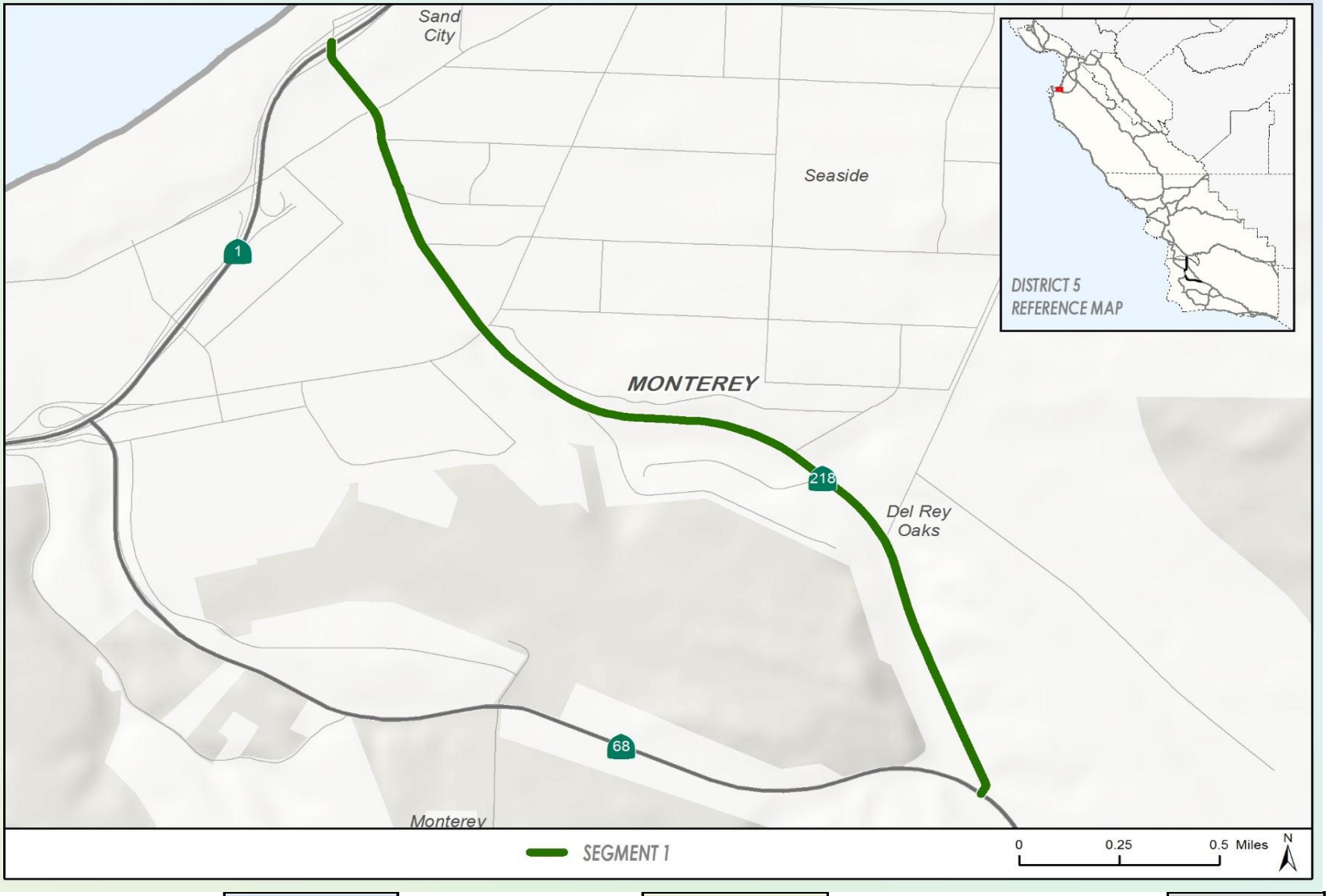
# CORRIDOR DATA SHEET
# STATE ROUTE 218

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# SR 218 Corridor Data Sheet

Prepared by District 5 Transportation Planning

Inputs: PM Peak Hour Analyzed
Base Year 2013
Horizon Year 2040
AMBAG Regional Model 2014


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The information and data contained in this document are for planning purposes only and should not be relied upon for final design of any project. Any information in this TCR is subject to modification as conditions change and new information is obtained. Although planning information is dynamic and continually changing, the District 5 System Planning Division makes every effort to ensure the accuracy and timeliness of the information contained in the TCR. The information in the TCR does not constitute a standard, specification, or regulation, nor is it intended to address design policies and procedures and shall not be used as a substitute for project specific analysis, including but not limited to, traffic impact studies, that pertain to any private or public development proposal.

# Segment 1 Traffic Data: SR 218

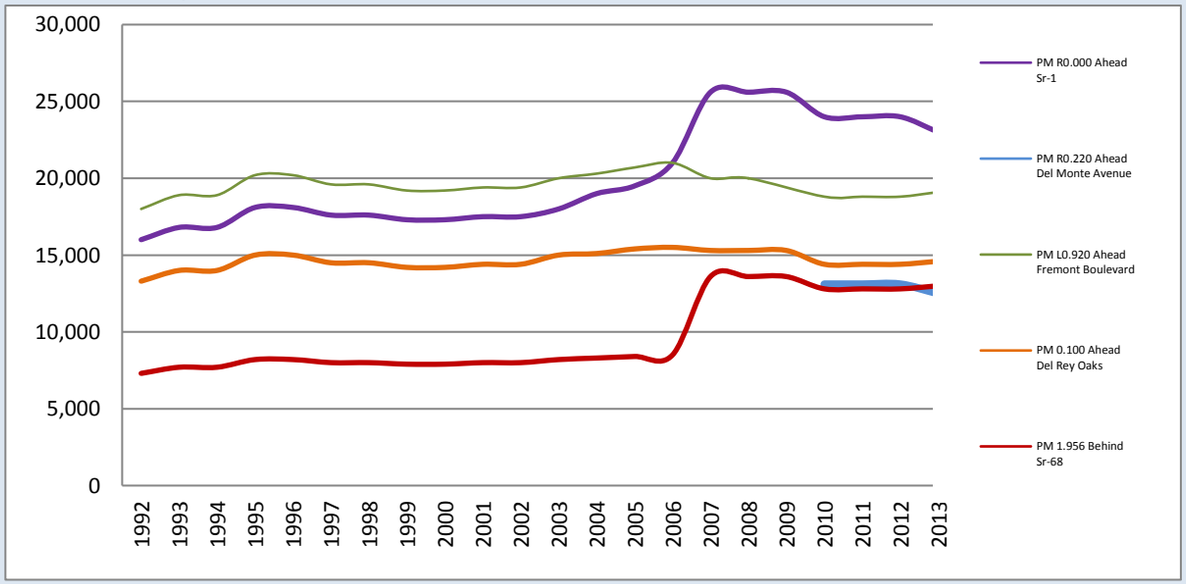
## Daily Traffic Data

| | |
|---|---|
| AADT Base Year 2013 | 12,350 to 23,000 |
| AADT Horizon Year 2040 | 14,250 to 27,190 |
| AADT: Growth Rate (Vehicles/Year) | 70 to 160 |
| VMT Base Year 2013 | 40,920 |
| VMT Horizon Year 2040 | 47,140 |

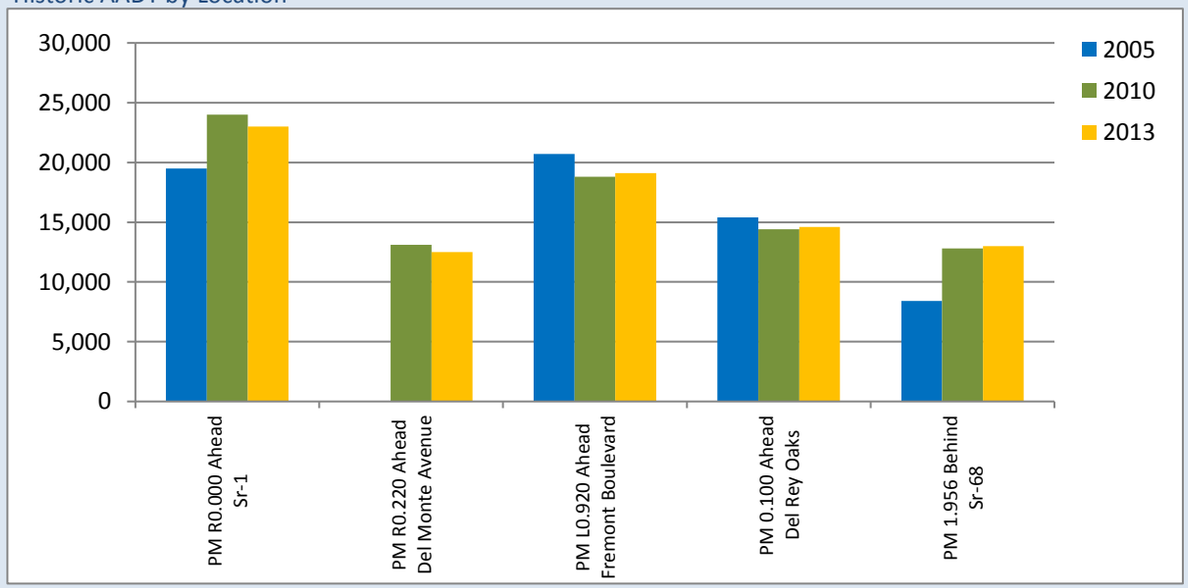
## PM Peak Hour Traffic Data

| | Eastbound | Westbound |
|---|---|---|
| Segment Length (Miles) | 2.85 | |
| PM Peak Hour Directional Split Base Year 2013 | 42.7% to 54.9% | 45.1% to 57.3% |
| PM Peak Hour Directional Split Horizon Year 2040 | 31.4% to 55.1% | 44.9% to 68.6% |
| PM Peak Hour Volume Base Year 2013 | 960 to 1,790 | |
| | 460 to 820 | 430 to 430 |
| PM Peak Hour Volume Horizon Year 2040 | 1,000 to 2,190 | |
| | 310 to 1,200 | 560 to 1,170 |
| PM Peak Hour Growth Rate (vehicles/year) | 2 to 15 | |
| PM Peak Hour VMT Base Year 2013 | 1,470 | 1,720 |
| PM Peak Hour VMT Horizon Year 2040 | 1,700 | 1,830 |
| PM Peak Hour VHT Base Year 2013 | 50 | 61 |
| PM Peak Hour VHT Horizon Year 2040 | 62 | 62 |
| PM Peak Hour V/C Base Year 2013 | 0.190 to 0.348 | 0.156 to 0.468 |
| PM Peak Hour V/C Horizon Year 2040 | 0.113 to 0.472 | 0.247 to 0.430 |
| PM Speed (mph) Base Year 2013 | 25.9 to 35.0 mph | 25.5 to 35.0 mph |
| PM Speed (mph) Horizon Year 2040 | 25.0 to 35.0 mph | 26.1 to 35.0 mph |

## Historic AADT by Year

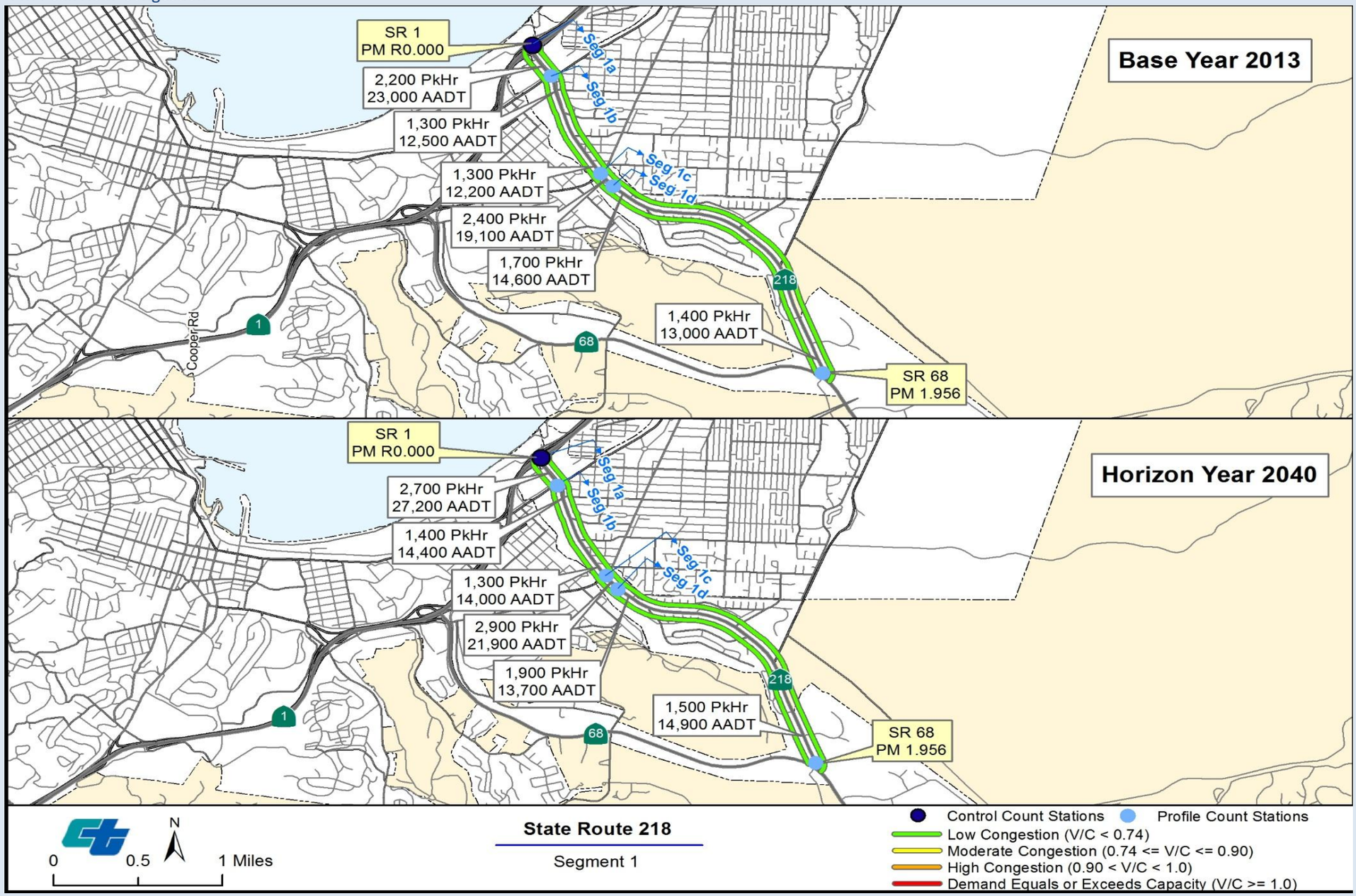



## Historic AADT by Location



# Segment 1 Traffic Data: SR 218

PM Peak Hour Congestion**

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# Segment 1 Planning Data: SR 218

## Location Description

| | |
|---|---|
| Segment Description | From SR 1 to SR 68 |
| Urban/Rural | Urban |
| Local Planning Jurisdiction | TAMC/AMBAG |
| County | Monterey |
| City | Seaside; Del Rey Oaks |
| Prevalent Land Use | Urban Reserve |

## Highway Type

| | |
|---|---|
| Freeway/Expressway System | No |
| Facility Type | Conventional |
| Functional Classification | Minor Arterial |

## Highway Designations

| | |
|---|---|
| National Highway System | No |
| Interregional Road System | No |
| Scenic Highway | No |

## Highway Characteristics

| | |
|---|---|
| Number of Lanes | 2-4 |
| Pavement Condition Right | Minor |
| Pavement Condition Left | Minor |
| Shoulder Width Right (ft) | 0-4 |
| Shoulder Width Left (ft) | 0-4 |

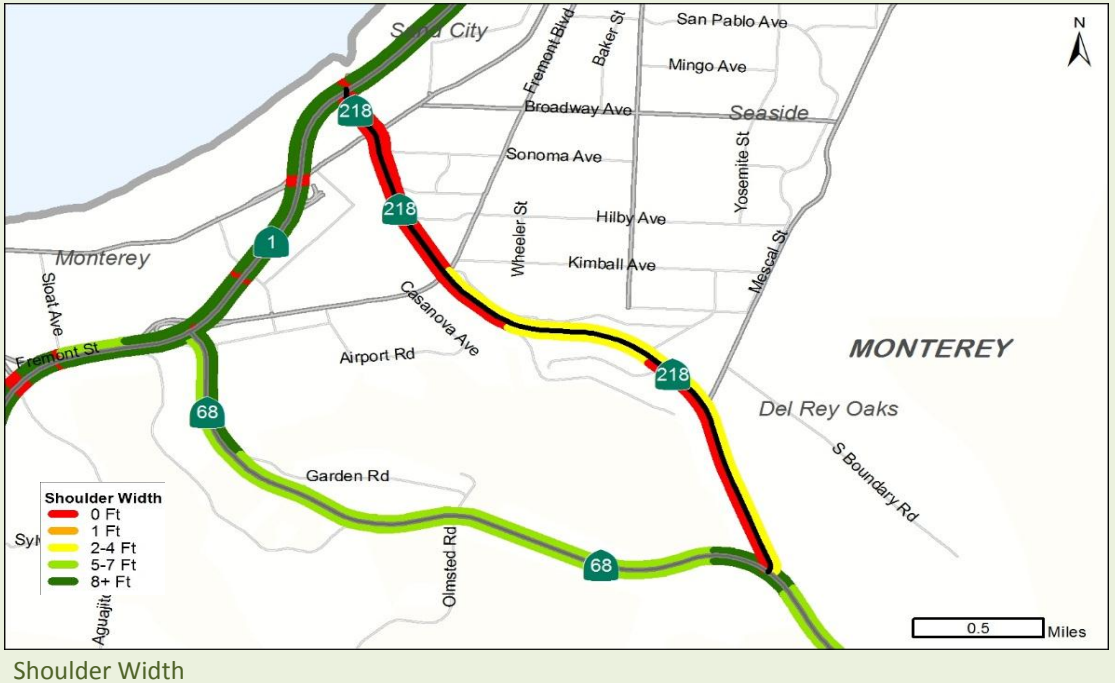
## Modal

| | |
|---|---|
| Airports Served | Monterey Regional |
| Bicycle Access | Open |
| AMTRAK Bus Stations | N/A |
| AMTRAK Rail Stations | N/A |
| AMTRAK Thruway Bus | No |
| Other Adjacent/Near Facilities | Pacific Coast Bike Trail |
| Rail/SHS Crossings | No |
| Rail Crossing Description | N/A |

## Intelligent Transportation Systems

| | |
|---|---|
| Signals/Mile | 3 |
| Other Features: N/A | |

## Land Use




Shoulder Width

# Segment 1 Planning Data: SR 218

## Freight

| | |
|---|---|
| Percent Trucks | 8% |
| Key Freight Highway | No |
| California Truck Network | California Legal |
| Annual Freight Tonnage | N/A |
| Freight VMT | 0 - 20,000 |
| Reported Freight Issues: N/A | |

## Cultural & Scenic

| | |
|---|---|
| Historic Bridges | No |
| Lighthouses | No |
| Vista Points | No |
| Parks | Work Memorial Park; Del Rey Park |
| Federal Lands | Fort Ord |
| Landmarks | Del Rey Woods Elementary |

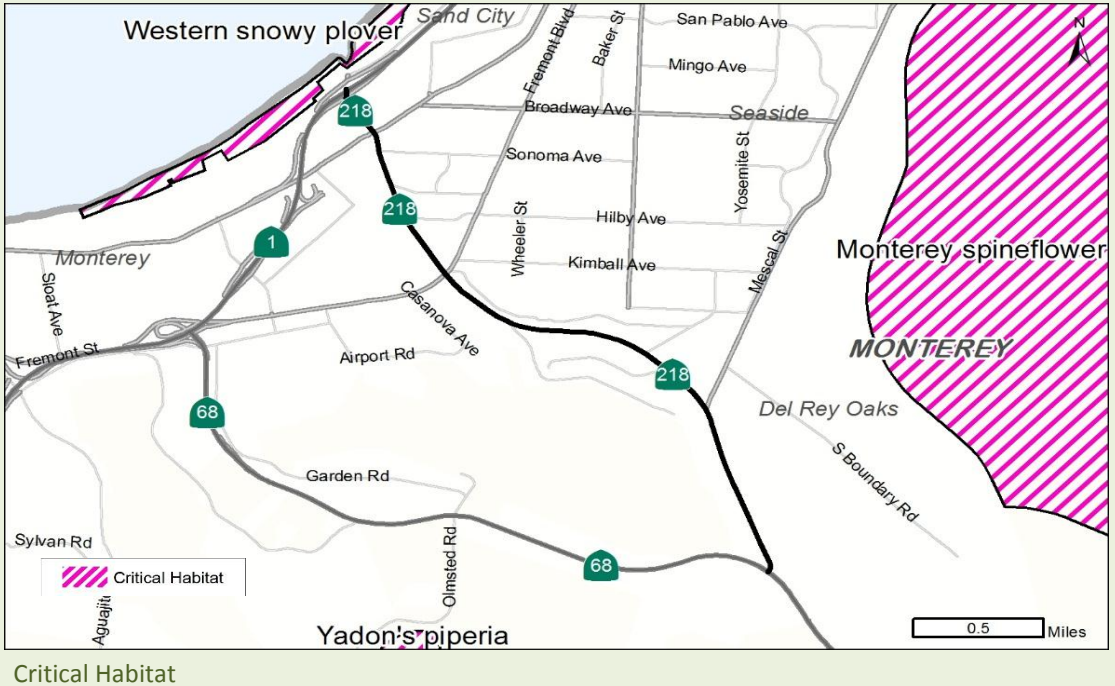
## Environmental

| | |
|---|---|
| Surrounding Vegetation | Urban-Agriculture |
| Coastal Zone | Yes |
| Water Crossing Description | San Antonio Creek |
| Flood Zone | 100/500 Year Flood Plain |
| Critical Habitat | Western Snowy Plover |

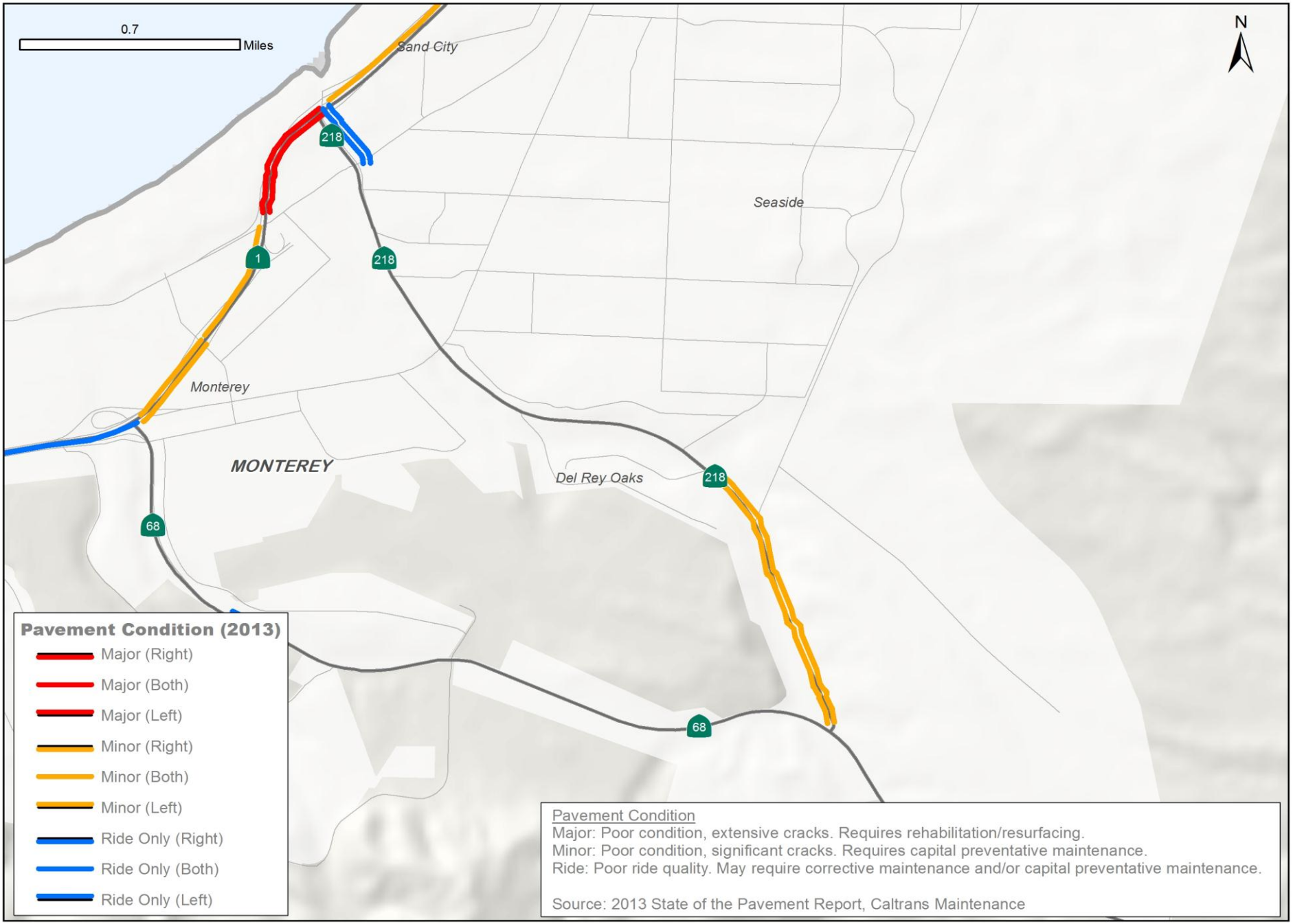
## Air Quality Standards: Monterey Bay Unified APCD

| Criteria Pollutant | State | Federal |
|---|---|---|
| Ozone | Nonattainment | Unclassified/Attain. |
| Carbon Monoxide | Unclassified/Attain. | Unclassified/Attain. |
| Nitrogen Dioxide | Attainment | Unclassified/Attain. |
| Sulfer Dioxide | Attainment | Attainment |
| Particulate Matter (10) | Nonattainment | Attainment |
| Particulate Matter (10) | Attainment | Unclassified/Attain. |
| Lead | Attainment | Unclassified/Attain. |

## Freight




Critical Habitat


0.7
Miles
N
Sand City
218
Seaside
1
218
Monterey
MONTEREY
Del Rey Oaks
218
68
68
Pavement Condition (2013)
Major (Right)
Major (Both)
Major (Left)
Minor (Right)
Minor (Both)
Minor (Left)
Ride Only (Right)
Ride Only (Both)
Ride Only (Left)
Pavement Condition
Major: Poor condition, extensive cracks. Requires rehabilitation/resurfacing.
Minor: Poor condition, significant cracks. Requires capital preventative maintenance.
Ride: Poor ride quality. May require corrective maintenance and/or capital preventative maintenance.
Source: 2013 State of the Pavement Report, Caltrans Maintenance

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | Peak Hour Based on TSN K Values | 2013 EB Lanes | 2040 EB Lanes | 2013 WB Lanes | 2040 WB Lanes | 1992 Hist. ADT Ahead | 1992 Hist. ADT Behind | 1993 Hist. ADT Ahead | 1993 Hist. ADT Behind | 1994 Hist. ADT Ahead | 1994 Hist. ADT Behind | 1995 Hist. ADT Ahead | 1995 Hist. ADT Behind | 1996 Hist. ADT Ahead | 1996 Hist. ADT Behind |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | AM | 2.0 | 2.0 | 2.0 | 2.0 | 16,000 | | 16,800 | | 16,800 | | 18,100 | | 18,100 | |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | AM | 2.0 | 2.0 | 2.0 | 2.0 | | 10,700 | | 11,200 | | 11,200 | | 12,000 | | 12,000 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | AM | 2.0 | 2.0 | 2.0 | 2.0 | 18,000 | 18,000 | 18,900 | 18,900 | 18,900 | 18,900 | 20,200 | 20,200 | 20,200 | 20,200 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | AM | 1 to 2 | 1 to 2 | 1 to 2 | 1 to 2 | 13,300 | 7,300 | 14,000 | 7,700 | 14,000 | 7,700 | 15,000 | 8,200 | 15,000 | 8,200 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 1997 Hist. ADT Ahead | 1997 Hist. ADT Behind | 1998 Hist. ADT Ahead | 1998 Hist. ADT Behind | 1999 Hist. ADT Ahead | 1999 Hist. ADT Behind | 2000 Hist. ADT Ahead | 2000 Hist. ADT Behind | 2001 Hist. ADT Ahead | 2001 Hist. ADT Behind | 2002 Hist. ADT Ahead | 2002 Hist. ADT Behind | 2003 Hist. ADT Ahead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 17,600 | | 17,600 | | 17,300 | | 17,300 | | 17,500 | | 17,500 | | 18,000 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | | 11,600 | | 11,600 | | 11,400 | | 11,400 | | 11,500 | | 11,500 | |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 19,600 | 19,600 | 19,600 | 19,600 | 19,200 | 19,200 | 19,200 | 19,200 | 19,400 | 19,400 | 19,400 | 19,400 | 20,000 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 14,500 | 8,000 | 14,500 | 8,000 | 14,200 | 7,900 | 14,200 | 7,900 | 14,400 | 8,000 | 14,400 | 8,000 | 15,000 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 2003 Hist. ADT Behind | 2004 Hist. ADT Ahead | 2004 Hist. ADT Behind | 2005 Hist. ADT Ahead | 2005 Hist. ADT Behind | 2006 Hist. ADT Ahead | 2006 Hist. ADT Behind | 2007 Hist. ADT Ahead | 2007 Hist. ADT Behind | 2008 Hist. ADT Ahead | 2008 Hist. ADT Behind | 2009 Hist. ADT Ahead | 2009 Hist. ADT Behind |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | | 19,000 | | 19,500 | | 21,000 | | 25,600 | | 25,600 | | 25,600 | |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 12,000 | | 12,500 | | 12,800 | | 13,000 | | 13,500 | | 13,500 | | |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 20,000 | 20,300 | 20,300 | 20,700 | 20,700 | 21,000 | 21,000 | 20,000 | 20,000 | 20,000 | 20,000 | | 20,000 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 8,200 | 15,100 | 8,300 | 15,400 | 8,400 | 15,500 | 8,500 | 15,300 | 13,600 | 15,300 | 13,600 | 15,300 | 13,600 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 2010 Hist. ADT Ahead | 2010 Hist. ADT Behind | 2011 Hist. ADT Ahead | 2011 Hist. ADT Behind | 2012 Hist. ADT Ahead | 2012 Hist. ADT Behind | 2013 Hist. ADT Ahead | 2013 Hist. ADT Behind | Begin Point Station | End Point Station | 2013 ADT Ahead Point | 2013 ADT Behind Point | 2013 ADT Volume | 2013 ADT Model Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 | 23,000 | 23,000 | Control | Profile | 23,000 | 23,000 | 23,000 | 17,132 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 13,100 | 12,700 | 13,100 | 12,700 | 13,100 | 12,700 | 12,500 | 12,200 | Profile | Profile | 12,500 | 12,200 | 12,350 | 7,506 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 18,800 | 18,800 | 18,800 | 18,800 | 18,800 | 18,800 | 19,100 | 19,100 | Profile | Profile | 19,100 | 19,100 | 19,100 | 5,674 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 14,400 | 12,800 | 14,400 | 12,800 | 14,400 | 12,800 | 14,600 | 13,000 | Profile | Profile | 14,600 | 13,000 | 13,800 | 7,200 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 2013 Daily Truck Volume | 2013 Daily Truck % | 2013 Daily VMT | 2013 PM Volume Ahead Point | 2013 PM Volume Behind Point | 2013 PM Volume | 2013 PM Model Volume | 2013 PM EB Volume Ahead Point | 2013 PM EB Volume Behind Point | 2013 PM EB Volume | 2013 PM WB Volume Ahead Point | 2013 PM WB Volume Behind Point | 2013 PM WB Volume | 2013 PM EB Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 1,838 | 8.0% | 5,060 | 2,200 | 2,200 | 1,792 | 1,770 | 1,003 | 1,003 | 816 | 1,197 | 1,197 | 975 | 0.456 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 987 | 8.0% | 8,299 | 1,300 | 1,250 | 962 | 761 | 713 | 686 | 528 | 587 | 564 | 434 | 0.549 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 1,527 | 8.0% | 1,948 | 2,350 | 2,350 | 1,488 | 599 | 1,250 | 1,250 | 792 | 1,100 | 1,100 | 696 | 0.532 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 1,103 | 8.0% | 25,613 | 1,700 | 1,400 | 1,075 | 763 | 725 | 597 | 459 | 975 | 803 | 616 | 0.427 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 2013 PM WB Split | 2013 PM Peak Direction | 2013 PM VMT | 2013 PM EB VMT | 2013 PM WB VMT | 2013 PM EB Adjusted Capacity | 2013 PM WB Adjusted Capacity | 2013 PM EB VC | 2013 PM WB VC | 2013 PM EB LOS | 2013 PM WB LOS | 2013 PM EB LOS # | 2013 PM WB LOS # | 2013 PM EB LOS Based Speed | 2013 PM WB LOS Based Speed | 2013 PM EB Model Based Speed | 2013 PM WB Model Based Speed | 2013 PM VHT (Model) | 2013 PM EB VHT (Model) | 2013 PM WB VHT (Model) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 0.544 | WB | 394 | 180 | 215 | 2,640 | 2,640 | 0.31 | 0.37 | A | B | 1 | 2 | 65.00 | 65.00 | 35.0 | 34.9 | 11 | 5 | 6 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 0.451 | EB | 647 | 355 | 292 | 2,784 | 2,784 | 0.19 | 0.16 | A | A | 1 | 1 | 65.00 | 65.00 | 35.0 | 35.0 | 18 | 10 | 8 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 0.468 | EB | 152 | 81 | 71 | 2,730 | 2,730 | 0.29 | 0.26 | A | A | 1 | 1 | 65.00 | 65.00 | 35.0 | 35.0 | 4 | 2 | 2 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 0.573 | WB | 1,995 | 851 | 1,144 | 1,318 | 1,318 | 0.35 | 0.47 | B | B | 2 | 2 | 65.00 | 65.00 | 25.9 | 25.5 | 78 | 33 | 45 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 2013 PM VHT (LOS) | 2013 PM EB VHT (LOS) | 2013 PM WB VHT (LOS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 6 | 3 | 3 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 10 | 5 | 4 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 2 | 1 | 1 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 31 | 13 | 18 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | PM Growth Rate | ADT Growth Rate | 2040 ADT Ahead Point | 2040 ADT Behind Point | 2040 ADT Volume | 2040 ADT Model Volume | 2040 Daily Truck Volume | HY Daily Truck % | 2040 Daily VMT | 2040 PM Volume Ahead Point | 2040 PM Volume Behind Point | 2040 PM Volume | 2040 PM Model Volume | 2040 PM EB Volume Ahead Point | 2040 PM EB Volume Behind Point | 2040 PM EB Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 15 | 155 | 27,188 | 27,188 | 27,188 | 19,949 | 2,173 | 8.0% | 5,981 | 2,684 | 2,684 | 2,186 | 2,112 | 1,478 | 1,478 | 1,204 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 2 | 70 | 14,419 | 14,073 | 14,246 | 8,563 | 1,139 | 8.0% | 9,573 | 1,355 | 1,303 | 1,003 | 786 | 425 | 408 | 314 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 13 | 103 | 21,890 | 21,890 | 21,890 | 7,999 | 1,749 | 8.0% | 2,233 | 2,885 | 2,885 | 1,827 | 768 | 1,032 | 1,032 | 654 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 4 | 75 | 16,731 | 14,897 | 15,814 | 8,424 | 1,264 | 8.0% | 29,351 | 1,862 | 1,533 | 1,177 | 845 | 983 | 809 | 621 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 2040 PM WB Volume Ahead Point | 2040 PM WB Volume Behind Point | 2040 PM WB Volume | 2040 PM EB Split | 2040 PM WB Split | 2040 PM Peak Direction | 2040 PM VMT | 2040 PM EB VMT | 2040 PM WB VMT | 2040 PM EB Adjusted Capacity | 2040 PM WB Adjusted Capacity | 2040 PM EB VC | 2040 PM WB VC | 2040 PM EB LOS | 2040 PM WB LOS | 2040 PM EB LOS # | 2040 PM WB LOS # | 2040 PM EB LOS Based Speed | 2040 PM WB LOS Based Speed | 2040 PM EB Model Based Speed | 2040 PM WB Model Based Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 1,206 | 1,206 | 982 | 0.551 | 0.449 | EB | 481 | 265 | 216 | 2,640 | 2,640 | 0.46 | 0.37 | B | B | 2 | 2 | 65.00 | 65.00 | 34.6 | 34.9 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 930 | 894 | 688 | 0.314 | 0.686 | WB | 674 | 211 | 463 | 2,784 | 2,784 | 0.11 | 0.25 | A | A | 1 | 1 | 65.00 | 65.00 | 35.0 | 35.0 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 1,853 | 1,853 | 1,173 | 0.358 | 0.642 | WB | 186 | 67 | 120 | 2,730 | 2,730 | 0.24 | 0.43 | A | B | 1 | 2 | 65.00 | 65.00 | 35.0 | 35.0 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 879 | 724 | 556 | 0.528 | 0.472 | EB | 2,185 | 1,153 | 1,032 | 1,318 | 1,318 | 0.47 | 0.42 | B | B | 2 | 2 | 65.00 | 65.00 | 25.0 | 26.1 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix B: Traffic Performance

| Segment Label | Segment | Subsegment | Begin Co | Rte | Begin PM | End Co | End PM | Seg Length | Begin Name | End Name | 2040 PM VHT (Model) | 2040 PM EB VHT (Model) | 2040 PM WB VHT (Model) | 2040 PM VHT (LOS) | 2040 PM EB VHT (LOS) | 2040 PM WB VHT (LOS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMBAG 2014 SCS Model Growth Rates and Splits | | | | | | | | | | | | | | | | |
| 1a | 1 | 11 | MON | 218 | R0.000 | MON | R0.220 | 0.220 | Sr-1 | Del Monte Avenue | 14 | 8 | 6 | 7 | 4 | 3 |
| 1b | 1 | 12 | MON | 218 | R0.220 | MON | L0.920 | 0.672 | Del Monte Avenue | Fremont Boulevard | 19 | 6 | 13 | 10 | 3 | 7 |
| 1c | 1 | 13 | MON | 218 | L0.920 | MON | 0.100 | 0.102 | Fremont Boulevard | Del Rey Oaks | 5 | 2 | 3 | 3 | 1 | 2 |
| 1d | 1 | 14 | MON | 218 | 0.100 | MON | 1.956 | 1.856 | Del Rey Oaks | Sr-68 | 86 | 46 | 40 | 34 | 18 | 16 |

**Sources:**

Base Year Peak Hour Volumes - Caltrans Traffic Data Branch and TSN

Growth Rates - AMBAG Regional Model 2014

Directional Splits - Model

# Appendix C: Historic AADT Details

| AADT | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Segment 1 | | | | | | | | | | | | | | | | | | | | | | |
| PM R0.000 Ahead<br>Sr-1 | 16,000 | 16,800 | 16,800 | 18,100 | 18,100 | 17,600 | 17,600 | 17,300 | 17,300 | 17,500 | 17,500 | 18,000 | 19,000 | 19,500 | 21,000 | 25,600 | 25,600 | 25,600 | 24,000 | 24,000 | 24,000 | 23,000 |
| PM R0.220 Ahead<br>Del Monte Avenue | | | | | | | | | | | | | | | | | | | 13,100 | 13,100 | 13,100 | 12,500 |
| PM L0.920 Ahead<br>Fremont Boulevard | 18,000 | 18,900 | 18,900 | 20,200 | 20,200 | 19,600 | 19,600 | 19,200 | 19,200 | 19,400 | 19,400 | 20,000 | 20,300 | 20,700 | 21,000 | 20,000 | 20,000 | | 18,800 | 18,800 | 18,800 | 19,100 |
| PM 0.100 Ahead<br>Del Rey Oaks | 13,300 | 14,000 | 14,000 | 15,000 | 15,000 | 14,500 | 14,500 | 14,200 | 14,200 | 14,400 | 14,400 | 15,000 | 15,100 | 15,400 | 15,500 | 15,300 | 15,300 | 15,300 | 14,400 | 14,400 | 14,400 | 14,600 |
| PM 1.956 Behind<br>Sr-68 | 7,300 | 7,700 | 7,700 | 8,200 | 8,200 | 8,000 | 8,000 | 7,900 | 7,900 | 8,000 | 8,000 | 8,200 | 8,300 | 8,400 | 8,500 | 13,600 | 13,600 | 13,600 | 12,800 | 12,800 | 12,800 | 13,000 |

**No ramps exist along SR-218**

| Filter | Segment | Ramp ID | Ramp Name | Location | Length (feet) | Speed (mph) | Lane Capacity | Lanes | Total Hourly Capacity | 2013 Daily Volume | 2013 PM Hour Volume | 2013 PM Hour V/C | 2013 Daily VMT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
| x | | | | | | | | | | | | | |
| x | | | | | | | | | | | | | |
| x | | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 2013 PM Hour VMT | 2040 Daily Volume | 2040 PM Hour Volume | 2040 PM Hour V/C | 2040 Daily VMT | 2040 PM Hour VMT |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# Traffic Data Methodology

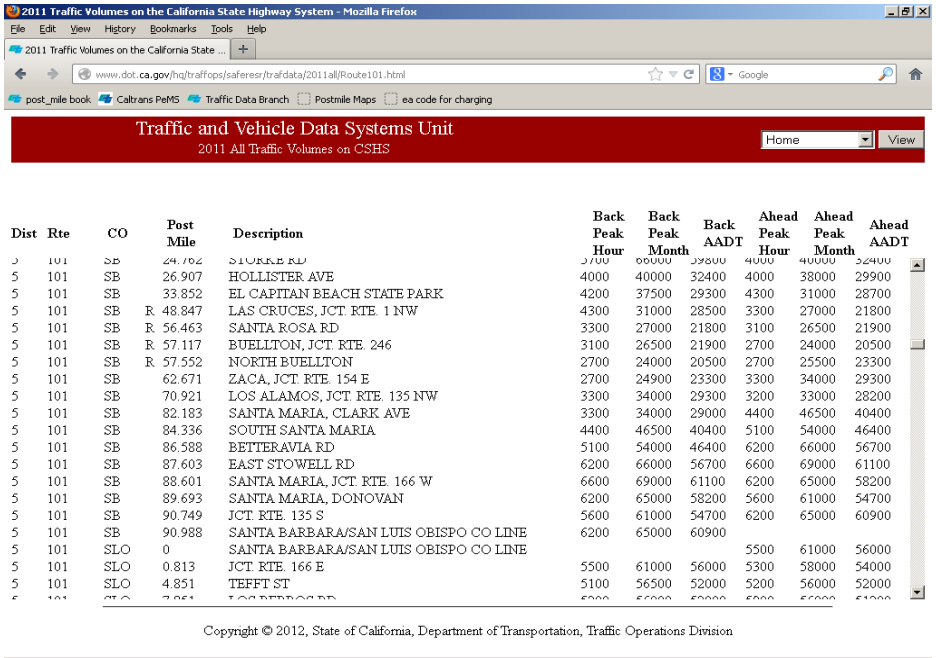
## I. Methods for Calculating Base Year Traffic Data

**Base Year AADT Volumes**

Annual Average Daily Traffic (AADT) is a measure of the average daily traffic over an entire year. The calculation includes both weekday and weekend traffic. More information regarding the methodology for calculating AADT can be found on the following website: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/

Caltrans Headquarters Traffic Branch publishes traffic for both control and profile stations. Control stations are locations where actual traffic counts are collected. Profile stations are locations where traffic volumes are inferred based on trends, patterns, and control station and ramp volumes. Figure F-1 below shows a screen shot of some of the traffic volumes that were imported from Caltrans Headquarter traffic branch. We used Back Peak Hour, Back AADT, Ahead Peak Hour, and Ahead AADT for our analysis.

Figure F-1: Screen Shot of Traffic Data by Caltrans Headquarters' Traffic Branch




| Dist | Rte | CO | Post Mile | Description | Back Peak Hour | Back Peak Month | Back AADT | Ahead Peak Hour | Ahead Peak Month | Ahead AADT |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 101 | SB | 24.762 | STORKE RD | 5700 | 66000 | 59800 | 4000 | 40000 | 32400 |
| 5 | 101 | SB | 26.907 | HOLLISTER AVE | 4000 | 40000 | 32400 | 4000 | 38000 | 29900 |
| 5 | 101 | SB | 33.852 | EL CAPITAN BEACH STATE PARK | 4200 | 37500 | 29300 | 4300 | 31000 | 28700 |
| 5 | 101 | SB | R 48.847 | LAS CRUCES, JCT. RTE. 1 NW | 4300 | 31000 | 28500 | 3300 | 27000 | 21800 |
| 5 | 101 | SB | R 56.463 | SANTA ROSA RD | 3300 | 27000 | 21800 | 3100 | 26500 | 21900 |
| 5 | 101 | SB | R 57.117 | BUELLTON, JCT. RTE. 246 | 3100 | 26500 | 21900 | 2700 | 24000 | 20500 |
| 5 | 101 | SB | R 57.552 | NORTH BUELLTON | 2700 | 24000 | 20500 | 2700 | 25500 | 23300 |
| 5 | 101 | SB | 62.671 | ZACA, JCT. RTE. 154 E | 2700 | 24900 | 23300 | 3300 | 34000 | 29300 |
| 5 | 101 | SB | 70.921 | LOS ALAMOS, JCT. RTE. 135 NW | 3300 | 34000 | 29300 | 3200 | 33000 | 28200 |
| 5 | 101 | SB | 82.183 | SANTA MARIA, CLARK AVE | 3300 | 34000 | 29000 | 4400 | 46500 | 40400 |
| 5 | 101 | SB | 84.336 | SOUTH SANTA MARIA | 4400 | 46500 | 40400 | 5100 | 54000 | 46400 |
| 5 | 101 | SB | 86.588 | BETTERAVIA RD | 5100 | 54000 | 46400 | 6200 | 66000 | 56700 |
| 5 | 101 | SB | 87.603 | EAST STOWELL RD | 6200 | 66000 | 56700 | 6600 | 69000 | 61100 |
| 5 | 101 | SB | 88.601 | SANTA MARIA, JCT. RTE. 166 W | 6600 | 69000 | 61100 | 6200 | 65000 | 58200 |
| 5 | 101 | SB | 89.693 | SANTA MARIA, DONOVAN | 6200 | 65000 | 58200 | 5600 | 61000 | 54700 |
| 5 | 101 | SB | 90.749 | JCT. RTE. 135 S | 5600 | 61000 | 54700 | 6200 | 65000 | 60900 |
| 5 | 101 | SB | 90.988 | SANTA BARBARA/SAN LUIS OBISPO CO LINE | 6200 | 65000 | 60900 | | | |
| 5 | 101 | SLO | 0 | SANTA BARBARA/SAN LUIS OBISPO CO LINE | | | | 5500 | 61000 | 56000 |
| 5 | 101 | SLO | 0.813 | JCT. RTE. 166 E | 5500 | 61000 | 56000 | 5300 | 58000 | 54000 |
| 5 | 101 | SLO | 4.851 | TEFFT ST | 5100 | 56500 | 52000 | 5200 | 56000 | 52000 |
| 5 | 101 | SLO | 7.951 | LOS PEDROS RD | 5200 | 56000 | 52000 | 5000 | 56000 | 51200 |

Back AADT and Peak Hour traffic represents traffic at a location just before (a slightly lower postmile) the count station location. Ahead AADT and Peak Hour traffic represents traffic just past the count station location (a slightly higher postmile).

**Base Year Peak Hour Volumes**

Caltrans' Traffic Data Branch publishes Design Hourly Volumes (DHV) every year. DHV is an estimate of the “peak hour” traffic at count stations along the state highway system. This value is useful to traffic engineers and planners in estimating the amount of congestion experienced. Unless otherwise indicated, DHV indicate the volume in both directions. More information about how DHV are determined is located at http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/.

K value are used to determine whether the DHV is in the AM or PM peak period. K values come from TSN and represent the proportion of AM and PM peak hour volume during a given day. For example, an AM K Value of 10% of a route that services 10,000 vehicles per day would mean that the AM peak hour comprises 10% of the daily volume, or 1,000 vehicles.

We analyze either the AM or PM peak hour for the entire route depending on whether the majority of segments' K values are higher during the AM period or PM period. For example, if a route has a majority of segments with AM hour K values greater than or equal to 10% and PM hour K values less than or equal to 8%, then the AM period would be analyzed for the entire route, even though a minority of segments may have larger volumes during the PM period. For segments whose volumes are higher during the peak hour being analyzed (the majority of segments,) we set the base year peak hour volume equal to the DHV, as published by Caltrans' Traffic Data Branch. For segments whose highest volumes fall outside the peak hour being analyzed, we calculate their base year peak hour volume by multiplying the K value for the peak hour being analyzed and the AADT.

Directional split information typically comes from the regional models. If the regional model is unavailable or determined to be less accurate, then the TSN database provided by Caltrans D5 Traffic Operations is used. The directional split % provides the directional split between northbound and southbound traffic during the time period being analyzed for the route. We apply direction splits to the 2-way peak hour volumes to get 1-way direction peak hour volumes.

**Capacities**

The regional models assign each route link an ideal capacity, and then adjust them downward based on free flow speeds, lane widths, and access point densities.

We calculate a directional capacity for each subsegment by taking an average of the model's capacities along the length of each subsegment by direction. When the subsegment's adjusted base year peak hour volume for either direction exceeds it's capacity and both directions of the subsegment have similar capacities, we  assume that the actual capacity for both directions of the sub-segment equals the higher of the two adjusted base year peak hour volumes for both directions. If both directions have significantly different capacities, we only adjust the direction where the adjusted peak hour volume exceeds capacity.

**Base Year Truck Volumes**

Daily Truck % information comes from Headquarter's Traffic Branch. More information about truck data can be found at http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/. Daily Truck % is applied to AADT to get daily truck volumes.

# II Methods for Calculating Horizon Year Traffic Data

**Forecast Tools**

The regional travel demand model was used to determine appropriate growth rates to forecast traffic volumes. When the model's growth rates are deemed inappropriate, historical trends are used.

*ALL MODELS - LAND USE*

The regional traffic models' base and future forecasts are built upon land use estimates from Regional Growth Forecasts (RGF) and Census Data. The RGF bases its forecasts from general plans. Thus, if the latest general plans do not address land use needs created by specific developments, then the increased travel demand created by these proposed developments will not show up in the regional traffic model.

When a proposed development exceeds the amount designated in a General Plan land use element, an amendment to the General Plan is required; this change is not immediately incorporated in the regional model until new future-year land use scenarios are developed for input into the regional travel model; typically during a Regional Transportation Plan (RTP) or Sustainable Community Strategy (SCS) update. For this reason, the magnitude of some future proposed large development projects may not be factored into the regional model forecast analysis.

Each regional travel demand model is made up of Traffic Analysis Zones (TAZs). The land use in each TAZ includes census demographic data as well as the land use data forecasted from the RGF. The land use data in each Traffic Analysis Zone, which could be households, employment, shopping, schools, or a combination of land uses, will generate trips, which are then distributed to and from other Traffic Analysis Zones.

Most travel demand models do not take into account induced/latent demand. Latent demand is the dormant demand for travel that is unrealized due to constraints. Induced Demand is demand that is generated because of transportation improvements.

*SBCAG*

The SBCAG travel demand model version 2013 SCS Preferred RTP is used for travel performance analysis in the Santa Barbara Region. The 2013 SCS Preferred RTP model incorporates Sustainable Community Strategies in future year scenarios and was adopted by the SBCAG Board on August 15, 2013 and accepted by the California Air Resources Board on November 21, 2013 (source: http://sbcag.org/planning/2040RTP/Calendar.html).

*SLOCOG*

This Route Data Sheet predated the adoption of the SLOCOG 2014 RTP/SCS. Caltrans used the historical volume trends (1992 - 2012) to forecast volumes in San Luis Obispo County, instead of a pre-adopted SLOCOG 2014 SCS model. Forecasts based on historical trends assume that the past performance is an indicator of the future. These historical trends do not account for: SB 375, Sustainable Communities Strategy, and future demand reduction strategies such as ridesharing, vanpools and public transit. These growth reductions, along with the aforementioned recent events, may moderate the overall results. The SLOCOG 2014 RTP/SCS will take into account recent events that deviate from this historical growth approach. SLOCOG anticipates that the preferred SCS scenarios of the regional models would reflect congestion improvements in the horizon year of this Data Sheet.

*AMBAG*

The AMBAG travel demand model is used for travel performance analysis in the Monterey, Santa Cruz and San Benito regions. This model incorporates Sustainable Community Strategies in future year scenarios. The AMBAG RTP-SCS was adopted by the AMBAG Board in June 2014.

*Caltrans Traffic Count History*

Caltrans historical traffic counts from 1992 to 2013 can be used to develop growth rates using linear regression analysis, but the regional models are usually used. Historical traffic counts are shown graphically over time and over space by segment in the Route Data Sheet. For segment and sub-segment operational performance measures that use AADT and peak hour traffic as inputs, we take the average of back and ahead volumes between count stations. These averages are used in calculating performance measures such as V/C, VMT, VHT, speed and LOS.

**Historical Growth Rate**

In San Luis Obispo County, the historical growth rate was used to project Caltrans base year counts to horizon year.

**Model Growth Rate**

Regional model growth rates were used to project base year counts to horizon year traffic volumes.

The regional model analyzes mainline volumes at a macro level, and it has not been validated or calibrated to a project level and therefore should not be used in a micro-level analysis such as calculating turning movement volumes and intersection level of service which would be included in traffic study operational analysis. The regional model is used as a basis to develop inputs for the micro level analysis.
Regional Model outputs reflect traffic patterns during a typical Tuesday thru Thursday. The regional models include AM and PM peak hour volumes. PM Peak hour volumes are typically analyzed because they are typically higher than the AM Peak period.

**Adjusted Model Growth Rate**

The future AADT and peak hour volumes are forecasted using growth rates estimated from model volumes. These model volumes, both base year and future year, are adjusted to correct for differences between base year Caltrans' counts and base year model volumes. The model uses data sets and model step assumptions, such as the household travel surveys, trip rate assumptions, mode split formulations, and travel delay functions to create a best estimate of the expected travel patterns. Therefore, although the model has been validated and calibrated, the base year model volumes will not match perfectly to Caltrans' counts.

The base year model volume is always adjusted to match the base year count. The future year model volumes can be adjusted using one of three model volume adjustment methods described in NCHRP Report 255. The ratio and difference methods are defined by equations (1) and (2), while the average method is applied by taking the average result of the ratio and difference methods.

(1) Ratio Method = [Future Year Model Volume] x ([Base Year Count] / [Base Year Model Volume])

(2) Difference Method = [Future Year Model Volume] + [Base Year Count - Base Year Model Volume])

Although NCHRP 255 defines the adjustment methods, it does not provide guidance on the most appropriate method to use in any particular case. In some situations, certain adjustment methods may produce unreasonable results. For example, unreasonable results can occur when the difference between the base year count and model volume is relatively small yet the count to model volume ratio is large. In a high growth area where the forecasted traffic volume is large, applying a large NCHRP adjustment ratio would not be appropriate. Likewise, if the difference between the base year count and model volume is relatively large, the adjusted future year model volume may be negative, which would not be reasonable.

To avoid unreasonable results in traffic forecasts, we use a series of rules to determine the most appropriate adjustment methodology. These rules, defined in the table below, are applied individually for each sub-segment volume. In most cases, the process results in use of the average method.

| If **Growth Factor** (Largest Future Year Model Volume / Base Year Model Volume) or **Error Factor** (Base Year Count / Base Year Model Volume) | Use Method | If Adjustment Results in Negative Flow, Use: |
|---|---|---|
| Growth Factor > 4 | Difference | Unadjusted Future Year Model Volume |
| Error Factor < 1/3 or Error Factor > 3 | Difference | Unadjusted Future Year Model Volume |
| All Other | Average | Ratio |

After the base and future model AADT volumes are adjusted, the adjusted AADT growth rate is calculated by dividing the difference between the adjusted base and adjusted future model AADT volumes by the difference between the base and horizon years. The adjusted AADT growth rate is used to forecast the horizon year AADT volumes.

## III. Methods for Calculating Mainline Performance Measures

**Volume/Capacity**

The base year and horizon year V/C ratios are calculated by dividing the adjusted base year and horizon year directional volumes by their respective directional capacities.

The data used in the evaluation of traffic volumes and capacities are typical values based on averages over time and represented in traffic forecasting tools. As such, the conditions indicated in the evaluation may not always reflect the experiences of travelers at any particular place at any specific time. For example, localized capacity restrictions (e.g. bottlenecks at a given interchange) are not well represented in regional traffic models. In addition, incidents on the road such as accidents and vehicle breakdowns (non-recurring congestion) are not represented in regional traffic models. The result of these limitations of the methodology and data used in this analysis is that many times the volume to capacity ratio or average speed shown in the evaluation may be more optimistic than what would actually be experienced on the roadway under the forecasted conditions.

**LOS**

When LOS is used, the base year and horizon year LOS is based on HCM 2000 methodology. The following ranges relate LOS to V/C for rural freeway subsegments: V/C<0.74 is LOS ‘A’ to 'C', 0.74<=V/C<0.9 is LOS ‘D’, 0.9<=V/C<1.0 is LOS ‘E’, and V/C >=1.0 is LOS ‘F’. The following ranges relate LOS to V/C for urban freeway subsegments: V/C<0.71 is LOS ‘A’ to 'C', 0.71<=V/C<0.89 is LOS ‘D’, 0.9<=V/C<1.0 is LOS ‘E’, and V/C >=1.0 is LOS ‘F’.

**Performance Table**

LOS, V/C, and other performance measures by segment are presented in the main body of the Route Data Sheet. Performance measures are further broken down by sub-segment for each MPO and presented in the Route Data Sheet Appendix B, where each row of the table represents a sub-segment, where the first column shows a number representing the segment next to a letter representing the sub-segment. For example, '2c' represents the third sub-segment of segment 2.

Speeds are calculated using either the V/C and speed relationship shown in HCM 2000 Exhibit 23-2 below or obtained directly from the regional model. For LOS F, speeds are considered chaotic and difficult to ascertain. Likewise, for subsegments with LOS F, VHT is difficult to ascertain.

Exhibit 23-2: HCM 2000 LOS Criteria for Basic Freeway Segments

| Free Flow Speed = 70 mph (Assume this speed for rural sections of SR-101) | | | | | | |
|---|---|---|---|---|---|---|
| Level of Service (LOS) | A | B | C | D | E | F |
| Speed (mph) | 70 | 70 | 68.7 | 61.5 | 53.3 | Unstable |
| V/C | <0.32 | <0.53 | <0.74 | <0.90 | <1.00 | >=1 |
| Free Flow Speed = 65 mph (Assume this speed for urban sections of SR-101) | | | | | | |
| Level of Service (LOS) | A | B | C | D | E | F |
| Speed (mph) | 65 | 65 | 64.6 | 59.7 | 52.2 | Unstable |
| V/C | <0.30 | <0.50 | <0.71 | <0.89 | <1.00 | >=1 |

**VMT**
Daily VMT is the directional AADT multiplied by the subsegment's distance. Peak Hour VMT is the directional peak hour volumes multiplied by the subsegment's distance.

**VHT**
Directional VHT is the directional peak hour volume multiplied by the subsegment's distance and then divided by the directional peak hour speed. Subsegment VHT (2 way) is the combination of both directional VHTs.

## IV. Methods for Calculating Ramp Performance Measures

Daily ramp counts are obtained from Caltrans Headquarters Traffic Operations Branch. Counts are typically collected once every three years. We estimate daily volumes for all years by taking a ratio of the most recent ramp daily count to the adjusted mainline directional volume for that same year, and then apply that ratio to the adjusted mainline directional volume for base year and horizon year.

We estimate peak hour volumes for ramps by assuming the ratio of the ramp peak hour volume to daily volume is the same as the mainline ratio of peak hour volume to daily volume. We apply the mainline ratio to the ramp daily volumes for both base year and horizon year.

Ramp data is shown in Appendix of the Route Data Sheet.

100-YEAR FLOOD – Areas of 1-percent-annual-chance flooding. Source: FEMA Digital Flood Insurance Rate Map, 2010. www.fema.gov/msc

500-YEAR FLOOD – Areas of 0.2-percent-annual-chance-flooding. Source: FEMA Digital Flood Insurance Rate Map, 2010. www.fema.gov/msc

AIR QUALITY STANDARDS – Designations in relation to the California standards and National standards Source: California Air Resource Board (ARB), 2013. www.arb.ca.gov/desig/desig.htm

AM/PM PEAK – The part of day when most traffic congestion occurs. Source: Caltrans Historical Counts.

ANNUAL AVERAGE DAILY TRAFFIC (AADT) – Total volume of vehicle traffic for a year divided by 365 days. Source: Caltrans Traffic Operations, 2012. http://traffic-counts.dot.ca.gov/

ANNUAL FREIGHT TONNAGE – Tons per year. Source: Freight Analysis Framework, 2007. www.ops.fhwa.dot.gov/freight/freight_analysis/faf/

ATTAINMENT – Air quality in the area meets the standard. Source: California ARB, 2013. www.arb.ca.gov/desig/desig.htm

ATTAINMENT/UNCLASSIFIED – An Environmental Protection Agency (EPA) designation which, in terms of planning implications, is essentially the same as Attainment. Source: California ARB, 2013. www.arb.ca.gov/desig/desig.htm

BASE YEAR – The initial year of the forecast period. Source: Caltrans Historical Counts.

FREEWAY/EXPRESSWAY SYTEM – Concept of how the route is managed as defined in the Streets and Highways Code §250-257. Source: Caltrans, 2014. www.leginfo.ca.gov/.html/shc_table_of_contents.html

FREIGHT VMT – Truck Vehicle Miles Traveled. Source: Freight Analysis Framework, 2007. www.ops.fhwa.dot.gov/freight/freight_analysis/faf/

FUNCTIONAL CLASSIFICATION – System by which roads are grouped according to the type of service and amount of traffic the facility carries. Used to determine design standards of roads and determines Federal Aid funding eligibility. Source: FHWA, 2012. http://dot.ca.gov/hq/tsip/hseb/func_clas.html

GROWTH RATE – The forecasted change in vehicles per year from the base year to the horizon year. Source: AMBAG Regional Model 2014.

HIGH EMPHASIS ROUTE – Route with high interregional importance. Source: Caltrans Interregional Transportation Strategic Plan, 2013. www.dot.ca.gov/hq/tpp/offices/oasp/itsp.html

HORIZON YEAR – 2040 - The future forecast year used in the long range model. Source: AMBAG Regional Model 2014.

INTERREGIONAL ROAD SYSTEM – Subset of State Highway System that provides connectivity among all California's regions. Source: Caltrans Interregional Transportation Strategic Plan, 2013. www.dot.ca.gov/hq/tpp/offices/oasp/itsp.html

CALIFORNIA LEGAL – Trucks up to 65 feet are allowed on the SHS except where otherwise prohibited. Source: Caltrans Traffic Operations, 2013. www.dot.ca.gov/hq/traffops/engineering/trucks/

CALIFORNIA TRUCK NETWORK – California Vehicle Code sections related to trucks, summarized here at the planning level only. Note: Caltrans is not responsible for authorizing commercial trucks, other than issuing permits for oversize or overweight loads. Source: Caltrans Traffic Operations, 2013. www.dot.ca.gov/hq/traffops/engineering/trucks/

CRITICAL HABITAT – Critical habitat for threatened and endangered species . Source: US Fish and Wildlife Service, 2014. www.fws.gov/gis/data/national/index.html

DISTRICT KEY FREIGHT HIGHWAY FACILITY – Route key to freight operations. Source: California Central Coast Commercial Flows Study, 2012. www.dot.ca.gov/dist05/planning/goods_movement.htm

FACILITY TYPE – Description of existing operations. Source: Caltrans TSN, 2011.

FLOOD ZONE – Special flood hazard areas. Source: FEMA Digital Flood Insurance Rate Map, 2010. www.fema.gov/msc

FOCUS ROUTE – Highest priority routes for completion to minimum facility concept standardsSource: Caltrans Interregional Transportation Strategic Plan, 2013. www.dot.ca.gov/hq/tpp/offices/oasp/itsp.html

MAJOR (PAVEMENT CONDITION) – Poor condition, extensive cracks. Requires rehabilitation/resurfacing Source: Caltrans Pavement Condition Survey, 2013. http://dot.ca.gov/hq/maint/Pavement/Offices/Pavement_Management/index.html

MINOR (PAVEMENT CONDITION) – Poor condition, significant cracks. Requires capital preventative maintenance. Source: Caltrans Pavement Condition Survey, 2013. http://dot.ca.gov/hq/maint/Pavement/Offices/Pavement_Management/index.html

NATIONAL HIGHWAY SYSTEM – The national system designated by Congress that includes the Interstate Highway System and other nationally significant highways and thoroughfares used for interstate and interregional travel, national defense, intermodal connection, and interstate commerce. Source: Caltrans Highway System Engineering, 2013. http://dot.ca.gov/hq/tsip/hseb/map21nhs.html

NATIONAL NETWORK – Allows for conventional tractor/semitrailer combinations. Source: Caltrans Traffic Operations, 2013. www.dot.ca.gov/hq/traffops/engineering/trucks/

NONATTAINMENT – Air quality in the area fails to the applicable standard. Source: California ARB, 2013. www.arb.ca.gov/desig/desig.htm

PAVEMENT CONDITION – Measurement of surface characteristics including roughness, cracking, and faulting (Caltrans, 2013). Source: Caltrans Pavement Condition Survey, 2013. http://dot.ca.gov/hq/maint/Pavement/Offices/Pavement_Management/index.html

PEAK HOUR DIRECTIONAL SPLIT – The percent of traffic volume in the predominant direction of flow as determined from the regional travel model. Source: AMBAG Regional Model 2014.

PEAK HOUR TRAFFIC VOLUME – Represents an estimate of the heaviest traffic flow during the peak hour. Source: Caltrans Traffic Operations, 2012. http://traffic-counts.dot.ca.gov/

PERCENT TRUCKS – Rounded percentage of truck counts. Source: Caltrans Traffic Operations, 2012. http://traffic-counts.dot.ca.gov/

PREVALENT LAND USE – California County and local government existing land use designations. Source: UC Davis Information Center for the Environment, 2007. http://ice.ucdavis.edu/projects/land_use

RAIL/SHS CROSSINGS – At-grade crossings. Source: National Transportation Atlas Database, 2011. http://www.rita.dot.gov/bts/

RIDE (PAVEMENT CONDITION) – Poor ride quality. May require corrective maintenance and/or capital preventative maintenance. Source: Caltrans Pavement Condition Survey, 2013. http://dot.ca.gov/hq/maint/Pavement/Offices/Pavement_Management/index.html

RURAL – Areas outside urban land uses. Source: US Census, 2000). http://www.census.gov/

SCENIC HIGHWAY PROGRAM – Program to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. Source Caltrans Landscape Architecture, 2014. http://www.dot.ca.gov/hq/LandArch/scenic_highways/scenic_hwy.htm

SERVICE ACCESS – National Network trucks may travel up to one mile from the off ramp to obtain services . Source: Caltrans Traffic Operations, 2013. www.dot.ca.gov/hq/traffops/engineering/trucks/

SURROUNDING VEGETATION – Land cover dataset. Source: US Forest Service & California Department of Forestry and Fire Protection, 1979. http://frap.fire.ca.gov/data/frapgisdata-land_cover.php

TERMINAL ACCESS – National Network trucks may exit and travel on these SHS routes Source: Caltrans Traffic Operations, 2013. www.dot.ca.gov/hq/traffops/engineering/trucks/

UNCLASSIFIED – Insufficient data to designate area, or designations have not been made Source: California ARB, 2013. www.arb.ca.gov/desig/desig.htm

URBAN - Represent densely developed territory and encompass residential, commercial, and other non-residential urban land uses. Source: US Census, 2000. http://www.census.gov/

VEHICLE HOURS OF TRAVEL (VHT) – A statistic representing the total number of vehicles multiplied by the total number of hours vehicles are traveling.

VEHICLE MILES TRAVELED (VMT) – Number of miles vehicles travel. Can be calculated for the peak hour and/or the entire day.

VOLUME TO CAPACITY RATIO (V/C) – The ratio of demand volume to capacity.