Section 21760).
- **2014:** Caltrans endorsed the NACTO *Urban Street Design Guide* and *Urban Bikeway Design Guide*.

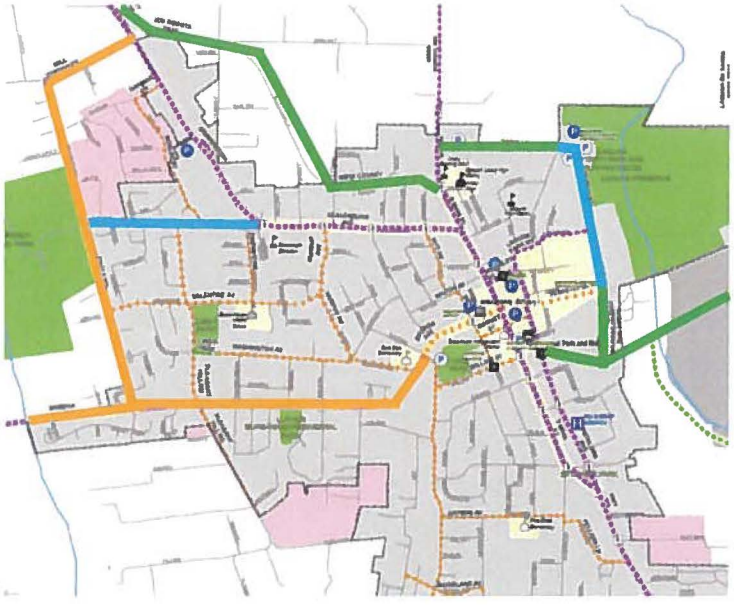


SEBASTOPOL BIKE PLANNING MILESTONES

- **2006:** SCTA initiates Countywide Bicycle & Pedestrian Master Plan.
- **2008:** Sebastopol Bicycle & Pedestrian Master Plan completed. Most streets in question on the bike plan show "Further Study Needed."
- **2010:** Sebastopol Bike Lane Feasibility Study initiated. Public workshops and Council presentation completed.
- **2011:** Sebastopol Bike Lane Feasibility Study completed.
- 2012: NACTO Urban Bikeway Design
- 2013: Three Feet for Safety Act
- 2014: Caltrans endorses NACTO Guide
- **2014:** Sebastopol Bicycle & Pedestrian Master Plan updated. Bike lanes shown for SR116.
- **2014:** City initiates design of SR116 bike lanes with AECOM.
- **2015:** 95% Design Plans completed.

SEBASTOPOL BICYCLE AND PEDESTRIAN MASTER PLAN

SEBASTOPOL BIKE PATHS AND BIKE LANES



SEBASTOPOL BIKE PATHS AND BIKE LANES

IMPLEMENTATION OF SR116 BIKE LANES

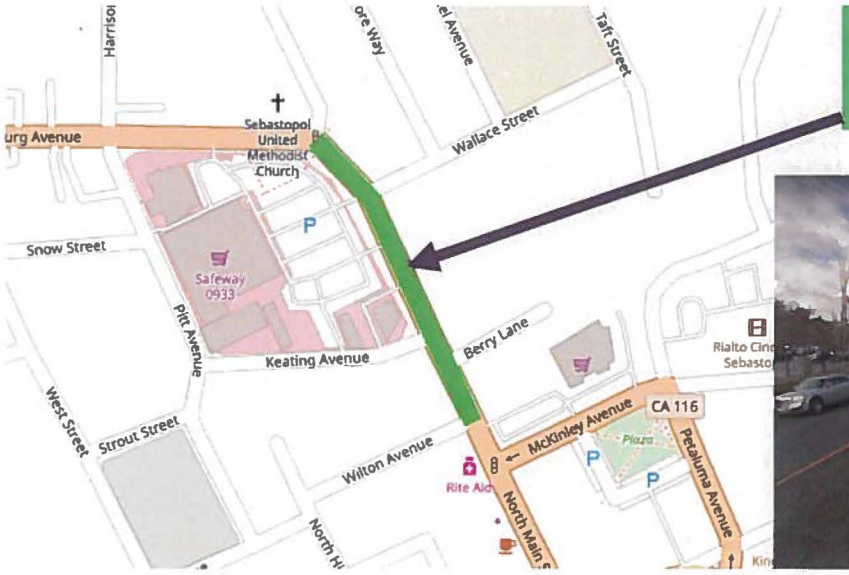
- **2016:** Caltrans informs City of plans to repave SR116.
- **Aug. 2017:** City retains W-Trans to update SR116 bike lane design, incorporating incorporate the current best design practices.
- **Jan. 2018:** SR116 Design Plans completed after review by Caltrans.
- **Feb. 2018:** Caltrans converts W-Trans plans into their format.
- **Aug. 2018:** Paving begins.
- **Sept. 2018:** Striping begins.

KEY BIKE LANE PLANNING ISSUES

- **Bike Lane Installation Goal:** Avoid road widening to enable short-term implementation
- **Balance Needs for Bicycle Safety/Access, Vehicular Circulation, and On-Street Parking**
  - **Petaluma Avenue (between Joe Rodota Trail crossing and south end of couplet):** City and Caltrans chose to reduce from 2 travel lanes to 1 to maintain on-street parking on both sides of the street.
  - **North Main Street (between High School Road traffic signal and Wilton Avenue):** City and Caltrans chose to reduce from 2 travel lanes to 1 in southbound direction to maintain parking on east side of the street.

PETALUMA AVENUE
JOE RODOTA TRAIL TO SOUTH END OF COUPLET

NORTH MAIN STREET
HIGH SCHOOL ROAD TO WILTON AVENUE



reduce from 2 travel lanes to 1 in SB direction, retain parking on east side

BIKE LANE FEATURES USED ALONG SR116

Treatments include (NACTO guidelines):

- Colored Pavement
- Buffered Bike Lanes
- Two-Stage Turn Queue Box
- Advanced Yield Markings

COLORED PAVEMENT - BENEFITS

- Increases the visibility of bicyclists.
- Discourages illegal parking in the bike lane.
- Raises motorist and bicyclist awareness to potential areas of conflict.
- Increases bicyclist comfort though clearly delineated space.
- Increases motorist yielding behavior.
- Helps reduce bicycle conflicts with turning motorists.

COLORED PAVEMENT - TYPICAL APPLICATIONS

- Within bike lanes or cycle tracks.
- Across turning conflict areas such as vehicle right turn lanes.
- Across intersections.
- Across driveways and Stop or Yield-controlled cross-streets.
- Along an entire corridor, with gaps in coloring to denote crossing areas.

Locations on SR 116: bus stops, longer intersection crossings (e.g. Covert Lane), and right turn lane crossovers (e.g. Petaluma Ave. approaching Sebastopol Ave.

BUFFERED BIKE LANES - BENEFITS

- Provides separation between motor vehicles and bicyclists.
- Provides space for bicyclists to pass another bicyclist.
- Encourages bicyclists to ride outside of the door zone.
- Helps prevent bike lane from being mistaken for a travel lane or parking lane.
- Increases perception of safety and encourages bicycling by wider range of users.

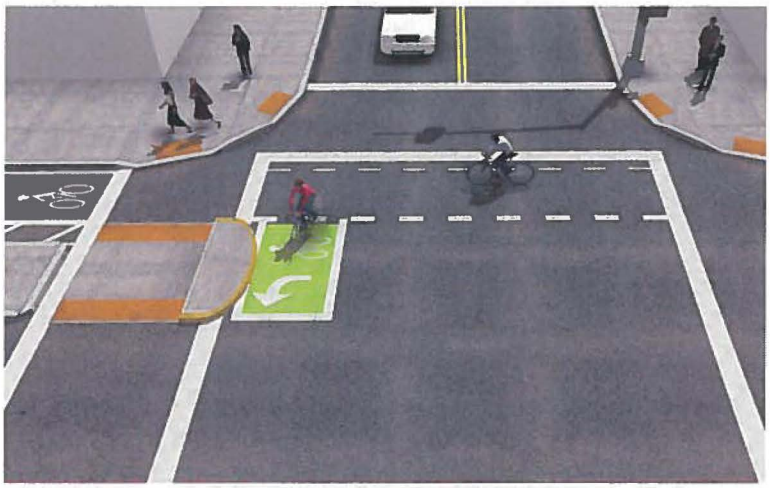
BUFFERED BIKE LANES - TYPICAL APPLICATIONS

- Anywhere a standard bike lane is being considered.
- On streets with high travel speeds, high travel volumes, and/or high amounts of truck traffic.
- On streets with extra lanes or extra lane width.
- Special consideration should be given at transit stops to manage bicycle & pedestrian interactions.

Locations on SR 116: Several locations including South Main Street, Petaluma Avenue and Gravenstein Highway North.

TWO-STAGE TURN QUEUE BOX

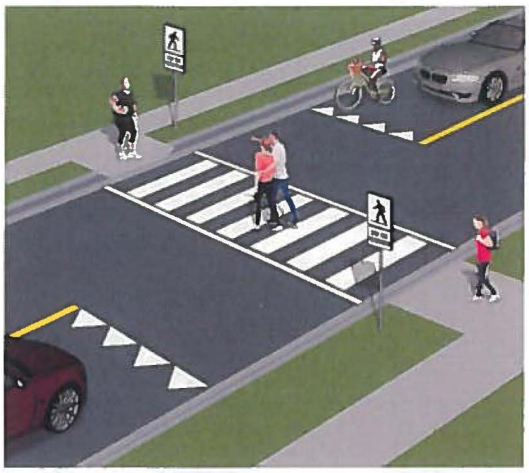
- Provides designated space for bicyclists to make left turns
- Often from a right-side bike lane or cycle track, especially if demand for turning is high



Location on SR 116: Petaluma Avenue/McKinley Avenue intersection.

ADVANCED YIELD MARKINGS ("SHARK'S TEETH")

- Assists pedestrians at uncontrolled intersection crossings
- Requires drivers to yield to pedestrians ahead of the crosswalk (generally between 20-50 feet)
- Helps prevent "multiple threat" collisions on multi-lane roadways



Installed at 16 locations along SR116.

CALIFORNIA VEHICLE CODE & BIKE LANES

CA Vehicle Code Section 21211(b)

(b) No person may place or park any bicycle, vehicle, or any other object upon any bikeway or bicycle path or trail which impedes or blocks the normal and reasonable movement of any bicyclist....

CA Vehicle Code Section 21209(a)

No person shall drive a motor vehicle in a bicycle lane established on a roadway pursuant to Section 21207 except as follows:

(1) To park where parking is permitted.

(2) To enter or leave the roadway.

(3) To prepare for a turn within a distance of 200 feet from the intersection.

Vehicles may use bicycle lanes to pass a vehicles that is waiting a left-turn.

QUESTIONS?