Oak Springs Protect # 2013104463 Development

Supplemental Report for November 2013 Transportation Impact Analysis

Thurston County, WA

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OCT 18 2016

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September 2016







TABLE OF CONTENTS

| LIST OF FIGURES | ii |
|---|----------------------|
| LIST OF TABLES | |
| CHAPTER 1: INTRODUCTION AND SUMMARY Existing Intersection Operations Project Traffic Impact | 1 3 3 |
| Site Plan Project Mitigation Summary | 4 4 |
| CHAPTER 2: EXISTING CONDITIONS Study Area Roadway Network Existing Traffic Volumes and Operations | 6 6 |
| CHAPTER 3: IMPACTS 1 Trip Distribution 1 Future Traffic Volumes 1 Intersection Operations 1 | 0 .0 .0 |
| CHAPTER 4: PROJECT MITIGATION | 7 |
| Appendix19 APPENDIX | 9 |



LIST OF FIGURES

| Figure 1: Study Area | 2 |
|---|----|
| Figure 2: Existing Traffic Volumes | 8 |
| Figure 3:Trip Distribution and Additional Volumes | 11 |
| Figure 4: Pipeline Volumes | 12 |
| Figure 5: 2020 Baseline | 13 |
| Figure 6: 2020 Baseline Volumes With Oak Springs | 14 |
| Figure 7: 2022 With Full Development | 15 |

LIST OF TABLES

| 1 |
|-----|
| 3 |
| 4 |
| 5 |
| 6 |
| 9 |
| .16 |
| .18 |
| |



CHAPTER 1: INTRODUCTION AND SUMMARY

This supplemental report is an update to a 2013 transportation impact analysis that was submitted for the Oak Springs development site in unincorporated Thurston County, Washington. The prior traffic impact study, prepared by Heath & Associates Inc. presented an assessment of the existing roadway conditions and future forecasts of newly generated project traffic. Since that study was submitted to Thurston County, another major development, Oak Tree Preserve, was reviewed and approved by the County.

The purpose of this study is to update the 2013 traffic analysis to include all phases of the approved Oak Tree Preserve and other subsequent approvals made by either the County or the City of Lacey. The Oak Springs project site proposal is unchanged from the 2013 submittal. As appropriate, new transportation mitigation measures are recommended to address the higher level of future background growth addressed in this update. Information regarding the general roadway information, road improvement information, sight distance data is referenced herein, based on the previous Heath & Associates Oaks Springs study.

The study area is shown in Figure 1, including the five study intersections, where traffic operations are analyzed:

- Pacific Avenue SE / Marvin Road SE
- Pacific Avenue SE / Union Mills Road SE
- 19th Avenue SE / Marvin Road SE
- Woodgrove Street SE / Marvin Road SE
- Union Mills Road SE / Marvin Road SE

This chapter provides an introduction to the project and the steps taken to analyze the associated impacts on the transportation network. It highlights important elements of the remaining chapters, including a description of the project site and a summary of the project site evaluation. Table 1 lists important characteristics of the study area and the proposed project.

| Characteristics | Information |
|---|---|
| Study Area | |
| Number of Study Intersections | Five |
| Analysis Period | Weekday PM peak hour (one hour between 4pm and 6pm) |
| | |
| Project Development | |
| Size and Land Use | Single family housing (89 new units) |
| Proposed Vehicle Trips (In Addition to Existing Traffic) | 98 vehicles (PM peak hour) |
| Vehicle Access Points | Woodgrove Street SE |

Table 1: Key Study Area and Proposed Project Characteristics





Existing Intersection Operations

Existing traffic operations at the study intersections were analyzed for the PM peak hour based on 2010 Highway Capacity Manual methodology¹. The estimated level-of-service (LOS) and delay for each study intersection is shown in Table 2. As shown, all study intersections currently meet Thurston County operating standards during the peak hours analyzed.

| Intersection | Intersection | Operating | Existing PM Peak | | | |
|--|---|-----------|------------------|-------|--|--|
| | Control | Standard | LOS | Delay | | |
| Pacific Avenue SE/Union Mills SE | Signalized | D | В | 10.1 | | |
| Marvin Road SE/Pacific Avenue SE | Roundabout | D | С | 16.2 | | |
| Marvin Road SE/Union Mills Road SE | Side-street Stop | D | С | 20.8 | | |
| Marvin Road SE/19 th Avenue SE | Side-street Stop | D | В | 14.7 | | |
| Marvin Road SE/Woodgrove Street SE | Side-street Stop | D | В | 13.5 | | |
| <u>Signalized/Roundabout:</u> LOS = Level of Service of Intersection Delay= Average delay for all Vehicles | <u>Two-Way or All-Way Stop Controlle</u> LOS = Level of Service of movement with greatest dela | | | | | |

| Table 2: | Existing | 2016 | Study | Intersection | Operations | (PM Peak Hour) |
|----------|----------|------|-------|--------------|------------|----------------|
|----------|----------|------|-------|--------------|------------|----------------|

Source: DKS Associates

Project Traffic Impact

Consistent with Thurston County Code section 17.10², a transportation concurrency evaluation is required for a development that generates 25 or more vehicle trips in the PM peak hour. If LOS at transportation facilities falls below adopted standards, mitigation is necessary for a development to meet concurrency. Thurston County adopted LOS standards are LOS E along high density corridors, and LOS D along other urban roads. For those County intersections evaluated in this traffic study that fall below adopted LOS standards, improvements have been identified to mitigate transportation impacts.

Project traffic impacts were evaluated at the study intersections for the weekday PM peak hour during the 2016 project build year. Additional traffic was added to the existing roadway network based on trip generation estimates, trip distribution assumptions associated with the additional 89 housing units and pipeline trips (assumptions are documented in Chapter 3). As shown in Table 3, most of the study intersections did not meet the operation standards for the P peak hours in the future with additional traffic loadings associated with background growth and the proposed project.

¹ 2010 Highway Capacity Manual, Transportation Research Board, Washington DC, 2010.

² Oak Springs-Traffic Impact Analysis report, Heath & Associates, Inc.



| Intersection | Intersection Operating Peak (Control Standard (Baseline) Standard | | 2020 P (with Spri | 2020 PM Peak (with Oak Springs) | | 2022 PM Peak (Full Development) | | |
|---|---|---|-------------------------|---------------------------------------|-----|---------------------------------------|-----|-------|
| | | | LOS | Delay | LOS | Delay | LOS | Delay |
| Pacific Avenue SE/ Union Mills SE | Signalized | D | В | 12.0 | В | 18.2 | с | 20.1 |
| Marvin Road SE/ Pacific Avenue SE | Round- about | D | F | 65.1 | F | 67.6 | F | 78.8 |
| Marvin Road SE/ Union Mills Road SE | Two-Way Stop | D | F | >120 | F | >120 | F | >120 |
| Marvin Road SE/ 19 th Avenue SE | Two-Way Stop | D | F | >120 | F | >120 | F | >120 |
| Marvin Road SE/ Woodgrove Street SE | Two-Way Stop | D | С | 18.4 | С | 21.1 | С | 22.7 |
| Signalized/Roundabout: Two-Way or All-Way Stop Controlled: LOS = Level of Service of Intersection LOS = Level of Service of movement with greatest delay Delay= Average delay for all Vehicles LOS = Level of Service of movement with greatest delay | | | | | | | | |

| Table 3: Future Intersection Operations (PM Peak | Hour) |
|--|-------|
|--|-------|

Source: DKS Associates

Site Plan

The site plan provided by the project sponsor was reviewed to evaluate site access, intersection sight distance, pedestrian and bicycle access. The evaluation of these issues includes the identification of associated on-site project modifications or improvements, which are explained in detail in Chapter 3 of this report and summarized in the "Project Mitigation Summary" section below.

Project Mitigation Summary

Three intersections fail to meet mobility standards under 2020 baseline PM peak conditions, and perform slightly worse with the Oak Springs development and two additional years of background growth. The three intersections and recommended mitigations strategies are as follows:

- **Marvin Road SE/Pacific Avenue SE.** The eastbound and southbound approaches at this roundabout fail under 2020 Baseline PM conditions, which include background traffic growth and trips from nearby development projects such as Oak Tree Preserve. WSDOT currently has no plans for adding capacity to this two-lane roundabout. Should WSDOT identify a need for additional capacity, mitigation could include a proportionate share contribution based on Oak Springs development trips.
- **Marvin Road SE/Union Mills Road SE**. High delay for the stop-controlled eastbound approach is due to infrequent gaps in the heavy southbound traffic as well as conflicting northbound left turns. This deficiency occurs under 2020 Baseline PM Conditions, prior to addition of Oak



Springs trips. This intersection is identified for mitigation in the Oak Tree Preserve TIA, with access control that will prohibit eastbound left turns, which have the highest delays. To accommodate vehicles needing to make this movement, improvements at the Marvin Road SE/19th Avenue SE intersection are needed in order to enable u-turns.

• **Marvin Road SE/19th Avenue SE.** High delay for the stop-controlled eastbound and westbound approaches is due to infrequent gaps in the heavy southbound traffic on Marvin Road SE. This deficiency occurs under 2020 Baseline PM conditions, prior to addition of Oak Springs trips. New intersection control (signal or roundabout) is a required mitigation for the Oak Tree Preserve development. The Oak Springs development may be conditioned to contribute to this mitigation in proportion to the relative number of trips it is adding to the intersection. Under 2020 PM conditions, this proportion is 52 new trips out of a total of 1,003 new trips, or about 5% of the traffic volume growth at the intersection. The Marvin Road SE/19th Avenue SE intersection was analyzed as a signalized intersection in order to test the identified mitigation under 2020 and 2022 PM peak hour conditions. Results are shown in Table 4.

| Intersection | Intersection | Operating | 2020 P (with Oak | M Peak Springs) | 2022 PM Peak (Full Development) | | |
|---|----------------------------------|---------------------------------------|---------------------|--------------------|------------------------------------|-------|--|
| | Control | Stanuaru | LOS | LOS Delay | | Delay | |
| Marvin Road SE/ 19 th Avenue SE | Signalized | D | С | C 31.8 | | 35.0 | |
| <u>Signalized:</u> LOS = Level of So Delay= Average o | or All-Way Sto ovement with g | <u>p Controlled:</u> reatest delay | | | | | |

Table 4: Future Mitigated Intersection Operations

Source: DKS Associates

With a new signal, the intersection operated acceptably under both 2020 and 2022 PM peak conditions with the Oak Springs development traffic.



CHAPTER 2: EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including study area roadway network, and existing traffic volumes and intersection operations. Supporting details are provided in the Appendix.

Study Area Roadway Network

Roadway serving the proposed site consists of multi-lane arterials and two–lane collector roads which vary in width, terrain, and posted speeds. As indicated by their specific arterial designations, these roadways also vary in their overall function as part of the general network. Key roadways in the study area are summarized in Table 5 along with their existing characteristics.

| Roadway | Functional Classification | Number of Lanes | Posted Speed |
|----------------------------|---------------------------|--------------------|-----------------|
| Woodgrove Street | Local Road | 2 | 25 mph |
| 19 th Avenue SE | Collector | 2 | 25 mph |
| Marvin Road SE | Major Arterial | 4 | 35 mph |
| Union Mills Road SE | Minor Arterial | 2 | 35 mph |
| Pacific Avenue SE | Urban Collector | 2 | 45 mph |

Table 5: Study Area Roadway Characteristics

Source: DKS Associates

Existing Traffic Volumes and Operations

Existing PM peak hour traffic operations were analyzed at the following study intersections:

- Pacific Avenue SE / Marvin Road SE
- 19th Avenue SE / Marvin Road SE
- Woodgrove Street SE / Marvin Road SE
- Union Mills Road SE / Marvin Road SE
- Pacific Avenue SE / Union Mills Road SE

To perform the intersection analysis, traffic counts were collected during the PM (4:00 to 6:00) peak periods on Thursday March 3, 2016. The peak hour traffic volumes analyzed under existing conditions are shown in Figure 2, with the detailed traffic counts included in the Appendix.

The purpose of intersection analysis is to ensure that the transportation network remains within desired performance levels as required by County mobility targets. Intersections are the focus of the analysis because they are the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinity.

Before the analysis results of the study intersections are presented, discussion is provided for two important analysis topics: intersection performance measures (definitions of typical measures) and required operating standards (as specified by the agency with roadway jurisdiction).



Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (V/C) ratios are two commonly used performance measures that provide a good indication of intersection performance. In addition, they are often incorporated into agency mobility standards.

- Level of service (LOS): A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection³. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.
- Volume-to-capacity (V/C) ratio: A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection, approach, or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

³ A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.





Required Operating Standards

Thurston County has a mobility target of LOS D for urban roads and LOS E for high density corridor⁴.

Existing Operating Conditions

Existing traffic operations at the study intersections were analyzed for the PM peak hour based on the 2010 Highway Capacity Manual methodology for signalized and unsignalized intersections⁵. Results were compared with the County's minimum acceptable LOS mobility target as shown in Table 6. All existing study intersections currently meet operating standards during the PM peak period analyzed.

| Intersection | Intersection | Operating | Existing PM Peak | | | |
|---|--|-----------|---------------------|-------|--|--|
| | Control | Standard | LOS | Delay | | |
| Pacific Avenue/Union Mills | Signalized | D | В | 10.1 | | |
| Marvin Road/Pacific Avenue | Roundabout | D | С | 16.2 | | |
| Marvin Road/Union Mills | Side-street Stop | D | С | 20.8 | | |
| Marvin Road/19 th Avenue | Stop | D | В | 14.7 | | |
| Marvin Road/Woodgrove | Stop | D | В | 13.5 | | |
| <u>Signalized:</u> LOS = Level of Service of Intersection Delay= Average delay for all Vehicles | <u>Two-Way or All-Way Stop Controllec</u> LOS = Level of Service of movement with greatest dela | | | | | |

Table 6: Existing Study Intersection Operations (PM Peak Hour)

Source: DKS Associates

⁴ Thurston County Road Standards

⁵ 2010 Highway Capacity Manual, Transportation Research Board, Washington DC, 2010



CHAPTER 3: IMPACTS

This chapter reviews the impacts that the Oak Springs project would have on the study area transportation system. This analysis includes future operating conditions with the proposed project. The focus of the impact analysis is on the study intersections, which have been previously documented.

Trip Distribution

Trip distribution provides an estimation of where the additional project trips would be coming from and going to. It is given as percentages at key gateways to the study area and is used to route project trips through the study area intersections. Trip distribution for the additional traffic generated by the proposed project was based on information provided by the City of Lacey for Thurston Regional Planning Council (TRPC) Zone 76 and extended to the study area based on location of anticipated trip origins and destinations. The trip distribution percentages and resulting project traffic volumes are shown in Figure 3.

Future Traffic Volumes

This section summarizes the peak hour transportation operating conditions for the development buildout year of 2020 and 2022. Future traffic operating conditions were analyzed at the study intersections to determine if the transportation network can support traffic generated by the proposed Oak Springs project, in addition to background traffic and traffic from other developments. If intersection mobility standards are not met, then mitigations may be necessary to improve network performance.

Future weekday PM peak hour traffic volumes without the proposed Oak Tree Preserve residential project were estimated for buildout year 2020 conditions. Future traffic volumes at the study intersections were developed by (1) applying background annual growth rates to existing PM peak hour traffic counts, and (2) adding traffic from approved pipeline project developments.

For this study, base and future year TRPC model plots were used to estimate growth rates at study intersections approaches. For the key segments of Marvin Road SE, the growth rates varied between 1.7% and 3.3% for northbound volume, and between 3.0% and 4.6% for southbound volumes. The previous Oak Springs study used a 2.7% annual growth rate for all volumes. Future pipeline project traffic volumes were provided by the city for all five study intersections, and are shown in Figure 4. The weekday PM peak hour traffic volumes for year 2020 without the project are shown in Figure 5.

Adding the project-generated PM peak hour trips to the future PM peak hour volumes with background and pipeline growth results in the 2020 With Project traffic volumes shown in Figure 6. Traffic volumes with an additional two years of background growth, to 2022, are shown in Figure 7.













Intersection Operations

Operations were analyzed at the five intersections for three scenarios:

- 2020 PM Peak Hour Baseline (volumes shown in Figure 5)
- 2020 PM Peak Hour with Oak Springs Development (volumes shown in Figure 6)
- 2022 PM Peak Hour with Oak Springs Development (volumes shown in Figure 7)

The study intersection operating conditions, including level of service and delay, are shown in Table 7.

| Intersection | Intersection Control | Operating Standard | 2020 PM Peak (Baseline) | | 2020 P (with Spri | M Peak Oak ngs) | 2022 PM Peak (Full Development) | | 2022 PM (Full De Mitigat | /l Peak v. With tions) |
|---|-------------------------|-----------------------|-------------------------------|-------|-------------------------|-----------------------|---------------------------------------|-------|--------------------------------|------------------------------|
| | | | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay |
| Pacific Avenue SE/ Union Mills SE | Signalized | D | В | 12.0 | В | 18.2 | С | 20.1 | No ch | ange |
| Marvin Road SE/ Pacific Avenue SE | Round- about | D | F | 65.1 | F | 67.6 | F | 78.8 | No change | |
| Marvin Road SE/ Union Mills Road SE | Two-Way Stop | D | F | >120 | F | >120 | F | >120 | No change | |
| Marvin Road SE/ 19 th Avenue SE | Two-Way Stop | D | F | >120 | F | >120 | F | >120 | D | 35.0 |
| Marvin Road SE/ Woodgrove Street SE | Two-Way Stop | D | С | 18.4 | С | 21.1 | С | 22.7 | No change | |
| Signalized: Two-Way or All-Way Stop Controlled: LOS = Level of Service of Intersection LOS = Level of Service of movement with greatest delay | | | | | | | | | | |

Table 7: Future Intersection Operations

Source: DKS Associates

Delay= Average delay for all Vehicles

2020 Baseline conditions include background traffic growth and pipeline developments, including Oak Tree Preserve. Analysis shows that with these baseline conditions and without the Oak Springs development trips, three intersections fail to meet the LOS D operating standard in the PM peak hour: Marvin Road SE/Pacific Avenue SE, Marvin Road SE/Union Mills SE, and Marvin Road SE/19th Avenue SE.

The Oak Springs development adds a relatively low number of trips to the study intersections compared to the 2020 background growth and pipeline development trips. Therefore, intersection operations under 2020 PM peak conditions with the Oak Springs development are only slightly worse than the baseline, with the same three intersections failing to meet standards and the other two (Pacific Avenue SE/Union Mills SE and Marvin Road SE/Woodgrove Street SE) continuing to operate better than standard.

2022 PM peak operations with full development include an additional two years of background growth. The additional growth has little relative impact on the operations of the five intersections. The three intersections that fail to meet standard due to 2020 background and pipeline growth continue to do so.



CHAPTER 4: PROJECT MITIGATION

This chapter summarizes the mitigations recommended to address deficiencies identified in the future year analysis. Previous impact studies for the Oak Tree Preserve development and Oak Springs development recommended mitigations based on impacts to the adjacent transportation system. These previous recommendations were reviewed as part of developing the following mitigation strategies.

Mitigation Recommendations for Oak Springs TIA

Three intersections fail to meet mobility standards under 2020 baseline PM peak conditions, and perform slightly worse with the Oak Springs development and two additional years of background growth. The three intersections and recommended mitigations strategies are as follows:

- Marvin Road SE/Pacific Avenue SE. The eastbound and southbound approaches at this roundabout fail under 2020 Baseline PM conditions, which include background traffic growth and trips from nearby development projects such as Oak Tree Preserve. The Oak Tree Preserve development proposed no mitigations at this intersection, and WSDOT currently has no plans for adding capacity to this two-lane roundabout. Should WSDOT identify a need for additional capacity, mitigation could include a proportionate share contribution based Oak Springs development trips.
- Marvin Road SE/Union Mills Road SE. High delay for the stop-controlled eastbound approach is • due to infrequent gaps in the heavy southbound traffic as well as conflicting northbound left turns. This deficiency occurs under 2020 Baseline PM conditions, prior to addition of Oak Springs trips. This intersection is identified for mitigation in the Oak Tree Preserve TIA, with access control that will prohibit eastbound left turns, which have the highest delays. The Oak Springs development may be conditioned to contribute to this mitigation in proportion to the relative number of trips it is adding to the intersection. Under 2020 PM conditions, this proportion is 60 new trips out of a total of 1,047 new trips, or about 6% of the traffic growth at the intersection. The Oak Springs developer will coordinate with the Oak Tree Preserve developer to pay proportionate share of the improvement or construct the improvement if not completed before the issuance of building permits. To accommodate vehicles needing to make an eastbound left turn, improvements at the Marvin Road SE/19th Avenue SE intersection are needed in order to enable u-turns. A roundabout, as described below, will accommodate u-turns, or if a signal is installed, the intersection should be improved to the width needed to allow u-turns. The Oak Tree Preserve TIA defers decision on the specific type of improvement at Marvin Road SE/19th Avenue SE to the County Engineer.
- Marvin Road SE/19th Avenue SE. High delay for the stop-controlled eastbound and westbound approaches is due to infrequent gaps in the heavy southbound traffic on Marvin Road SE. This deficiency occurs under 2020 Baseline PM conditions, prior to addition of Oak Springs trips. New intersection control (signal or roundabout) is a required mitigation for the Oak Tree Preserve development, and is to be constructed with Phase 2 (year 2018)⁶. The Oak Springs development may be conditioned to contribute to this mitigation in proportion to the relative number of trips it is adding to the intersection. Under 2020 PM conditions, this proportion is 52 new trips out of a total of 1,003 new trips, or about 5% of the traffic volume growth at the intersection. The Oak Springs developer will coordinate with the Oak Tree Preserve developer to pay proportionate

⁶ Oak Tree Preserve Traffic Impact Analysis, April 29, 2014.



share of the improvement or construct the improvement if not completed before the issuance of building permits.

The Marvin Road SE/19th Avenue SE intersection was analyzed as a signalized intersection in order to test the identified mitigation under 2020 and 2022 PM peak hour conditions. Results are shown in Table 8.

Table 8: Future Mitigated Intersection Operations

| Intersection | Intersection | Operating Standard | 2020 P (with Oak | M Peak Springs) | 2022 PM Peak (Full Development) | | |
|--|---|-----------------------|---------------------|----------------------------------|-------------------------------------|---|--|
| | Control | Stanuaru | LOS | Delay | LOS | Delay | |
| Marvin Road SE/ 19 th Avenue SE | Signalized | D | С | 31.8 | D | 35.0 | |
| <u>Signalized:</u> LOS = Level of S Delay= Average o | ervice of Interse delay for all Vehi | ction cles | LOS = Level | <u>Two-Wa</u> of Service of m | y or All-Way Sto novement with g | pp <u>Controlled:</u> preatest delay | |

Source: DKS Associates

With a new signal, the intersection operates acceptably under both 2020 and 2022 PM peak conditions with the Oak Springs development traffic.

Additional mitigations beyond intersection improvements include:

- **Payment of Thurston County traffic impact fees.** The subject development is in the Urban Growth Area Transportation Service Area (TSA) of Thurston County's TIF program. The TIF rate for Single Family Detached units is \$3,243 per unit. With 89 units, the total TIF responsibility would be \$288,627. Note that Thurston County's current six-year Transportation Improvement Program (2016-2021) includes the Marvin Road (Pacific Avenue to Mullen Road) project, which includes construction of intersection improvements at multiple locations, including the intersections that have been identified for mitigation in this study.
- **Payment of City of Lacey traffic impact fees** as specified in City review of this TIA. Note that the City of Lacey considers Marvin Road a "strategic corridor" in its 2030 Transportation Plan, meaning it would be exempt from LOS requirements.



APPENDIX

| | FOT | | | | | | |
|-----------------------------------|-----------------------|---|----------|----------------|-----------------------|------------------|---|
| Movement | FRI | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | 朴 | | M | ** | × | 74 | |
| Volume (vph) | 788 | 178 | 23 | 740 | 112 | 22 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Fri | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 | |
| Fit Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | |
| Satd, Flow (prot) | 3428 | | 1769 | 3539 | 1770 | 1553 | |
| Fit Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3428 | | 1769 | 3539 | 1770 | 1553 | |
| Peak-hour factor PHF | 0.96 | 99.0 | 90 11 | 0.00 | 90.0 | 990 | |
| Adi Flow (vnh) | 821 | 195 | 0.00 | 771 | 117 | 0.30 | |
| BTOB Reduction (vph) | 20 | 105 | 24 | 0 | 117 | 10 | |
| lang Group Flow (vph) | 076 | U A | 24 | 771 | 117 | | |
| Confl Bode (#/bn) | 970 | 1 (1) | 24 1 | 111 | 117 | ð | |
| Heavy Vabielas $(\pi/10)$ | 20/ | 1 20/ | 1 20/ | 20/ | 20/ | A 0/ | |
| | Z /0 | 2 70 | Z 70 | 270 | 270 Deat | 4% Destre | and the second secon |
| Turin Type | NA 4 | | Prot | NA | Prot | Perm | |
| Protected Phases | 4 | | 3 | 8 | 2 | | |
| Permitted Phases | 407 | | | 00.0 | and the second second | 2 | |
| Actuated Green, G (s) | 18.7 | | 0.5 | 23.2 | 8.4 | 8.4 | |
| Effective Green, g (s) | 18.7 | | 0.5 | 23.2 | 8.4 | 8.4 | |
| Actuated g/C Ratio | 0.47 | | 0.01 | 0.59 | 0.21 | 0.21 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1618 | | 22 | 2073 | 375 | 329 | |
| v/s Ratio Prot | c0.28 | | 0.01 | c0.22 | c0.07 | | |
| v/s Ratio Perm | | | | | | 0.00 | |
| v/c Ratio | 0.60 | | 1.09 | 0.37 | 0.31 | 0.01 | |
| Uniform Delay, d1 | 7.7 | | 19.6 | 4.3 | 13.2 | 12.3 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | | 221.9 | 0.1 | 0.5 | 0.0 | |
| Delay (s) | 8.4 | | 241.5 | 4.5 | 13.6 | 12.3 | |
| Level of Service | А | | F | А | В | В | |
| Approach Delay (s) | 8.4 | | | 11.6 | 13.4 | | |
| Approach LOS | А | | | В | В | | |
| Intersection Summary | | | | | | | |
| HCM 2000 Control Delav | LUCHICAL MARKEN STATE | a destrocorrect are found as the second | 10.1 | H | CM 2000 | Level of Service | В |
| HCM 2000 Volume to Capacity | ratio | | 0.53 | | | | |
| Actuated Cycle Length (s) | Manager Providence | | 39.6 | S | um of lost | t time (s) | 12.0 |
| Intersection Capacity Utilization | 1 | | 40.4% | n N | llevel | of Service | Δ |
| Analysis Period (min) | annan i faith | | 15 | ason water and | | | 4 X |
| c Critical Lane Group | | | | | | | |

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

♥ Site: 2016 Existing Conditions

Pacific avenue/Marvin Rd

Roundabout

All Movement Classes

| | South | East | North | West | Intersection | |
|-----|-------|------|-------|------|--------------|--|
| | 11.7 | 11.3 | 18.6 | 20.4 | 16.2 | |
| LOS | В | В | С | С | С | |





| Colour code k | based on Leve | el of Service | | | | |
|---------------|---------------|---------------|-------|-------|-------|------------|
| | | | | | | |
| LOSA | LOS B | LOSC | LOS D | LOS E | LOS F | Continuous |

LOSC LOSA LOS B LOS D Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection). Roundabout Level of Service Method: Same as Sign Control HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Thursday, July 14, 2016 4:05:35 PM Copyright © 2000-2014 Akcelik and Associates Pty Ltd SIDRA INTERSECTION 6.0.24.4877 www.sidrasolutions.com Project: X:\Projects\2015\P15155-000 (Lacey Oak Springs Dev)\DKS\Sidra\2016 Baseline.sip6 8000281, 6019144, DKS ASSOCIATES, PLUS / Floating



Intersection

| | olar Maghale water and an | ning dia Galeria di Deserva del | | an a | | ana ana ana ang ang ang ang ang ang ang | |
|--------------------------|---------------------------|---------------------------------|------|--|------|--|--|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
| Vol, veh/h | 18 | 111 | 61 | 351 | 640 | 18 | |
| Conflicting Peds, #/hr | 0 | 1 | 0 | 0 | 0 | 0 | |
| Sign Control | Stop | Stop | Free | Free | Free | Free | |
| RT Channelized | • | None | - | None | | None | |
| Storage Length | 0 | | 180 | | | $\mathbb{P}\left(\mathbf{J}^{\prime}\right) $ | |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | | |
| Grade, % | 0 | 1 | | 0 | 0 | | |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 6 | |
| Mvmt Flow | 20 | 121 | 66 | 382 | 696 | 20 | |

| Major/Minor | Minor2 | | Major1 | | Major2 |
|----------------------|--------|--|--|--|---|
| Conflicting Flow All | 1220 | 706 | 716 | 0 | - 0 |
| Stage 1 | 706 | A set of a feature of the feature of t | | | naran a sanaha dan mata sanaha na sanaha mata sanaha na sanaha mata mata mata mata na sanaha ka ka sanaha ka s T |
| Stage 2 | 514 | 14.00 | | | |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | | ner en |
| Critical Hdwy Stg 1 | 5.42 | 1 | 1946-1947 - S. | | |
| Critical Hdwy Stg 2 | 5.42 | 1977 - 2017 - 1989 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - 2017 - | a angga kanang di magang kanang ka T | anda a su sur sur sur sur sur sur sur sur sur | nennen er en som en |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | | • • • • • • • • • • • • • • • • • • • |
| Pot Cap-1 Maneuver | 199 | 436 | 885 | server of the server of the server of the | namen mandenan fraktione entere anderen de entre enter anderen zielen zielen zielen zu das de aforderen zu eind An |
| Stage 1 | 489 | | | ill g i ta di tang | |
| Stage 2 | 600 | | | An international contraction of the second se | egan bernep kanan kura sanak terrangkan kana ang kanang kurang kanang kanang kanang kanang kanang kanang kanang R |
| Platoon blocked, % | | | | • | • • • • • • • • • • • • • • • • • • • |
| Mov Cap-1 Maneuver | 184 | 436 | 885 | n seneral se angles en la seneral se sereral de la se | |
| Mov Cap-2 Maneuver | 184 | | | | |
| Stage 1 | 489 | | • | en de vanaande de gedere gedere In | en november en ander en de la personante en en anna en anna de la persona en antar de la personante de la persona de la personante en anna de la personante en an Anna de la personante en anna de la p |
| Stage 2 | 555 | New York. | 1990 - NA | | |

| Approach | EB | NB | SB | |
|----------------------|------|-----|----|--|
| HCM Control Delay, s | 20.8 | 1.4 | 0 | nie zwiedzie zwienie w nie w mae z przez na zkonanytka u skanach w zakrawa przez przez przez przez przez przez |
| HCM LOS | C | | | |

| Minor Lane/Major Mvmt | NBL | NBT EBLn1 | SBT | SBR | |
|-----------------------|-------|-----------|-----|------|--|
| Capacity (veh/h) | 885 | - 366 | | - | |
| HCM Lane V/C Ratio | 0.075 | - 0.383 | | | |
| HCM Control Delay (s) | 9.4 | - 20.8 | - | - | |
| HCM Lane LOS | А | - C | | 1.1. | |
| HCM 95th %tile Q(veh) | 0.2 | - 1.8 | • | - | |

Intersection

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|--|------|------|-------------|------|----------|----------------------------------|------|--------|---|-------------------------|-----------|
| Vol, veh/h | 16 | 0 | 4 | 9 | 0 | 81 | 4 | 313 | 6 | 118 | 611 | 19 |
| Conflicting Peds, #/hr | 1 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 4 | 4 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | | - | None | | | None | - and the party of the fact that | - | None | | an of the second second | None |
| Storage Length | de la composition de la compos | | | 1999 - Star | | S. 1994. | 105 | | | 100 | | 1. 16 ANN |
| Veh in Median Storage, # | - | 0 | - | | 0 | - | | 0 | • | -0 er 204 (0 0000) er | 0 | • |
| Grade, % | | 0 | | | 0 | | 1985 - 1994 - | 0 | 1. Sec | n fan de ante de gaarde. Gebeure | 0 | |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 0 | 4 | 10 | 0 | 89 | 4 | 344 | 7 | 130 | 671 | 21 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|--|--------|-------|----------------------------------|--|-----------------------|---|--|---------------|-----------------|
| Conflicting Flow All | 1348 | 1306 | 689 | 1305 | 1314 | 354 | 695 | 0 | 0 | 354 | 0 | 0 |
| Stage 1 | 944 | 944 | - | 359 | 359 | Macrosophies | anse teen asterne oolen van | - - | • | receirente de la contra de la | - | - |
| Stage 2 | 404 | 362 | | 946 | 955 | 201 - 1 | | • | 100-70 | | | |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.24 | 4.12 | - - | • | 4.12 | - | - 100000 |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - (A | 6.12 | 5.52 | | and the state | | 935 - 138 | no interación de la compañía de la c | | 1987). • |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - - | 6.12 | 5.52 | • | | - | • | an a | | - userse |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.336 | 2.218 | | - M. | 2,218 | | |
| Pot Cap-1 Maneuver | 128 | 160 | 446 | 137 | 158 | 685 | 901 | • | and a strange s | 1205 | | - |
| Stage 1 | 315 | 341 | | 659 | 627 | 80.80 2 - 41 | tare de 1946 | • | 985 - 199 | | | 1917 - |
| Stage 2 | 623 | 625 | - | 314 | 337 | - - | - - - | - | • | ••••••••••••••••••••••••••••••••••••••• | • | - |
| Platoon blocked, % | | | | | | | | | 316. - ⁶ 31 | | 999 . | |
| Mov Cap-1 Maneuver | 101 | 141 | 443 | 123 | 140 | 681 | 898 | ilegene siden viz | - | 1201 | • | naturkanak • |
| Mov Cap-2 Maneuver | 101 | 141 | | 123 | 140 | | | 1. A. | | | | |
| Stage 1 | 313 | 303 | - | 654 | 623 | - | an a | - | - - - | ri de Estadoria de Secto de Sila. E | | Y9606030 |
| Stage 2 | 537 | 621 | a an | 276 | 300 | | 1. Sec. 2. | 1549-14 | (1997 <mark>-</mark> 1995) | 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - | 19 1 9 | 1821-2 |

| Approach | EB | WB | NB | SB |
|----------------------|----|------|-----|-----|
| HCM Control Delay, s | 42 | 14.7 | 0.1 | 1.3 |
| HCM LOS | E | В | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1\ | WBLn1 | SBL | SBT | SBR | |
|-----------------------|-------|----------|-----|--------|-------|-------|-----|--------|---|
| Capacity (veh/h) | 898 | - | | 119 | 468 | 1201 | - | - | аннулаан маалаан малаан жана алаан нулаал жана боолон жана боолон боолон жана жана жана жана са са са са са са Кана са |
| HCM Lane V/C Ratio | 0.005 | | | 0.185 | 0.211 | 0.108 | | | |
| HCM Control Delay (s) | 9 | - | - | 42 | 14.7 | 8.4 | - | - | |
| HCM Lane LOS | А | (in a la | 1 | E | В | А | - | 1 | |
| HCM 95th %tile Q(veh) | 0 | • | | 0.6 | 0.8 | 0.4 | - | - - | |

Intersection Int Delay, s/veh

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | |
|--------------------------|------|------|------|-------|---|---|--|
| Vol, veh/h | 85 | 365 | 203 | 18 | 22 | 28 | |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 4 | 0 | |
| Sign Control | Free | Free | Free | Free | Stop | Stop | |
| RT Channelized | - | None | | None | en er en steller er en stel Tiller | None | |
| Storage Length | 105 | | | W MAS | 0 | DE STREETE PLAN | |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | na an an Anna an Anna an Anna an Anna Ann | |
| Grade, % | | 0 | 0 | 14.0. | 0 | 1997 D 36.1 | |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 4 | 2 | |
| Mvmt Flow | 93 | 401 | 223 | 20 | 24 | 31 | |

| Major/Minor | Major1 | | Major2 | | Minor2 | | |
|----------------------|---|--|---|-------------------|--------|---|--|
| Conflicting Flow All | 247 | 0 | | 0 | 825 | 237 | na na katalan na katalan na katalan na katalan katalan katalan katalan katalan katalan katalan katalan katalan |
| Stage 1 | - | - | • | • | 237 | - | |
| Stage 2 | 1.1.1.1.1.1.1.1 | 39 - 995 (* 1 | 16 10 10 10 10 . T | 1.1. | 588 | Merrial - NY SIA | |
| Critical Hdwy | 4.12 | • | | - | 6.44 | 6.22 | |
| Critical Hdwy Stg 1 | and a state of a state of a | 101-101-101 | 1976 - 1996 - 1996 - 1 986 | 1204-03 | 5.44 | | |
| Critical Hdwy Stg 2 | - Freezense Ander Trades | Buyerstrought des advocutes des | n energen stat statistics statistics | - | 5.44 | - - | |
| Follow-up Hdwv | 2.218 | ter-terior | | 1511-55 | 3.536 | 3.318 | |
| Pot Cap-1 Maneuver | 1319 | - | | - | 340 | 802 | |
| Stage 1 | BARANG VI | an a | | 1.12 | 798 | CONSIGN BEAUST | |
| Stage 2 | - | - - | • | - | 551 | | |
| Platoon blocked, % | | NAL MARK | | 8.0 1 .000 | | | |
| Mov Cap-1 Maneuver | 1319 | economic de la construir de la c | - 1943) - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 194 | - - | 314 | 799 | |
| Mov Cap-2 Maneuver | S CARACTERIST | h El s (LE Auger) | | 7.512.53 | 314 | | |
| Stage 1 | - 1.0 March 10 March | - | • | | 795 | | |
| Stage 2 | | ana chantata i | | 609-00 | 510 | 1999 - Sec Se | |

| Approach | EB | WB | SB | |
|----------------------|-----|----|------|--|
| HCM Control Delay, s | 1.5 | 0 | 13.5 | |
| HCM LOS | | | В | |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 | |
|-----------------------|-------|-----|-----|-----------|--|
| Capacity (veh/h) | 1319 | - | - | - 476 | |
| HCM Lane V/C Ratio | 0.071 | | • | - 0.115 | |
| HCM Control Delay (s) | 7.9 | - | - | - 13.5 | |
| HCM Lane LOS | А | | | - B | |
| HCM 95th %tile Q(veh) | 0.2 | | - | - 0.4 | |

| | | | ¥ | a Cartes and a second | 1 | M | | | |
|------------------------------|--------------|--|-----------|-----------------------|-----------|--|------|--|---|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | | | |
| Lane Configurations | 个诤 | Antonia in a charge state | ሻ | 44 | ň | 7 | | and the second | |
| Volume (vph) | 877 | 402 | 24 | 771 | 258 | 27 | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | | |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 0.95 | | 1.00 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | |
| Satd, Flow (prot) | 3350 | | 1769 | 3539 | 1770 | 1553 | | | |
| Fit Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1 00 | | | |
| Satd. Flow (perm) | 3350 | | 1769 | 3539 | 1770 | 1553 | | | |
| Peak-bour factor PHF | 0000 0 96 | 99.0 | 0 96 | 9000 | 900 | 0.96 | | | |
| Adi Flow (vnh) | Q1/ | <i>∆</i> 10 | 25 | 803 | 260 | 28 | | | |
| RTOR Reduction (uph) | 914 | -113 | 25 | 000 | 209 | 17 | | | |
| ane Group Flow (vph) | 1052 | U D | 0 25 | 0 | 260 | 1/ | | | |
| Confl Dode (#/bn) | 1200 | 1 | 20 1 | 003 | 209 | 11, | | | |
| U_{0} | 00/ | 00/ | ا \00/ | 0 0/ | 200/ | 40/ | | | |
| Turn Turne | Z 70 | 270 | <u>2%</u> | 2% | 2% | 4% | | | |
| Turii Type | INA | | Prot | NA | Prot | Perm | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | an a | | | |
| Permitted Phases | | | • • | | | 2 | | | |
| Actuated Green, G (s) | 24.0 | | 0.6 | 28.6 | 12.5 | 12.5 | | | |
| Effective Green, g (s) | 24.0 | | 0.6 | 28.6 | 12.5 | 12.5 | | | |
| Actuated g/C Ratio | 0.49 | | 0.01 | 0.58 | 0.25 | 0.25 | | | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | | | anna an |
| Lane Grp Cap (vph) | 1637 | | 21 | 2061 | 450 | 395 | | | |
| v/s Ratio Prot | c0.37 | | 0.01 | c0.23 | c0.15 | | | | |
| v/s Ratio Perm | | | | | | 0.01 | | | |
| v/c Ratio | 0.77 | | 1.19 | 0.39 | 0.60 | 0.03 | | | |
| Uniform Delay, d1 | 10.2 | | 24.2 | 5.5 | 16.1 | 13.7 | | | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 2.2 | | 261.4 | 0.1 | 2.1 | 0.0 | | | |
| Delay (s) | 12.4 | | 285.6 | 5.7 | 18.2 | 13.8 | | | |
| Level of Service | В | | F | A | B | B | | | |
| Approach Delay (s) | 12.4 | | | 14.1 | 17.8 | ik in gesteren | | | |
| Approach LOS | В | | | В | B | | | | |
| Intersection Summarv | | | | | | | | | |
| HCM 2000 Control Delav | | 1970-00-00-00-00-00-00-00-00-00-00-00-00-0 | 13.7 | Н | CM 2000 | Level of Service | P | | And the second se |
| HCM 2000 Volume to Capa | acity ratio | | 0.72 | | | | | | |
| Actuated Cycle Length (s) | | | 49.1 | S | um of los | t time (s) | 12 (| | |
| Intersection Capacity Utiliz | ation | | 58.1% | i l | | of Service | P | | |
| Analysis Period (min) | | | 15 | | | | | | |
| c Critical Lane Group | | | | | | | | | |
| | | | | | | | | | |

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

𝛛 Site: 2020 Baseline

Pacific avenue/Marvin Rd Roundabout

All Movement Classes

| | South | East | North | West | Intersection | |
|-----|-------|------|-------|-------|--------------|--|
| | 22.5 | 19.5 | 83.3 | 108.3 | 65.1 | |
| LOS | С | С | F | F | F | |





| | and the second s | COLUMN STATES | Construction of the second second | Construction of the other designed on the second | and the second second second second | Lauranneerouse |
|------|--|---------------|-----------------------------------|--|-------------------------------------|----------------|
| LOSA | LOS B | LOSC | LOSD | LOS E | LOS F | Continuous |

Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Thursday, July 14, 2016 4:09:14 PM SIDRA INTERSECTION 6.0.24.4877 Project: X:\Projects\2015\P15155-000 (Lacey Oak Springs Dev)\DKS\Sidra\2020 Baseline.sip6 8000281, 6019144, DKS ASSOCIATES, PLUS / Floating



73

Intersection

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
|--------------------------|------|------|------|------------|--|---------|--|
| Vol, veh/h | 53 | 168 | 85 | 655 | 1186 | 39 | |
| Conflicting Peds, #/hr | 0 | 1 | 0 | 0 | 0 | 0 | |
| Sign Control | Stop | Stop | Free | Free | Free | Free | |
| RT Channelized | - | None | - | None | e e a ser esta de la presenta de la Internet | None | |
| Storage Length | 0 | | 180 | R. Willier | | anne an | |
| Veh in Median Storage, # | 0 | - | | 0 | 0 | • | |
| Grade, % | 0 | | | 0 | 0 | · . | |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 6 | |
| Mvmt Flow | 58 | 183 | 92 | 712 | 1289 | 42 | |

| Major/Minor | Minor2 | | Major1 | | Major2 | | |
|----------------------|--------|--|-------------------------|-----------------|---|--|--|
| Conflicting Flow All | 2208 | 1311 | 1333 | 0 | - | 0 | anten de ser la mente production de la construcción de la construcción de la construcción de la construcción d |
| Stage 1 | 1311 | - | • | | | - | |
| Stage 2 | 897 | and the s | 1998 - 199 - 199 | S. 1997 | Ball Mineral Stra | 577 - 388 - 19 | |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | | |
| Critical Hdwy Stg 1 | 5.42 | | SALAN NATION | - 10 C | ····································· | 1 | |
| Critical Hdwy Stg 2 | 5.42 | • | - - - | • | n na server znanské konstanti se obskálaní se - | | |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | 1.1.1.1.1.1.1.1 | and the second second | 2890 (1996) | |
| Pot Cap-1 Maneuver | ~ 49 | 194 | 518 | | and and a subsection of which we have the second | - | |
| Stage 1 | 252 | - 10 A | Sec. Philippe | 14. 14 March 19 | | | |
| Stage 2 | 398 | and the first sector of the se | • | • | nande de Stationer (1997) y here de la station (1997) - | - | |
| Platoon blocked, % | | | | the Male | 1997 (1997) - 1997 <mark>-</mark> 19 | 0.474 948 675 | |
| Mov Cap-1 Maneuver | ~ 40 | 194 | 518 | • • | en e | - | |
| Mov Cap-2 Maneuver | ~ 40 | 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - | | | March March 1998 | 2 | |
| Stage 1 | 252 | • | Padad Magazina Addicata | | n beste in entry and the resident statistical of the second statistics of the second statistics of the second s | er de character de la desta de la desta En la desta de la | |
| Stage 2 | 327 | | 1990 - N. | - - - | engelsen her die er | - 889 G | |

| Approach | EB | NB | SB | |
|----------------------|----------|-----|----|---|
| HCM Control Delay, s | \$ 717.3 | 1.5 | 0 | And an and a stand of the second s |
| HCMLOS | F | | | |

| Minor Lane/Major Mvmt | NBL | NBT EBLn1 | SBT | SBR | | an a | |
|----------------------------|----------|----------------|--------|----------------------|-------------|--|--------------------------------|
| Capacity (veh/h) | 518 | - 101 | - | - | | | |
| HCM Lane V/C Ratio | 0.178 | - 2.378 | . 10 - | 17119-21 | | | |
| HCM Control Delay (s) | 13.5 | -\$ 717.3 | - | - | | | |
| HCM Lane LOS | В | - F | | estai r i | | | |
| HCM 95th %tile Q(veh) | 0.6 | - 21.6 | - | - | | | |
| Notes | | | | | | | |
| ~: Volume exceeds capacity | v \$: De | lav exceeds 30 |)0s | +: Com | utation Not |)efined | *: All major volume in platoon |

Intersection

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|-----------------|------|-----------------|-------------------------|------|----------|--|------|---------------------------------------|---|-------|-------------------|
| Vol, veh/h | 16 | 0 | 4 | 10 | 0 | 193 | 4 | 442 | 9 | 342 | 981 | 23 |
| Conflicting Peds, #/hr | 1 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 4 | 4 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | | - | None | | • | None |
| Storage Length | te Rectangle da | | | - 1989) | | 10 C | 105 | | | 100 | 1.1.1 | |
| Veh in Median Storage, # | - | 0 | • | | 0 | | n en sen en e | 0 | 14,1-5043-100 (10) (11) 1 - | energene solens og en der er e | 0 | 105032938×3; - |
| Grade, % | | 0 | Children Harris | - 1988 (1987 - 1 | 0 | 1. Sec 1 | and the second | 0 | - 1 C | 885. S. S. S. S. 20 | 0 | 11. N |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 0 | 4 | 11 | 0 | 212 | 4 | 486 | 10 | 376 | 1078 | 25 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|---|--------|-------|---|--|-------------------------|-------------------------------|--|---|------------------|
| Conflicting Flow All | 2453 | 2352 | 1098 | 2350 | 2360 | 498 | 1106 | 0 | 0 | 499 | 0 | 0 |
| Stage 1 | 1845 | 1845 | - | 502 | 502 | - | enterente en enterentente en enterente | - | | 49596-4689376 265524655466666 | - - - | 10900 (T) - |
| Stage 2 | 608 | 507 | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 | 1848 | 1858 | | | | 195 - 195 | A Charles and - 10 | | 159972 |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.24 | 4.12 | - - | sinetseristinetere F | 4.12 | | 10331939 PS |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | al a star | 6.12 | 5.52 | 1993 - 1 | 0.39000203 | | 200 - 468 | | | Mez- |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | • | ander og en ander som en ander s | • | anterna di Anteria | AND | 1996 1996 1998 1998 1998 1998 1998 1998 | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.336 | 2.218 | | 19. - 1999 | 2.218 | | |
| Pot Cap-1 Maneuver | 21 | 36 | 259 | 25 | 35 | 568 | 631 | • | | 1065 | calle/27412333 - | 1209-020 |
| Stage 1 | 96 | 125 | | 552 | 542 | | | () - <mark>1</mark> 99 | 1. - 1. 1 | 1996 - 1997 - 1 997 | | 100 - |
| Stage 2 | 483 | 539 | - | 96 | 123 | • | 900 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - | •••• | - | Construction of the second seco | | F1100544 |
| Platoon blocked, % | | | | | | | | 1 | 1.00-1.00 | | | |
| Mov Cap-1 Maneuver | ~ 9 | 23 | 257 | 18 | 22 | 565 | 629 | - | | 1061 | - - | 2001-1129-13 |
| Mov Cap-2 Maneuver | ~ 9 | 23 | | 18 | 22 | | | • | llog (* 1996) State - Sala | | | 1.554 |
| Stage 1 | 95 | 81 | - | 547 | 537 | - | | • • • • • • • • • • • • | 915-620 DY 1916[67] - | nees of a construction of the large | • | - - - |
| Stage 2 | 299 | 534 | tali se di s an | 61 | 79 | 1.1 | 1999 - 199 1 - 199 | - | - 1 | - | - | in the second |

| Approach | EB | WB | NB | SB |
|----------------------|-----------|-------|-----|-----|
| HCM Control Delay, s | \$ 1143.9 | 102.2 | 0.1 | 2.6 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBF | R EBLn1 | WBLn1 | SBL | SBT | SBR | |
|----------------------------|--------|---------|--------------------|----------|--------|---------|-------------|--------|--------------------------------|
| Capacity (veh/h) | 629 | - | Consulative Action | - 11 | 226 | 1061 | ******* | | |
| HCM Lane V/C Ratio | 0.007 | | | - 1.998 | 0.987 | 0.354 | | | |
| HCM Control Delay (s) | 10.8 | - | \$ | - 1143.9 | 102.2 | 10.2 | - | • | |
| HCM Lane LOS | В | | | - F | F | В | 11. T. L. | | |
| HCM 95th %tile Q(veh) | 0 | | | - 3.6 | 9 | 1.6 | - - - | - | |
| Notes | | | | | | | | | |
| ~: Volume exceeds capacity | v S:De | lav exc | eeds | 300s | +: Com | outatio | n Not D | efined | *: All major volume in platoon |

Intersection Int Delay, s/veh

Movement EBL EBT WBT WBR SBL SBR Vol, veh/h 319 91 531 20 23 29 Conflicting Peds, #/hr 0 0 0 0 0 4 Sign Control Free Free Free Free Stop Stop **RT** Channelized None - None None --Storage Length 105 . 0 . -. 0 Veh in Median Storage, # 0 0 ---Grade, % . 0 0 -0 . Peak Hour Factor 91 91 91 91 91 91 Heavy Vehicles, % 2 2 2 2 2 4 Mvmt Flow 584 351 100 22 25 32

| Major/Minor | Major1 | | Major2 | ALCONE C | Minor2 | | |
|----------------------|--|--|---|----------------|--------|--|--|
| Conflicting Flow All | 377 | 0 | Weight States | 0 | 1150 | 366 | |
| Stage 1 | | - | - | - | 366 | • | |
| Stage 2 | | W. Angeler | 118 P. 19 19 19 19 | 5.4 - 1 | 784 | 1017 (9) • QUMPA | |
| Critical Hdwy | 4.12 | - | | - | 6.44 | 6.22 | |
| Critical Hdwy Stg 1 | 10.00 | | MARY SECTOR | 100.400 | 5.44 | | |
| Critical Hdwy Stg 2 | | • | ************************************** | - | 5.44 | • | |
| Follow-up Hdwy | 2.218 | 1. . | PERSON SERVICE | 1928-194 | 3.536 | 3.318 | |
| Pot Cap-1 Maneuver | 1181 | | a di kunga kanasa di kin di kana angan bilangan s | - | 217 | 679 | |
| Stage 1 | | | | | 697 | | |
| Stage 2 | - | - | no se de la company en la company de la c | | 446 | • | |
| Platoon blocked, % | | | | 1.1.4 | | | |
| Mov Cap-1 Maneuver | 1181 | an a starter thank the constraints and | | - | 197 | 677 | |
| Mov Cap-2 Maneuver | | 1.1 - 10.5 Mar | | | 197 | NARONA - USARA | |
| Stage 1 | en est das interpreter d'un trappe d'autor | • | | - | 695 | neessaan ahaan ahaan Interneessaan ahaan ah | |
| Stage 2 | 1863.001-0 | had a her state to be the | STATISTICS STATISTICS | BAR AD | 407 | and the states | |

| Approach | EB | WB | SB | |
|----------------------|-----|----|------|--|
| HCM Control Delay, s | 1.2 | 0 | 18.4 | |
| HCM LOS | | | С | |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR S | BLn1 | |
|-----------------------|-------|-----|--|----------|-------|--|
| Capacity (veh/h) | 1181 | - | - | | 326 | |
| HCM Lane V/C Ratio | 0.085 | | | - (| 0.175 | |
| HCM Control Delay (s) | 8.3 | - | - | - | 18.4 | |
| HCM Lane LOS | А | (| - 11 - 11 - 11 - 11 - 11 - 11 - 11 - 1 | - 18 - S | С | |
| HCM 95th %tile Q(veh) | 0.3 | - | - | | 0.6 | |

| | | \mathbf{i} | W | . Constant | 1 | M | | | |
|--------------------------------|--------------------|-------------------------------|-------------------|------------|------------------------|------------------|---|---|---|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | | | |
| Lane Configurations | 朴 | Terin Milanda da Kartana da K | 3 | 44 | 19 | 7 | | | |
| Volume (vph) | 878 | 417 | 24 | 772 | 267 | 27 | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | | |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 0.95 | | 1.00 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | 3345 | | 1769 | 3539 | 1770 | 1553 | | | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | 3345 | | 1769 | 3539 | 1770 | 1553 | | | |
| Peak-hour factor. PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | and a second second second second | | |
| Adj. Flow (vph) | 915 | 434 | 25 | 804 | 278 | 28 | | | |
| RTOR Reduction (vph) | 85 | 0 | 0 | 0 | 0 | 16 | | | |
| Lane Group Flow (vph) | 1264 | 0 | 25 | 804 | 278 | 12 | | | |
| Confl. Peds. (#/hr) | | 1 | 1 | | 2 | | | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 4% | | | |
| | NA | | Prot | ΝA | Prot | Perm | | | ante como a conserva conserva |
| Protected Phases | 4 | | 3 | 8 | 2 | | | | |
| Permitted Phases | | | SEAMORA MAK | U | Standbach f -BS | 2 | | | |
| Actuated Green G (s) | 24.1 | | 0.6 | 28.7 | 127 | 197 | | | |
| Effective Green a (s) | 24.1 | | 0.0 | 28.7 | 12.7 | 12.7 | | | |
| Actuated o/C Batio | 0.40 | | 0.01 | 0.58 | 0.26 | 0.26 | | | |
| Cleanance Time (s) | 40 | | 4.0 | 4.0 | 1.0 | 10 | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 30 | | | |
| Lane Gin Can (ynh) | 1621 | | 21 | 2056 | 155 | 200 | en der er er en der er e | | a vale vie av huk nave o more star argona |
| v/s Batin Prot | 0.20 | | 0.01 | 2000 | 400 | 299 | | | |
| v/s Natio Porm | 00.00 | | 0.01 | 60.20 | CU. 10 | 0.04 | | | |
| V/S NAUU FEITH | 0.77 | | 1 10 | 0.00 | 0.01 | 0.01 | | | |
| Vic hallo Uniform Dolay, d1 | 10.77 | | 1.19 | 0.39 | 0.01 | 0.03 | | | |
| Discussion Easter | 10.4 | | 1 00 | 0.0 | 10.2 | 10.7 | | | |
| Instemental Delay d2 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Dolay (o) | 10.0 | | 201.4 | 0.1 | 10.0 | 0.0 | | | |
| Lovel of Sonvice | 12.0 D | | 203.0 F | D./ | 10.0 | 13.0 | | | |
| Approach Dolay (c) | 100 | | r Geoleansians | A 14.0 | 10.0 | B | | | |
| Approach LOS | 12.0 B | | | 14.Z | 18.Z | | | | |
| | U Aliante antes | | | U | U | | | ANDER AND | |
| HCM 2000 Control Dolou | | | 10.0 | | CN/ 0000 | Lougl of Comiles | | P | |
| HOM 2000 Volume to Con | | | 13.9 | H | UNI 2000 | Level of Service | | R | |
| Actuated Cycle Learth (2) | acity ratio | | 0.73 | <u>,</u> | | | | 10.0 | |
| Actuated Cycle Length (S) | otion | | 49.4 | S | um of los | t time (s) | | 12.0 | |
| Analysis Daried (min) | allon | | 59.1% | | U Level | of Service | | В | |
| Analysis Period (MIN) | | | 15 | | | | | | |
| c Unical Lane Group | | | | | | | | | |

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

𝕂 Site: 2020 with Oak Springs

Pacific avenue/Marvin Rd Roundabout

All Movement Classes

| | South | East | North | West | Intersection | |
|-----|-------|------|-------|-------|--------------|--|
| | 22.9 | 20.0 | 88.4 | 108.9 | 67.6 | |
| LOS | С | С | F | F | F | |

88.1 88.3 88.3



| | Conservation of the second second | an and a set of the se | Constitution in the party of the second | | Lana management and | Lana and the second sec |
|------|-----------------------------------|--|---|------|---------------------|--|
| LOSA | LOS B | LOSC | LOSD | LOSE | LOS F | Continuous |

Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Thursday, July 14, 2016 4:14:24 PM SIDRA INTERSECTION 6.0.24.4877 Project: X:\Projects\2015\P15155-000 (Lacey Oak Springs 8000281, 6019144, DKS ASSOCIATES, PLUS / Floating

SIDRA INTERSECTION 6

Intersection Int Delay, s/veh

NBT EBL EBR NBL SBT Movement SBR Vol, veh/h 53 184 94 668 1208 39 Conflicting Peds, #/hr 0 0 0 1 0 0 Sign Control Stop Free Free Stop Free Free **RT** Channelized None - None - None . Storage Length 0 180 Veh in Median Storage, # 0 0 0 . --Grade, % 0 -0 1. 0 Peak Hour Factor 92 92 92 92 92 92 Heavy Vehicles, % 2 2 2 2 2 6 Mvmt Flow 58 200 726 102 1313 42

| Major/Minor | Minor2 | | Major1 | | Major2 |
|----------------------|--------|--|---|--|---|
| Conflicting Flow All | 2265 | 1335 | 1356 | 0 | - 0 |
| Stage 1 | 1335 | | 1992-1993-1999-1993-1993-1993-1993- | anyang kanang marang sanang na | en e |
| Stage 2 | 930 | 44. (St | film den et s | 19 1 -1910 | |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | n na sen de la cara de La cara de la | na n |
| Critical Hdwy Stg 1 | 5.42 | | 1957 - 1957 - 195 | • | |
| Critical Hdwy Stg 2 | 5.42 | a manager and the providence of | - | • • | ner der Deutscher eine Zurich under son der eine der der eine Bereichten er bezigten der bezigten der einer Ber T |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | | • |
| Pot Cap-1 Maneuver | ~ 45 | ~ 188 | 507 | Na serie de la | an para a na ang mang mang mang mang mang mang |
| Stage 1 | 245 | 1000 | | Sector Alexand | |
| Stage 2 | 384 | | | Barra antipatripatripatripatripatripatripatripat | naztar za zakon mendru munini da bandan buna ta sin meneri yaka madagai kerde zuseta maneteta ta tan kan ege sundet tantengi si |
| Platoon blocked, % | | | | 19. . | |
| Mov Cap-1 Maneuver | ~ 36 | ~ 188 | 507 | | |
| Mov Cap-2 Maneuver | ~ 36 | 1999 - 1999 - 1999 1999 - 1999 - 1999 | 1997 - 1997 - 1997 | | |
| Stage 1 | 245 | Substantial electron of a contraction of | - | Den en faste par el par el per de periode de la periode La periode de la periode de | |
| Stage 2 | 306 | - 1996 - 199 | | | |

| Approach | EB | NB | SB | |
|----------------------|----------|-----|----|---------|
| HCM Control Delay, s | \$ 842.6 | 1.7 | 0 | ******* |
| HCM LOS | F | | | |

| Minor Lane/Major Mvmt | NBL | NBT EBLn1 | SBT | SBR | | | |
|----------------------------|---------|----------------|-----|----------------|--|--------|--------------------------------|
| Capacity (veh/h) | 507 | - 97 | - | - | nanda szaroki a Debiry nicebiry szarok | | |
| HCM Lane V/C Ratio | 0.202 | - 2.656 | 13 | 196 F - | | | |
| HCM Control Delay (s) | 13.9 | -\$ 842.6 | - | - | | | |
| HCM Lane LOS | В | - F | | 100 - J | | | |
| HCM 95th %tile Q(veh) | 0.7 | - 24.1 | • | - | | | |
| Notes | | | | | | | |
| ~: Volume exceeds capacity | / \$:De | lav exceeds 30 |)0s | +: Com | utation Not D | efined | *: All major volume in platoon |

Intersection Int Delay, s/veh

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|-------------------|------|--------------------|------|------|---|---|------|--|--|------|-------|
| Vol, veh/h | 16 | 0 | 4 | 10 | 0 | 193 | 4 | 464 | 9 | 342 | 1019 | 23 |
| Conflicting Peds, #/hr | 1 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 4 | 4 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | • | - | None | - | - | None | en eta stan degi tele en eta eta eta eta degi daretera da espe | • | None |
| Storage Length | (1996) - 1 | | | - | | 343 M. C | 105 | | 1988 A. | 100 | | |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | n an a bailt spàircean an phay fair a stabe | 0 | - | | 0 | - |
| Grade, % | | 0 | 1.84 (- 1) | | 0 | 6. S. | Web and the | 0 | - 11 (11 (11 (11 (11 (11 (11 (11 (11 (11 | | 0 | |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 0 | 4 | 11 | 0 | 212 | 4 | 510 | 10 | 376 | 1120 | 25 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|----------------|--------|-------|----------------------|---|--------------------------------|-------------------------|---|-------------------------------|-----------------------|
| Conflicting Flow All | 2520 | 2419 | 1139 | 2416 | 2427 | 522 | 1148 | 0 | 0 | 523 | 0 | 0 |
| Stage 1 | 1887 | 1887 | | 527 | 527 | - | na sectore contractor contractor de contra | - | | vounnertsbeschentesstellen - | • | - - |
| Stage 2 | 633 | 532 | (2) . . | 1889 | 1900 | 11 - 11 - 11 - 11 | 1990 - S S S S S S S S | | 10 - 20 | 1 | 1. | |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.24 | 4.12 | • | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | | 6.12 | 5.52 | | - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 | | - 185 | 1. 1. 1 | a 21-11 | 12611 |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | | 6.12 | 5.52 | • | nene area to an anne anne an tarr | - | - | en er andere anvender andere er en er. - | | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.336 | 2.218 | | 1918 - 1929 | 2.218 | | - |
| Pot Cap-1 Maneuver | 19 | 32 | 245 | 22 | 32 | 551 | 609 | | • | 1043 | • | - |
| Stage 1 | 91 | 119 | | 535 | 528 | W 310 - 7 | | | | 1 (100 (2) | 1000 1960 (- 1000) | - |
| Stage 2 | 468 | 526 | - | 90 | 117 | - | an the second state in the second state of the second | - | - | nagementer and constant | - | |
| Platoon blocked, % | | | | | | | | | | | | 1880- |
| Mov Cap-1 Maneuver | ~ 8 | 20 | 244 | 15 | 20 | 548 | 607 | • | eren anzen augenen " | 1040 | • | ndente (* 1956 av |
| Mov Cap-2 Maneuver | ~ 8 | 20 | 100 P | 15 | 20 | 87 (N. -) | le de la de <mark>.</mark> en a | n a shirin i Shiri - | $(1) \cdot (d)$ | | 1997 - 199 | (1997) <mark>-</mark> |
| Stage 1 | 90 | 76 | - | 530 | 523 | - | and the second for second for | • | - | energi engan kanan sanga | • | - |
| Stage 2 | 284 | 521 | Mag (1-1) | 56 | 75 | | 1889 - 18 | | 1. s - 18 | - 1. | | |

| Approach | EB | WB | NB | SB |
|----------------------|-----------|-------|-----|-----|
| HCM Control Delay, s | \$ 1289.2 | 149.6 | 0.1 | 2.6 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1\ | VBLn1 | SBL | SBT | SBR | |
|----------------------------|--------|--------|--------|--------|--------|---------|---------|--------|--------------------------------|
| Capacity (veh/h) | 607 | - | - | 10 | 199 | 1040 | - | - | |
| HCM Lane V/C Ratio | 0.007 | | | 2.198 | 1.121 | 0.361 | | | |
| HCM Control Delay (s) | 11 | - | S- | 1289.2 | 149.6 | 10.4 | - | - | |
| HCM Lane LOS | В | W.S. | | F | F | В | | | |
| HCM 95th %tile Q(veh) | 0 | - | | 3.7 | 10.8 | 1.7 | | • | |
| Notes | | | | | | | | | |
| ~: Volume exceeds capacity | s: Del | ay exc | eeds 3 | 300s | +: Com | putatio | n Not D | efined | *: All major volume in platoon |

Intersection

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | |
|--------------------------|---|------|--|---|-------------------------------|--------------------------------------|--|
| Vol, veh/h | 130 | 531 | 319 | 34 | 31 | 52 | |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 4 | 0 | |
| Sign Control | Free | Free | Free | Free | Stop | Stop | |
| RT Channelized | • | None | an george in de la carrière de la constancia de la carrière de la carrière de la carrière de la carrière de la | None | anaday na bada ang mga kata s | None | |
| Storage Length | 105 | | | | 0 | n als soint <u>-</u> n | |
| Veh in Median Storage, # | ••••••••••••••••••••••••••••••••••••••• | 0 | 0 | •************************************** | 0 | energen genoen er op en der verschie | |
| Grade, % | 1. N. S. S. | 0 | 0 | | 0 | | |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 4 | 2 | |
| Mvmt Flow | 143 | 584 | 351 | 37 | 34 | 57 | |

| Major/Minor | Major1 | | Major2 | | Minor2 | | |
|----------------------|--|---|---|--------------------------|--------|--|--|
| Conflicting Flow All | 392 | 0 | | 0 | 1242 | 373 | |
| Stage 1 | | | a van men en weeren de Annoen ander oer en zelen en een de Dezelden en een de Dezelden en een de Dezelden en e T | - | 373 | and an all of the set of the state of the set of the se | |
| Stage 2 | - 11 - 11 - 11 - 11 - 11 - 11 - 11 - 1 | 1. | | 17.1 | 869 | - 1964 - | |
| Critical Hdwy | 4.12 | • | Model and a state of the state | - | 6.44 | 6.22 | |
| Critical Hdwy Stg 1 | 1000 | te internet in a | 1887 1.C. 1.4.C. | | 5.44 | · · · · · · · · · · · · · · · · · · · | |
| Critical Hdwy Stg 2 | | in and a second s | | - | 5.44 | · | |
| Follow-up Hdwy | 2.218 | | and the second second | Aler- K | 3.536 | 3.318 | |
| Pot Cap-1 Maneuver | 1167 | · | | - | 191 | 673 | |
| Stage 1 | 1999 | 1. 10 . - 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. | | - | 692 | 1997 - A. - Martin | |
| Stage 2 | | | n and a second second second and an an an and a second second second second second second second second second | | 407 | | |
| Platoon blocked, % | | 6. - 1986 - 1 | | (1. j. - 1. j. j. | | | |
| Mov Cap-1 Maneuver | 1167 | | | - | 166 | 671 | |
| Mov Cap-2 Maneuver | a later the | | 100 B | | 166 | 1998 (- 1998) (| |
| Stage 1 | | | en anna chairte a' theological and the first state of the second s | - | 690 | • | |
| Stage 2 | 1000 | - | 1990 (A. 1990) | | 356 | 2 - 19 A 19 A | |

| Approach | EB | WB | SB | |
|----------------------|-----|----|------|--|
| HCM Control Delay, s | 1.7 | 0 | 21.1 | |
| HCM LOS | | | С | |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | |
|-----------------------|-------|----------------|---------------------------|-----|-------|--|
| Capacity (veh/h) | 1167 | - | - | - | 314 | |
| HCM Lane V/C Ratio | 0.122 | | | | 0.29 | |
| HCM Control Delay (s) | 8.5 | | - | • | 21.1 | |
| HCM Lane LOS | А | н 1947 г. – | | | C | |
| HCM 95th %tile Q(veh) | 0.4 | | - 129-20-00 (but has - | | 1.2 | |

| | avere and the | | × | - | 1 | t | | |
|------------------------------|--|---------------------------------|-------|-------|------------|------------------|---------------------------------------|------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | | |
| Lane Configurations | 朴存 | | γ | 44 | ħ | 7 | en der mit Die standen sie der seinen | |
| Volume (vph) | 922 | 427 | 24 | 788 | 279 | 30 | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Fnt | 0.95 | | 1.00 | 1.00 | 1.00 | 0.85 | | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 3357 | | 1770 | 3539 | 1770 | 1553 | | |
| Fit Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 3357 | | 1770 | 3539 | 1770 | 1553 | | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | | |
| Adj. Flow (vph) | 960 | 445 | 25 | 821 | 291 | 31 | | |
| RTOR Reduction (vph) | 82 | 0 | 0 | 0 | 0 | 18 | | |
| Lane Group Flow (vph) | 1323 | 0 | 25 | 821 | 291 | 13 | | |
| Confl. Peds. (#/hr) | | 1 | 1 | | 2 | | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 4% | and the | |
| Turn Type | NA | | Prot | NA | Prot | Perm | | |
| Protected Phases | 4 | | 3 | 8 | 2 | | | |
| Permitted Phases | | | | | | 2 | | |
| Actuated Green, G (s) | 25.3 | | 1.3 | 30.6 | 13.0 | 13.0 | | |
| Effective Green, g (s) | 25.3 | | 1.3 | 30.6 | 13.0 | 13.0 | | |
| Actuated g/C Ratio | 0.49 | | 0.03 | 0.59 | 0.25 | 0.25 | | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Vehicle Extension (s) | 3.0 | New Address of the local sector | 3.0 | 3.0 | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 1645 | | 44 | 2098 | 445 | 391 | | |
| v/s Ratio Prot | c0.39 | | 0.01 | c0.23 | c0.16 | | | |
| v/s Ratio Perm | | | | | | 0.01 | | |
| v/c Ratio | 0.80 | | 0.57 | 0.39 | 0.65 | 0.03 | | |
| Uniform Delay, d1 | 11.1 | | 24.9 | 5.6 | 17.3 | 14.6 | | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 3.0 | | 15.7 | 0.1 | 3.4 | 0.0 | | |
| Delay (s) | 14.0 | | 40.6 | 5.7 | 20.7 | 14.6 | | |
| Level of Service | В | | D | А | С | В | | |
| Approach Delay (s) | 14.0 | | | 6.7 | 20.1 | | | |
| Approach LOS | В | | | А | С | | | |
| Intersection Summary | | | | | | | | |
| HCM 2000 Control Delay | | | 12.4 | Н | CM 2000 | Level of Service | nanan lan ya na bira dan | ACLINATION |
| HCM 2000 Volume to Capa | acity ratio | | 0.76 | | | | | |
| Actuated Cycle Length (s) | an in the state of | | 51.6 | S | um of lost | t time (s) | | |
| Intersection Capacity Utiliz | ation | | 61.3% | 10 | CU Level | of Service | | |
| Analysis Period (min) | | | 15 | | | | | |
| · Onlitical Laura One | | | | | | | | |

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

∛ Site: Pacific avenue/Marvin Rd

New Site Roundabout

All Movement Classes

| | South | East | North | West | Intersection | |
|-----|-------|------|-------|-------|--------------|--|
| | 25.0 | 20.9 | 106.9 | 119.6 | 78.8 | |
| LOS | D | С | F | F | F | |





Colour code based on Level of Service

| | intraduced strend by a provide the particular spin | | and the second second second second | | Contractor and the second second | |
|------|--|------|-------------------------------------|-------|----------------------------------|------------|
| LOSA | LOS B | LOSC | LOSD | LOS E | LOS F | Continuous |

Level of Service Method: Delay & v/c (HCM 2010)

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Thursday, July 14, 2016 4:17:59 PM SIDRA INTERSECTION 6.0.24.4877 Project: X:\Projects\2015\P15155-000 (Lacey Oak Springs Dev)\DKS\Sidra \2022 with full development.sip6 8000281, 6019144, DKS ASSOCIATES, PLUS / Floating

SIDRA INTERSECTION 6

Intersection

Int Delay, s/veh 120.3

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
|--------------------------|------|------|---|------|--|-----------|--|
| Vol, veh/h | 55 | 198 | 98 | 692 | 1264 | 41 | |
| Conflicting Peds, #/hr | 0 | 1 | 0 | 0 | 0 | 0 | |
| Sign Control | Stop | Stop | Free | Free | Free | Free | |
| RT Channelized | | None | niti te anti si sun te anti si sun te anti si | None | ana na mangangangan ng anang ng ang nang n | None | |
| Storage Length | 0 | | 180 | | | 1994-1-01 | |
| Veh in Median Storage, # | 0 | - | • | 0 | 0 | • | |
| Grade, % | 0 | | | 0 | 0 | 1. T | |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 6 | |
| Mvmt Flow | 60 | 215 | 107 | 752 | 1374 | 45 | |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|----------------------|--------|--|---|------------------------------------|---|--|
| Conflicting Flow All | 2362 | 1397 | 1419 | 0 | - 0 | |
| Stage 1 | 1397 | | | • | A second second is a second s | |
| Stage 2 | 965 | | 19. St. 19 | 100 - Paris 19 | | |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | • | na na sendina per matana ta ana artiga tang pana manana kana kana kana kana kana kana | |
| Critical Hdwy Stg 1 | 5.42 | | 1949 (1965 - 1975) 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 | | | |
| Critical Hdwy Stg 2 | 5.42 | | - | e antidat de datas (a cantos | en en en senten en el la senten el senten en senten en la senten en la senten en la senten en la la participa d • | |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | | · · · · · · · · · · · · · · · · · · · | |
| Pot Cap-1 Maneuver | ~ 39 | ~ 173 | 480 | | n en | |
| Stage 1 | 229 | 1997 - Salar - | | 1.0-38.000 | | |
| Stage 2 | 370 | a navazi na sa | - - | • | er att date i men menet er utbane staten menet i niger i de traderingen verste en e • | |
| Platoon blocked, % | | | | | | |
| Mov Cap-1 Maneuver | ~ 30 | ~ 173 | 480 | - - | | |
| Mov Cap-2 Maneuver | ~ 30 | | 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - | | | |
| Stage 1 | 229 | - | • | era e conse standorffica en sera c | | |
| Stage 2 | 287 | 960 (S. 1964) | | - - | | |

| Approach | EB | NB | SB | |
|----------------------|-------------|-----|----|--|
| HCM Control Delay, s | \$ 1111.2 | 1.8 | 0 | |
| HCM LOS | F. F. State | | | |

| Minor Lane/Major Mvmt | NBL | NBT EBLn1 | SBT | SBR | | | |
|----------------------------|--------|------------------|-----|---------|--|-----------------------------|--------------------------------|
| Capacity (veh/h) | 480 | - 85 | - | - | narite and the second | HEBAUATERE BURGHERSTER (185 | |
| HCM Lane V/C Ratio | 0.222 | - 3.235 | | 1998 M. | | | |
| HCM Control Delay (s) | 14.6 | \$ 1111.2 | - | - | | | |
| HCM Lane LOS | В | - F | - | - | | | |
| HCM 95th %tile Q(veh) | 0.8 | - 27.5 | | - | | | |
| Notes | | | | | | | |
| ~: Volume exceeds capacity | \$: De | lay exceeds 30 |)0s | +: Com | outation Not Def | ined | *: All major volume in platoon |

Intersection

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|---------------------|---|------|---------------|---|------|-----------|---|-----------------------------|------------------|
| Vol, veh/h | 16 | 0 | 4 | 10 | 0 | 190 | 4 | 474 | 10 | 353 | 1076 | 24 |
| Conflicting Peds, #/hr | 1 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 4 | 4 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | a na serie de la construcción de la | | None | na nana a sanang sanang na sana na sana sa | - | None | ••••••••••••••••••••••••••••••••••••••• | dades acriticase | None |
| Storage Length | | | All - | | | 1899 - | 105 | - | 9.30.21 | 100 | entra serie Sector autor | |
| Veh in Median Storage, # | | 0 | - | | 0 | - | Physics of the profile of the profile | 0 | - | angen dagangan pangangan pala pangangan | 0 | 474534704-94 |
| Grade, % | - | 0 | (1997) (- 1 | | 0 | 8 16 - | NAME OF STREET | 0 | 18 Sec. 4 | 1000 | 0 | 100 - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 0 | 4 | 11 | 0 | 209 | 4 | 521 | 11 | 388 | 1182 | 26 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|----------|--------|-------|--------------------|---|----------------------|----------------------------|--|------------------|---------------|
| Conflicting Flow All | 2617 | 2518 | 1203 | 2515 | 2526 | 533 | 1212 | 0 | 0 | 535 | 0 | 0 |
| Stage 1 | 1974 | 1974 | - | 538 | 538 | - | and a second | ett Scaleenpaar • | - | anan marina tana tanàna amin'ny fisiana | - | 04939233 - |
| Stage 2 | 643 | 544 | - | 1977 | 1988 | - 1 | arte galasi | | 1.12 | 10.00 | | |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.24 | 4.12 | • | - | 4.12 | - - - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | | 6.12 | 5.52 | | | 1.14 | 108 - 868 | 1 | | |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | | 6.12 | 5.52 | • | n na serie d'a de la constante de la constante La constante de la constante de | | - original de l'Antorio | en e | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.336 | 2.218 | | | 2.218 | | |
| Pot Cap-1 Maneuver | ~ 16 | 28 | 225 | 19 | 28 | 543 | 576 | ion senatration • | - | 1033 | • | - |
| Stage 1 | 81 | 108 | 1987197- | 527 | 522 | 19.977-11 | Maria Maria | | - M | | 1997 - 17 | |
| Stage 2 | 462 | 519 | - | 80 | 106 | - | ning terministic and the second s | • | | - | - | - |
| Platoon blocked, % | | | | | | | | | - 10 | | | and . |
| Mov Cap-1 Maneuver | ~ 7 | 17 | 224 | 13 | 17 | 540 | 574 | • | - | 1030 | - - | - |
| Mov Cap-2 Maneuver | ~ 7 | 17 | 1011 | 13 | 17 | WS States | | | 9989 1 668 | | 1 | |
| Stage 1 | 80 | 67 | - | 522 | 517 | - | ana | • | - | anan and narota ang ang. - | • | - |
| Stage 2 | 280 | 514 | | 49 | 66 | (1919) 1919 - 1 | | | 101 - 100 | | | |

| Approach | EB | WB | NB | SB |
|----------------------|-----------|-------|-----|-----|
| HCM Control Delay, s | \$ 1467.6 | 196.5 | 0.1 | 2.6 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1\ | WBLn1 | SBL | SBT | SBR | |
|----------------------------|--------|---------|---------|--------|--------|----------|----------------|--------|--------------------------------|
| Capacity (veh/h) | 574 | - | - | 9 | 178 | 1030 | HANDINGS MADIN | - | |
| HCM Lane V/C Ratio | 0.008 | | | 2.442 | 1.235 | 0.377 | | | |
| HCM Control Delay (s) | 11.3 | • | 8- | 1467.6 | 196.5 | 10.6 | - | | |
| HCM Lane LOS | В | | | F | F | В | Bellevier. | | |
| HCM 95th %tile Q(veh) | 0 | - | - | 3.8 | 12.1 | 1.8 | • | - | |
| Notes | | | | | | | | | |
| ~: Volume exceeds capacity | \$: De | lay exc | ceeds (| 300s | +: Com | putation | n Not D | efined | *: All major volume in platoon |

Intersection

| Movement | EBL | EBT | W | 3T | WBR | SBL | SBR | |
|--------------------------|---------|--------|----|----|------|-------------------------|-----------------|--|
| Vol, veh/h | 134 | 544 | 3 | 30 | 35 | 31 | 52 | |
| Conflicting Peds, #/hr | 0 | 0 | | 0 | 0 | 4 | 0 | |
| Sign Control | Free | Free | Fr | ee | Free | Stop | Stop | |
| RT Channelized | | None | | | None | energy energy and the s | None | |
| Storage Length | 105 | 14/212 | | | | 0 | 19月2日、秋田二日 | |
| Veh in Median Storage, # | • | 0 | | 0 | • | 0 | - | |
| Grade, % | FRANCI. | 0 | | 0 | | 0 | 10 10 A 10 - 10 | |
| Peak Hour Factor | 91 | 91 | | 91 | 91 | 91 | 91 | |
| Heavy Vehicles, % | 2 | 2 | | 2 | 2 | 4 | 2 | |
| Mvmt Flow | 147 | 598 | 3 | 63 | 38 | 34 | 57 | |

| Major/Minor | Major1 | | Major2 | | Minor2 | | |
|----------------------|------------|--|---------------------------------------|------------------|--------|---|--|
| Conflicting Flow All | 405 | 0 | | 0 | 1278 | 386 | |
| Stage 1 | - | - | • | - | 386 | | |
| Stage 2 | | (1. A. | 计图书 机合适用法 | \$35 - 07 | 892 | 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - | |
| Critical Hdwy | 4.12 | | | - | 6.44 | 6.22 | |
| Critical Hdwy Stg 1 | | 1. 19 M. 19 | · A Margaret | 12.44 | 5.44 | | |
| Critical Hdwy Stg 2 | - | - | · · · · · · · · · · · · · · · · · · · | - | 5.44 | • | |
| Follow-up Hdwy | 2.218 | 的是:他们。 | | 1990 - 199 | 3.536 | 3.318 | |
| Pot Cap-1 Maneuver | 1154 | | | - | 182 | 662 | |
| Stage 1 | Alfantist- | | A PARAMETERS | 100.0 | 683 | 网络新闻学 植物的 | |
| Stage 2 | - | | | - | 397 | | |
| Platoon blocked, % | | | · · · · · · · · | 1.1.1 | | | |
| Mov Cap-1 Maneuver | 1154 | | | - | 158 | 660 | |
| Mov Cap-2 Maneuver | | 1. A. | • | | 158 | CALCENS-STATE | |
| Stage 1 | - | - | | - | 681 | - | |
| Stage 2 | | 1.63 - , (3.95) | · | | 345 | 1997 - 1997 | |

| Approach | EB | WB | SB | |
|----------------------|-----|----|----|--|
| HCM Control Delay, s | 1.7 | 0 | 22 | |
| HCM LOS | | | С | |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | |
|-----------------------|-------|-----|----------------------|-----|-------|--|
| Capacity (veh/h) | 1154 | - | - | - | 302 | |
| HCM Lane V/C Ratio | 0.128 | | - N. | | 0.302 | |
| HCM Control Delay (s) | 8.6 | - | - | | 22 | |
| HCM Lane LOS | А | | 1. ⁶⁰ .92 | | С | |
| HCM 95th %tile Q(veh) | 0.4 | - | - | - | 1.2 | |

| | ▲ | | * | * | * Carl and the second | * | * | 1 | M | 1 | ţ | ~ |
|------------------------------|------|---------------------------------|---|----------------------------------|-----------------------|---|-----------------------------|-----------------------|----------------------------------|------|--|---------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4. | nga galak pinangan ngan ngan ngan ngan ngan ngan ng | ħ | ţ, | A CAREER IN THE REAL PROPERTY OF | ¥ | î. | and an appropriate state of the |
| Volume (veh/h) | 16 | 0 | 4 | 10 | 0 | 193 | 4 | 464 | 9 | 342 | 1019 | 23 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ō | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.97 | 1.00 | | 0.97 | 1.00 | | 0.97 | 1.00 | an a | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/In | 1900 | 1863 | 1900 | 1900 | 1829 | 1900 | 1863 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 18 | 0 | 4 | 11 | 0 | 212 | 4 | 510 | 10 | 376 | 1120 | 25 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 1 | 1 | 0 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 35 | 0 | 8 | 12 | 0 | 241 | 154 | 722 | 14 | 416 | 1226 | 27 |
| Arrive On Green | 0.02 | 0.00 | 0.02 | 0.17 | 0.00 | 0.17 | 0.40 | 0.40 | 0.40 | 0.23 | 0.68 | 0.68 |
| Sat Flow, veh/h | 1411 | 0 | 313 | 75 | 0 | 1441 | 489 | 1820 | 36 | 1774 | 1814 | 40 |
| Grp Volume(v), veh/h | 22 | 0 | 0 | 223 | 0 | 0 | 4 | 0 | 520 | 376 | 0 | 1145 |
| Grp Sat Flow(s).veh/h/ln | 1724 | Ō | Ő | 1516 | Ő | Ő | 489 | Ň | 1855 | 1774 | ň | 1854 |
| Q Serve(q s), s | 1.1 | 0.0 | 0.0 | 13.0 | 0.0 | 0.0 | 0.6 | 0.0 | 21.3 | 18.6 | 00 | A7 A |
| Cycle Q Clear(g c), s | 1.1 | 0.0 | 0.0 | 13.0 | 0.0 | 0.0 | 22.8 | 0.0 | 21.3 | 18.6 | 0.0 | 47.4 47.4 |
| Prop In Lane | 0.82 | | 0.18 | 0.05 | 0.0 | 0.95 | 1.00 | 0.0 | 0.02 | 1 00 | 0.0 | 0.02 |
| Lane Grp Cap(c), veh/h | 43 | 0 | 0 | 253 | 0 | 0.00 | 154 | 0 | 736 | 416 | 0 | 1253 |
| V/C Ratio(X) | 0.52 | 0.00 | 0.00 | 0.88 | 0.00 | 0.00 | 0.03 | 0 00 | 0.71 | 0 90 | 0.00 | 0.01 |
| Avail Cap(c a), veh/h | 305 | 0 | 0 | 268 | 0 | 0 | 155 | 0 | 738 | 510 | 0.00 | 1353 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1 00 | 1 00 | 1 00 | 1 00 | 1 00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 43.6 | 0.0 | 0.0 | 36.8 | 0.0 | 0.0 | 32.8 | 0.0 | 22 9 | 33.6 | 0.00 | 12 / |
| Incr Delay (d2), s/veh | 9.3 | 0.0 | 0.0 | 26.1 | 0.0 | 0.0 | 01 | 0.0 | 31 | 17.1 | 0.0 | 0.2 |
| Initial Q Delav(d3).s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%).veh/In | 0.7 | 0.0 | 0.0 | 7.3 | 0.0 | 0.0 | 01 | 0.0 | 11.5 | 11.1 | 0.0 | 27.1 |
| LnGrp Delav(d).s/veh | 52.9 | 0.0 | 0.0 | 62.9 | 0.0 | 0.0 | 32.8 | 0.0 | 25.9 | 50.8 | 0.0 | 21.8 |
| LnGrp LOS | D | | i de la competition d | E | | | C | | C | D | 0.0 | C |
| Approach Vol. veh/h | | 22 | 1 Mail an Frank State State State State State | and many more in off province of | 223 | azərə di taparış takı yıranı takı yı | Provide Station Street Land | 524 | | | 1521 | 0 |
| Approach Delay, s/veh | | 52.9 | | | 62.9 | | | 26.0 | | | 28.9 | |
| Approach LOS | | D | | | E | | | C | | | C | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 25.2 | 39.9 | | 6.2 | | 65.1 | | 19.1 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | 26.0 | 36.0 | | 16.0 | | 66.0 | | 16.0 | | | | |
| Max Q Clear Time (g_c+l1), s | 20.6 | 24.8 | | 3.1 | | 49.4 | | 15.0 | | | | |
| Green Ext Time (p_c), s | 0.6 | 8.6 | | 0.0 | | 11.8 | | 0.1 | | | | |
| Intersection Summary | | and a start of the start of the | and the second second | | | | | (International Action | | | | |
| HCM 2010 Ctrl Delay | | | 31.8 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

| | ٨ | | * | * | | | * | Ť | 1 | 1 | ł | 1 |
|--|--|-----------------------|-----------------------|-------------------|------------------------|--------|----------|---|------------------------------------|---|-------------------|--------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | đ, | ****** | ¥ | î. | of an and a state of the second of | Ϋ́ | L | |
| Volume (veh/h) | 16 | Ō | 4 | 10 | 0 | 190 | 4 | 474 | 10 | 353 | 1076 | 24 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | Ō | 0 | 0 | ō | 0 | 0 | Õ | 0 |
| Ped-Bike Adi(A pbT) | 1.00 | | 0.96 | 1.00 | | 0.97 | 1.00 | | 0.97 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1 00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1900 | 1900 | 1829 | 1900 | 1863 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 18 | 0 | 4 | 11 | 0 | 209 | 4 | 521 | 11 | 388 | 1182 | 26 |
| Adj No. of Lanes | 0 | 000 yzanowadaneo 1 | 0 | 0 | ana na mangangangangan | 0 | | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh. % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap. veh/h | 34 | 0 | 8 | 12 | ō | 227 | 135 | 764 | 16 | 426 | 1270 | 28 |
| Arrive On Green | 0.02 | 0.00 | 0.02 | 0.16 | 0.00 | 0.16 | 0.42 | 0.42 | 0 42 | 0.24 | 0.70 | 0.70 |
| Sat Flow, yeh/h | 1409 | 0 | 313 | 76 | 0 | 1440 | 461 | 1816 | 38 | 1774 | 1815 | 40 |
| Gro Volume(v) veh/h | 22 | 0 | 0 | 220 | 0 0 | 0 | <u> </u> | 0 | 532 | 288 | 0 | 1209 |
| Grp Sat Flow(s) veh/h/ln | 1722 | ñ | ñ | 1515 | ñ | ñ | 461 | 0 | 1855 | 177/ | 0 | 1200 |
| 0 Serve(q s) s | 13 | 0.0 | 0.0 | 14 5 | 0.0 | 00 | 0.8 | 0 | 23.6 | 21.6 | 00 | 1000 56 D |
| Cycle O Clear(q, c) s | 1.3 | 0.0 | 0.0 | 14.5 | 0.0 | 0.0 | 20.3 | 0.0 | 20.0 | 21.0 | 0.0 | 50.9 |
| Pron In Lane | 0.82 | 0.0 | 0.0 | 0.05 | 0.0 | 0.0 | 1.00 | 0.0 | 0.02 | 1 00 | 0.0 | 0.9 |
| Lane Gen Can(c) veh/h | 42 | ٥ | 0.10 | 230 | ٥ | 0.95 | 125 | 0 | 700 | 1.00 | ٥ | 1002 |
| V/C Batio(X) | 0.53 | 0 00 | 0 00 | 0.02 | 0 00 | 0 | 0.02 | 0 | 100 | 420 | 0 00 | 1298 |
| $\Delta vail Can(c, a) veh/h$ | 272 | 0.00 | 0.00 | 220 | 0.00 | 0.00 | 125 | 0.00 | 0.00 | 0.91 | 0.00 | 1000 |
| HCM Platoon Batio | 1.00 | 1.00 | 1 00 | 1.00 | 1 00 | 1 00 | 100 | 1 00 | 1 00 | 1 00 | 0 | 1389 |
| linstream Filter/I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Dolay (d) shoh | 100 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Iner Delay (d2) s/veh | 40.9 | 0.0 | 0.0 | 42.1 | 0.0 | 0.0 | 01.9 | 0.0 | 23.9 | 37.5 | 0.0 | 13.1 |
| Initial O Delay (d2), s/veh | 0.1 | 0.0 | 0.0 | 07.4 | 0.0 | 0.0 | 0.1 | 0.0 | 2.4 | 10.9 | 0.0 | 11.0 |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 |
| ////////////////////////////////////// | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 12.6 | 12.6 | 0.0 | 32.5 |
| | 59.U | 0.0 | 0.0 | 79.5 | 0.0 | 0.0 | 38.0 | 0.0 | 26.3 | 54.4 | 0.0 | 24.1 |
| Approach Vol. yeh/h | C | 00 | and the second second | C | 000 | | D | | <u> </u> | D | | <u> </u> |
| Approach Vol, ven/n | | 22 | | | 220 | | | 536 | | | 1596 | |
| Approach Delay, s/ven | | 59.0 | | | /9.5 | | | 26.4 | | | 31.4 | |
| Approach LOS | Martin HTTS To an a far full high farmer | E | | | E | | | C | | | С | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | and design and the second second | والمتحدية والمتحد | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 28.4 | 46.7 | | 6.4 | | 75.0 | | 20.0 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | 31.0 | 41.0 | | 16.0 | | 76.0 | | 16.0 | | | | |
| Max Q Clear Time (g_c+l1), s | 23.6 | 31.3 | | 3.3 | | 58.9 | | 16.5 | | | | |
| Green Ext Time (p_c), s | 0.8 | 7.9 | | 0.0 | | 12.1 | | 0.0 | | | | |
| Intersection Summary | | Anterior | | | | | | | | | | |
| HCM 2010 Ctrl Delay | (Anglewid | 网络德国 | 35.0 | North Constraints | and a second | | | M. S. | | ne se | | |
| HCM 2010 LOS | | | D | | | | | | | | | |