# Appendix G

## Traffic Impact Analysis (Kd Anderson)

### TRAFFIC IMPACT ANALYSIS

#### FOR

### **RECOLOGY HAY ROAD LANDFILL EXPANSION PROJECT** Solano County, CA

Prepared For:

#### ASCENT ENVIRONMENTAL, INC. 455 Capitol Mall, Suite 300 Sacramento, CA 95814

Prepared By:

**KD Anderson & Associates, Inc.** 3853 Taylor Road, Suite G Loomis, California 95650

(916) 660-1555



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Hay Rd Landfill.rpt

KD Anderson & Associates, In

### RECOLOGY HAY ROAD LANDFILL EXPANSION PROJECT TRAFFIC IMPACT ANALYSIS

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### RECOLOGY HAY ROAD LANDFILL EXPANSION PROJECT TRAFFIC IMPACT ANALYSIS

### **EXECUTIVE SUMMARY**

**Project Description.** This study evaluates the traffic impacts associated with amending the existing Conditional Use Permit (CUP) to reflect changes requested for the Recology Hay Road Landfill site in Solano County. The Recology Hay Road Landfill is located in the southwest quadrant of the SR 113 / Hay Road intersection in Solano County. Access to the site is from Hay Road just west of SR 113. The project will revise the existing daily tonnage limit and establish a new peak limit as well as an average daily limit. The existing CUP allows for 2,400 tons per day (tpd) of landfill disposal. Occasionally, the site has received more than 2,400 tpd requiring the site to turn away vehicles so as to not exceed the existing peak limit. The project would amend the CUP to allow a peak day limit of 3,400 tpd with a 7-day average limit of 3,200 tpd. This will allow the site to not have to turn away haulers.

**Existing Setting.** Levels of Service were evaluated for eight intersections and six roadway segments to provide a baseline analysis to meet CEQA criteria. The intersection locations included intersections between the I-80 / Midway Road interchange, and along Midway Road and SR 113. The analysis included a.m. and p.m. peak hours at all intersections and included a Saturday peak hour analysis at four intersections closest to the site. Sunday traffic was reviewed at the project site and was consistently lower than Saturday traffic; therefore, the weekend analysis included only Saturday.

The six roadway segments considered included three along SR 113, two along Midway Road and one along Hay Road. County Level of Service policy considers LOS C as the acceptable threshold while Caltrans policy considers LOS D as the acceptable threshold.

The SR 12 / SR 113 intersection currently operates at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour. Caltrans has an identified safety project that would construct a single lane roundabout at this intersection. Construction is slated to be completed Fall 2019. Under the roundabout condition the intersection will operate at LOS A in the a.m. peak period (7.0 spv) and LOS C in the p.m. peak hour (18.8 spv). The remaining intersections and roadway segments operate within the Caltrans and County LOS thresholds.

No additional recommendations are noted.

**Existing Plus Project Specific Impacts.** Under Existing plus Project conditions, all intersections except the SR 12 / SR 113 intersection will operate within acceptable County and Caltrans LOS thresholds. The SR 12 / SR 113 intersection will continue to operate at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour. As identified under Existing Conditions



Caltrans has an identified safety project that would construct a single lane roundabout at this intersection. With this project completed the intersection will operate at LOS A in the a.m. peak hour (7.1 spv) and LOS C in the p.m. peak hour (19.1 spv). All roadways will continue to operate within the Caltrans and County LOS thresholds.

No additional mitigations are necessary.

**2030** Conditions. Under 2030 conditions, the SR 113 / Midway Road intersection will decline to an LOS E condition in the a.m. peak hour (45.7 spv) and LOS F condition in the p.m. peak hour (53.6 spv). The intersection will not meet the peak hour traffic signal warrant. The SR 12 / SR 113 intersection will decline to LOS F in the p.m. peak hour (124.4 spv). One roadway segment, Midway Road between the I-80 Eastbound Ramps intersection and Porter Road will decline to LOS D in both directions. The remaining intersections and roadway segments will operate within County and Caltrans LOS thresholds.

The following recommendations are made:

### Recommendations:

- SR 113 / Midway Road: Installation of all-way stop control will improve the level of service to LOS B in both a.m. (13.3 spv) and p.m. (13.7 spv) peak hours. Caltrans has identified a conceptual project to widen shoulders, construct a median and install a traffic signal at the SR 113 / Midway Road intersection to enhance safety; however, this project is not yet included in a planning or programming document.
- SR 12 / SR 113: Installation of a second eastbound lane through the roundabout will improve the level of service to a LOS C (21.5 spv) condition in the p.m. peak hour. No agencies with jurisdiction currently have plans for any improvements at this intersection.
- Midway Road I-80 Eastbound Ramps to Porter Road (both directions): A 0.30 mile long passing lane in both eastbound and westbound directions would be needed to improve the roadway segment to an acceptable level of service, LOS C (EB ATS 45.1 / PTSF 52.8; WB ATS 45.3 / PTSF 43.0). No agencies with jurisdiction currently have plans for any improvements at this intersection.

No additional recommendations are noted.

**2030 Plus Project Conditions.** The SR 113 / Midway Road intersection and the SR 12 / SR 113 intersection will continue to operate below the Caltrans LOS D threshold. Additionally, both directions of Midway Road, between the I-80 Eastbound Ramps intersection and Porter Road will operate at LOS D. The remaining intersections and all roadway segments will operate within County and Caltrans LOS thresholds. The following mitigations are made:

### Mitigations:



- SR 113 / Midway Road: As identified in the 2030 No Project Recommendations installation of all-way stop control will improve the level of service to LOS B in both a.m. (13.7 spv) and p.m. (13.8 spv) peak hours. This intersection is under the jurisdiction of Caltrans, and Caltrans has identified a conceptual project to widen shoulders, construct a median and install a traffic signal at the SR 113 / Midway Road intersection to enhance safety. However, this project is not yet included in a planning or programming document. Any improvement of the intersection would require Caltrans concurrence and approval. The project applicant and Solano County shall coordinate with Caltrans on implementation of this improvement. However, because the final approval of the proposed improvement is outside the jurisdiction and control of the Applicant and County, there is no guarantee that this mitigation measure would be implemented prior to project-related trips occurring at this intersection. Therefore, this is considered a significant and unavoidable impact.
- SR 12 / SR 113: As identified in the 2030 No Project Recommendations installation of a second eastbound lane through the roundabout will improve the level of service to a LOS C (21.7 spv) condition in the p.m. peak hour. This improvement is under the jurisdiction of Caltrans. Any improvement of the intersection would require Caltrans concurrence and approval. The project applicant and Solano County shall coordinate with Caltrans on implementation of this improvement. However, because the final approval of the proposed improvement is outside the jurisdiction and control of the Applicant and County, there is no guarantee that this mitigation measure would be implemented prior to project-related trips occurring at this intersection. Additionally, Caltrans does not currently have plans for any improvements at this intersection. Therefore, this is considered a significant and unavoidable impact.
- Midway Road I-80 Eastbound Ramps to Porter Road (both directions): As identified in the 2030 No Project Recommendations a 0.30 mile long passing lane in both eastbound and westbound directions would be needed to improve the roadway segment LOS to an acceptable level of LOS C (EB ATS 45.0 / PTSF 53.2; WB ATS 45.2 / PTSF 43.7). This improvement is under the jurisdiction of Solano County. The project applicant shall coordinate with Solano County and shall fund the improvement of this segment to be constructed prior to vehicle trips to the landfill exceeding 2,400 per day. Therefore, with mitigation, this is considered a less-than-significant impact.

No additional mitigations are identified.



### RECOLOGY HAY ROAD LANDFILL EXPANSION PROJECT TRAFFIC IMPACT ANALYSIS

### **INTRODUCTION**

#### **Study Purpose and Objectives**

This study evaluates the traffic impacts associated with amending the existing Conditional Use Permit (CUP) to reflect changes requested for the Recology Hay Road Landfill site. Regarding traffic related issues the project proposed to revise the existing daily tonnage limit and establish a new peak limit as well as an average daily limit. The existing CUP allows for 2,400 tons per day (tpd) of landfill disposal. Occasionally, the site has received more than 2,400 tpd requiring the site to turn away vehicles so as to not exceed the existing peak limit. The project would amend the CUP to allow a peak day limit of 3,400 tpd with a 7-day average limit of 3,200 tpd. This will allow the site to not have to turn away haulers.

The study parameters are consistent with Solano County guidelines. The study addresses the following traffic scenarios:

- 1. Existing (2018) Peak Hour Traffic Conditions;
- 2. Existing plus Project Peak Hour Traffic Conditions;
- 3. Year 2030 Peak Hour Traffic Conditions;
- 4. Year 2030 plus Project Peak Hour Traffic Conditions;

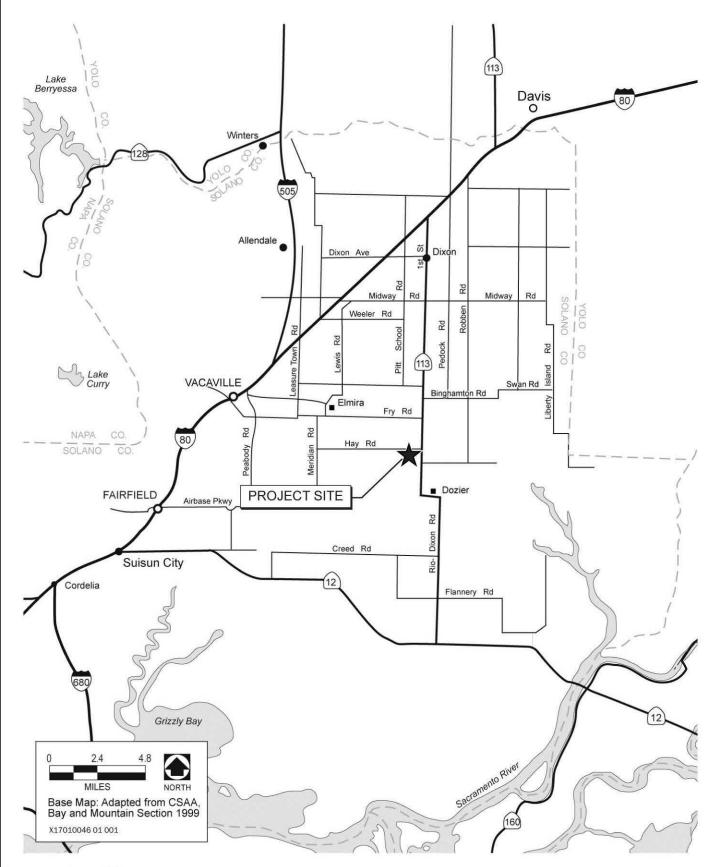
The focus of this study is to identify project-related impacts under long-term conditions as a result of accepting an additional 1,718 tpd at the site, which is the difference between existing tonnage received at the landfill and allowable tonnage to be received under the proposed CUP amendments. Analysis of an Existing condition is required to address the requirements of Sections 15125 of the State CEQA Guidelines, "an EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective."

### **Project Description**

The Hay Road Landfill is located east of the City of Vacaville in Solano County. The site is located in the southwest quadrant of the SR 113 (Rio Dixon Road) / Hay Road intersection. The project will modify the previously approved Hay Road Landfill Expansion project. From a transportation perspective the proposed project will modify the existing daily limit to accept up to 3,400 tpd with an average of 3,200 tpd over a 7-day period.

Access to the site facility will remain unchanged, via its access along Hay Road. Figure 1 illustrates the location of the site relative to the surrounding areas of Solano County.





Source: Doug Brown 2012

SITE PLAN

### **EXISTING SETTING**

### Study Area

This study addresses traffic conditions in the vicinity of the Hay Road Landfill project site, including the project routes from the Interstate 80 (I-80) / Midway Road interchange to the north and from the SR 113 / SR 12 intersection to the south. Six roadway segments were analyzed along with eight intersections along the routes providing access to the landfill site. The text that follows describes the facilities included in this analysis.

### **Study Area Roadways**

**State Route 113.** State Route (SR) is a two-lane road between in Solano County beginning at SR 12 in the south and heads north past I-80, continuing through Davis and Woodland to its terminus in Sutter County. Between SR 12 and Midway Road, the road has varying shoulder widths, ranging from about 10' at intersections to 0' within the segments. The speed limit is 55 miles per hour (mph). SR 113 is identified in Solano County as a major arterial.

**Midway Road.** Midway Road is a two-lane road providing east-west access west of I-80 and east beyond the SR 113 intersection. The road has varying shoulder widths, ranging between 0 and 8 feet. The speed limit is 55 miles per hour (mph). Midway Road is identified in Solano County as a County Route of Regional Significance.

**Hay Road.** Hay Road is a two-lane local road running east-west between Meridian Road and SR 113. The road has minimal shoulder widths, ranging between 0 and 2 feet. The speed limit is 55 miles per hour (mph). Hay Road is identified in Solano County as a collector road.

### **Study Area Intersections**

The quality of traffic flow is typically governed by the operation of major intersections. Eight intersections serving this site were identified for evaluation. These include:

- 1) I-80 Westbound Ramps / Oday Road
- 2) Midway Road / Oday Road
- 3) I-80 Eastbound Ramps / Midway Road
- 4) Midway Road / Porter Road
- 5) SR 113 / Midway Road
- 6) SR 113 / Hay Road
- 7) SR 113 / SR 12
- 8) Hay Road / Project Entrance

A.m. and p.m. mid-week peak hour counts were conducted at each of these intersections in late January and early February 2018. Traffic counts were also conducted at intersections 5 through 8 for the Saturday mid-day peak period in late January 2018. New counts were also conducted at intersections 1 through 3 in early October 2018; the I-80/Midway Road interchange has been



reopened since July 2018 after being replaced. The Midway Road interchange is the designated truck route for the site.

Each study intersection is described below:

**I-80 Westbound Ramps / Oday Road** is a tee intersection with a hook on/off ramp. The intersection is stop controlled along the I-80 off-ramp approach. The Oday Road approaches consist of single lanes providing shared through and left or right turn right turn movements. The westbound off-ramp includes a left turn lane under stop control and a short right turn lane under yield control.

**Midway Road / Oday Road** is an unsignalized tee intersection. Stop control is provided along Oday Road. Westbound Midway Road includes a through lane with a free right turn lane onto Oday Road. Eastbound Midway Road includes a shared through-left lane while Oday Road consists of a single lane approach.

The **Midway Road** / **I-80 Eastbound Ramps intersection** is an unsignalized diamond configuration (L-1). Both directions of Midway Road consist of a single lane with the eastbound approach providing a shared through left lane and the westbound approach providing a shared through-right lane. Stop control exists along the I-80 off-ramp for through and left turn movements while the right turn movement merges onto eastbound Midway Road.

The **Midway Road** / **Porter intersection** is an unsignalized tee intersection. Eastbound Midway Road bypasses the Porter Road intersection while westbound Midway Road tees into Porter Road. The westbound left turn is stop controlled while the right turn is yield controlled. The northbound and southbound approaches along Porter Road allow only through movements.

The **SR 113** / **Midway Road intersection** is an unsignalized four-way intersection with stop control along Midway Road. The SR 113 approaches include left turn lanes and a shared through-right lane while Midway Road consists of a single lane.

The **SR 113 / Hay Road intersection** is an unsignalized tee intersection with stop control along Hay Road. All approaches are single lanes.

The SR 12 / SR 113 – Birds Landing Road intersection is an unsignalized four-way intersection with stop control along SR 113. The SR 12 approaches include a left turn lane, a through lane and a right turn lane. Both the northbound Birds Landing Road approach and the SR 113 approach include a shared through-left lane and a right turn lane. Caltrans has an identified safety project that would construct a single lane roundabout at this intersection. Construction is slated to be completed Fall 2019.

The **Hay Road / Project Access intersection** is an unsignalized tee intersection with stop control along the project access. Westbound Hay Road includes a through lane and a left turn lane while the eastbound approach includes a shared through-right lane. The project entrance is unstriped but wide enough to allow both right and left turning vehicles to queue.



### Level of Service

To assess the quality of existing traffic conditions and provide a basis for analyzing project impacts, Levels of Service were calculated at study area intersections and project driveways. "Level of Service" is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening operating conditions, is assigned to an intersection or roadway segment.

The Level of Service policies of Solano County and Caltrans govern this analysis. The Solano County Road Standards documents the County's policies for Level of Service in rural and urban areas. The document notes that LOS C is the design standard for the County.

Caltrans has set a minimum Level of Service standard of LOS D in rural areas, populations less than 2,500 and LOS E in urban clusters (populations 2,500 to 49,999) and LOS E in urbanized areas (populations over 50,000) for state highways. These standards may vary depending on the corridor conditions. For this project LOS D is considered the significance threshold.

Various methodologies exist to determine operating Levels of Service at signalized intersections. The available techniques vary with regard to factors such as traffic signal timing, interaction between adjoining signals, etc. The procedures contained in the *2010 Highway Capacity Manual* have been used for determining operating Level of Service at signalized intersections.

At unsignalized intersections the number of gaps in through traffic, gap acceptance time and corresponding delays for motorists waiting to turn are used for Level of Service analysis. Procedures used for calculating unsignalized intersection Level of Service are as presented in the *Highway Capacity Manual, 2010 Edition.* 

Table 1 presents general characteristics associated with each Level of Service grade.



Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Ave Delay < 10 seconds per vehicle	Little or no delay. Ave Delay $\leq 10$ sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay $> 10$ sec/veh and $\leq 20$ sec/veh	Short traffic delays. Delay > 10 sec/veh and $\leq$ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay >20 sec/veh and <35 sec/veh	Average traffic delays. Delay > 15 sec/veh and $\leq$ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35 sec/veh and < 55 sec/veh	Long traffic delays. Delay > 25 sec/veh and $\leq$ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay >55 sec and $\leq 80$ sec/veh	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and $\leq$ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80 sec/veh	Intersection often blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

### TABLE 1LEVEL OF SERVICE DEFINITIONS

### **Roadway Segment Level of Service**

**Two-Lane Highway Roadway Segments.** Roadway segments were analyzed using methods presented in the *Highway Capacity Manual 2010 (HCM)*. A two-lane highway is an undivided roadway with one lane in each direction. Passing a slower vehicle requires use of the opposing lane as sight distance and gaps in the opposing traffic stream permit. As volumes and geometric restrictions increase, the ability to pass decreases and platoons form. Motorists in platoons are subject to delay because they are unable to pass. The HCM divides these roadways into three types: Class I, Class II and Class III. They are defined as follows:

• *Class I two-lane highways* are highways where motorists expect to travel at relatively high speeds. Two-lane highways that are major intercity routes, primary connectors of major traffic generators, daily commuter routes, or major links in state or national



highway networks are generally assigned to Class I. These facilities serve mostly longdistance trips or provide the connections between facilities that serve long-distance trips.

- *Class II two-lane highways* are highways where motorists do not necessarily expect to travel at high speeds. Two-lane highways functioning as access routes to Class I facilities, serving as scenic or recreational routes (and not as primary arterials), or passing through rugged terrain (where high-speed operation would be impossible) are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning or ending portions of longer trips, or trips for which sightseeing plays a significant role.
- *Class III two-lane highways* are highways serving moderately developed areas. They may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas. On such segments, local traffic often mixes with through traffic, and the density of unsignalized roadside access points is noticeably higher than in a purely rural area. Class III highways may also be longer segments passing through more spread-out recreational areas, also with increased roadside densities. Such segments are often accompanied by reduced speed limits that reflect the higher activity level.

**Levels of Service.** Three measures of effectiveness are incorporated into the methodology to determine automobile LOS:

- 1. Average Travel Speed (ATS) reflects mobility on a two-lane highway. It is defined as the highway segment length divided by the average travel time taken by vehicles to traverse it during a designated time interval.
- 2. Percent Time Spent Following (PTSF) represents the freedom to maneuver and the comfort and convenience of travel. It is the average percentage of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Because this characteristic is difficult to measure in the field, a surrogate measure is the percentage of vehicles traveling at headways of less than 3.0 at a representative location within the highway segment. PTSF also represents the approximate percentage of vehicles traveling in platoons.
- 3. Percent of free-flow speed (PFFS) represents the ability of vehicles to travel at or near the posted speed limit.

Speed and delay due to passing restrictions are both important to motorists on Class I two-lane highways; therefore, LOS is defined in terms of both ATS and PTSF. Travel speed is not a significant issue on Class II highways; therefore, LOS is defined in only terms of PTSF. High speeds are not expected on Class III highways and since the length of the Class III segments may be generally limited, passing restrictions are also not a major concern. In Class III segments drivers are expected to want to travel at or near the speed limit. Therefore, PFFS is used to define LOS. The LOS criteria for two-lane highways are shown in Table 2.



### TABLE 2 AUTOMOBILE LOS FOR TWO-LANE HIGHWAYS<sup>+</sup>

	Class I H	lighways	Class II Highways	Class III Highways
LOS	ATS (mi / hr)	<b>PTSF (%)</b>	<b>PTSF (%)</b>	<b>PFFS</b> (%)
А	>55	≤35	≤40	>91.7
В	>50-55	>35-50	>40-55	>83.3-91.7
С	>45-50	>50-65	>55-70	>75.0-83.3
D	>40-45	>65-80	>70-85	>66.7 - 75.0
Е	≤40	>80	>85	≤66.7

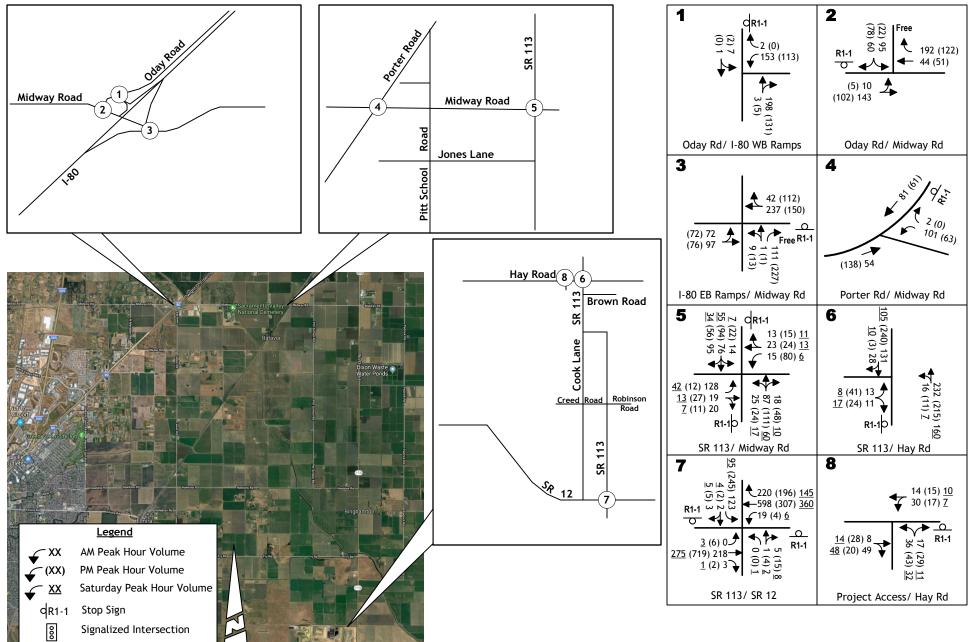
† HCM 2010, Chapter 15, December 2010

### **Existing Traffic Conditions**

**Intersection Levels of Service.** Level of Service is based on and measured in terms of delay (seconds) per vehicle for the peak fifteen-minute analysis period. For unsignalized minor leg stop controlled intersections the movement with the worst delay approach movement is considered the critical Level of Service for the intersection. For multiway stop-controlled intersections the Level of Service is determined based on the overall average delay in the intersection.

Figure 2 presents the intersection turning movements for each intersection. Table 3 summarizes current Levels of Service at the study area intersections during the a.m. and p.m. peak hour. Saturday peak hour level of service was also calculated along the SR 113 intersections and at the Hay Road / Project Entrance intersection. Sunday traffic was reviewed at the project site and was consistently lower than Saturday traffic; therefore, the weekend analysis included only Saturday. All intersections except the SR 12 / SR 113 intersection currently operate at LOS C or better. The SR 12/ SR 113 intersection operates at LOS E in the a.m. peak hour with a delay of 38.8 seconds per vehicle (spv) and LOS F in the p.m. with a delay of 373.3 spv. This intersection meets the peak hour signal warrant in the p.m. peak hour. Caltrans has an identified safety improvement at this intersection which will construct a single lane roundabout. This project is identified for completion in the Fall 2019.





\*\*NOTE: Intersections 1-4 not analyzed on Saturday

EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc. Transportation Engineers

			xisting Peak Hour		xisting 'eak Hour		xisting y Peak Hour	Peak Hour
Location	Control	LOS	Average Delay (secs)	LOS	Average Delay (secs)	LOS	Average Delay (secs)	Warrant Met?
1. I-80 Westbound Ramps / Oday Rd	WB Stop							No
SB Left		А	6.7	А	7.5			
WB		В	10.3	А	9.6			
2. Midway Road/ Oday Rd	SB Stop							No
SB		В	11.0	А	9.8			
EB Left		А	7.8	А	7.6			
3. I-80 Eastbound Ramps / Midway Rd	NB Stop							No
NB	_	В	13.0	В	12.2			
EB Left		А	8.1	А	8.1			
4. Midway Rd / Porter Rd	WB Stop							No
WB	-	А	9.0	А	8.8			
5. SR 113 / Midway Rd	EB/EB							No
NB Left	Stop	А	7.7	А	7.6	А	7.5	
SB Left		А	7.5	А	7.6	А	7.4	
EB		В	13.7	В	12.0	В	10.5	
WB		В	11.4	В	13.7	А	9.9	
6. SR 113 / Hay Rd	EB Stop							No
NB Left	1	А	7.6	А	7.8	А	7.5	
EB		В	10.6	В	12.1	А	9.5	
7. SR 113 / SR 12	NB/SB							Yes
NB	Stop	С	24.1	С	17.8	В	12.0	
SB	Ť	Е	38.8	F	373.3	С	20.5	
EB Left		А	0.0	А	8.6	А	8.6	
WB Left		А	7.8	А	9.3	А	7.9	
8. Hay Rd / Project Entrance	NB Stop							No
NB	-	А	9.2	А	9.1	А	9.0	
WB Left		А	7.4	А	7.3	А	7.4	

 TABLE 3

 EXISTING PEAK HOUR LEVELS OF SERVICE AT INTERSECTIONS

AWS - multi-way stop



**Existing Roadway Segment Levels of Service.** Table 4 summarizes the Levels of Service based on the current traffic volumes on study area roads with the existing roadway configuration. Applicable Level of Service thresholds and roadway classifications are presented. The Levels of Service along Midway Road, SR 113 and Hay Road were computed using the HCS two-lane roadway methodology. Both County roadways will operate at LOS C or better while the segments along SR 113 operate at LOS D or better. These are within the acceptable thresholds.

		Facility	ATS/PTSF/LOS	ATS/PTSF/LOS
Roadway	Location	Classification	Existing AM	Existing PM
Midway Rd	I-80 to Porter Rd	Class I Highway		
	EB		46.6 / 42.8 / C	45.9 / 55.0 / C
	WB		46.5 / 53.3 / C	46.0 / 49.8 / C
	Porter Rd to SR 113	Class I Highway		
	EB		48.2 / 35.3 / C	50.0 / 13.9 / B
	WB		48.0 / 30.5 / C	50.2 / 28.1 / B
SR 113	Midway Rd to Fry Rd	Class I Highway		
	NB		47.7 / 29.1 / C	45.9 / 36.8 / C
	SB		47.5 / 25.0 / C	45.9 / 37.3 / C
	Fry Rd to Hay Rd	Class I Highway		
	NB		45.8 / 44.2 / C	44.8 / 46.1 / D
	SB		45.6 / 31.7 / C	44.8 / 43.8 / D
	Hay Rd to SR 12	Class I Highway		
	NB		46.1 / 48.2 / C	44.9 / 45.3 / D
	SB		45.7 / 30.5 / C	44.9 / 50.4 / D
Hay Rd	SR 113 to Daily Rd	Class I Highway		
	EB		49.7 / 24.9 / C	49.5 / 26.4 / C
	WB		49.7 / 24.9 / C	49.4 / 15.1 / C

### TABLE 4EXISTING ROADWAY SEGMENT LEVELS OF SERVICE

ATS – average travel speed

PTSF - percent time spent following

### Non-Automobile Transportation

**Public Transit.** Various bus services are provided within Solano County. These include the Fairfield and Suisun Transit System (FAST), Rio Vista Delta Breeze, Solano Express and Vacaville City Coach. These services provide local and intercity routes along the I-80 corridor; however, there are no routes along Midway Road or SR 113.

**Bicycle and Pedestrian Facilities.** Due to the rural nature of the project location there are no bike facilities or pedestrian facilities present.



### **Existing Plus Project Conditions**

Under Section 15126.2 of the CEQA guidelines, a project must be evaluated individually and cumulatively to determine whether the project causes a significant effect on the environment. Individually, the project is evaluated under Existing conditions, i.e., Existing plus Project conditions while cumulatively, it is analyzed under future conditions which may include either a list of past, present and probably future projects producing related or cumulative impacts or a summary of projections contained in an adopted local, regional or statewide plan or related planning document.

This project is intended to amend the existing Conditional Use Permit by allowing up to 3,400 tons of refuse to be delivered to the site, while maintaining an average 7-day average of 3,200 tons per day.

The 2016 data (tonnage received and vehicle trips) is an appropriate baseline against which to assess the potential net growth in vehicles travelling to and from the landfill as a result of the project. During 2017 and 2018, the landfill assisted in the disposal of fire debris from wildfires in Northern California, which resulted in the accommodation of additional tonnage within the disposal area and additional vehicles travelling to and from the landfill. Table 5 identifies the annual tonnage received, with and without the fire debris and the number of vehicles travelling to and from the landfill during those periods. Because the acceptance of fire debris was in response to an emergency condition, the additional tonnage received and trips conducted were not subject to the established limits within the CUP for the landfill. As a result, use of either 2017 or 2018 tonnage data as part of the baseline against which the potential impacts of an amended CUP would be assessed is considered inappropriate and potentially misleading because it does not represent the landfill's typical operating condition.

Year	Baseline Tonnage	<b>Baseline Vehicles</b>
2016	1,682	425
2017 (with fire debris)	1,947	471
2018 (with fire debris)	2,083	465

TABLE 5HISTORICAL ANNUAL TONNAGE 2016 – 2018

Italics: Baseline

**Trip Generation.** The 2016 7-day tonnage averaged about 1,682 per day. Recology Hay Road projects that most new municipal solid waste (MSW) associated with the proposed project will arrive from outside the local area using semitrailer. MSW tonnage arriving to the site is projected as follows:



- 90% 20-ton transfer trucks
- 8% 7-ton packer trucks
- 2% <sup>1</sup>/<sub>2</sub>-ton self-haul vehicles

Table 6 presents the projected additional trips, broken down by vehicle type, based on the proposed expansion of the site. Both average daily and peak day MSW tonnage to the site were considered. Peak tonnage was based on the difference between the maximum proposed peak tonnage per day (maximum 3,400 tons per day) and the average 2016 weekday tonnage 1,682 tons per day). The project will generate an additional 1,718 tons of MSW under a peak day while the additional average daily MSW will be 1,518 tons per day.

Based on the projected additional daily tonnage and the various vehicles bringing MSW to the site it is projected that 195 new inbound and 195 new outbound trips will be generated daily by the project. This is shown in Table 6. Of these trips, 91 new semi-trailer trips will be generated, with 23 additional packer trucks and 81 new self-haul vehicles.



### TABLE 6 **PROJECTED DAILY TRIPS\***

Average N	0	Daily Tonnage k (Proposed)	Maximum Daily Tonnage (Proposed)		Net New Tonn	age					
(a)	(b)		(c)	(d)	(e)		(f)				
Weekday	Weekend				Week	day	Maximum				
1,682	924	3	3,200	3,400	1,51	81	<b>1,768</b> <sup>2</sup>				
	PEAK TONNAGE VEHICLES										
Maximum Daily Tonnage	Transfer 7 90% of enteri (20 tons / v	ng vehicles	8% of en	ter Trucks tering vehicles as / vehicle)	2% of enter	ll vehicles ring vehicles / vehicle)	Total Vehicles				
(g)	In	Out	In	Out	In	Out					
1,718 (Inbound)	91 <sup>3</sup>		23 <sup>4</sup>		81 <sup>5</sup>		195				
Empty (Outbound)		91		23		81	195				

\* Based on 2016 traffic at Recology Hay Road site

MSW - municipal solid waste

 $\frac{1}{(c) - (a)} = \frac{1}{(c) - (a)}$  $\frac{1}{(c) - (a)} = \frac{1}{(c) - (a)}$ 



The projected peak hour traffic was estimated based on current traffic into the site compared to historical daily traffic and proportioned based on the existing conditions. On a peak day the project is expected to generate 46 additional a.m. peak hour trips and 27 additional p.m. peak hour trips. Table 7 presents the projected a.m. and p.m. peak hour trips including a breakdown by trip type.

Existing	Conditions				
Ave Total Daily Vahialas	A	М	PM		
Avg Total Daily Vehicles	In	Out	In	Out	
526 vehicles*	69†	53†	3‡	53‡	
Percent Traffic◊	13.1%	10.1%	0.6%	13.1%	
Projec	t Traffic				
New Daily Vehicles	AM		PM		
New Daily Venicles	In	Out	In	Out	
195 vehicles					
Peak Hour Traffic	26♦	20	1	26	
Transfer Truck	12ф	9	1	12	
Packer	3μ	2	0	3	
Self-Haul	11β	8	0	11	

### TABLE 7PROJECTED PEAK HOUR TRIPS

\* average entering midweek vehicles

‡ existing p.m. peak hour traffic

♦ (195 daily vehicles\* 13.1%) typ.

μ 26\*(23/195) typ.

† existing a.m. peak hour traffic◊ directional peak hour traffic / ADT

φ 26\*(91/195) typ. β 26\*(81/195) typ.

Recology is projecting that Saturday traffic volumes will be similar to mid-week volumes. Weekend traffic generates about 459 vehicles to the site on a typical Saturday. Table 8 presents the projected Saturday peak hour trips based on current inbound and outbound peak hour Saturday trips relative to the total daily Saturday trips. Eleven inbound and nine outbound transfer trucks are projected during the peak hour with three inbound and two outbound packer trucks and ten inbound and eight outbound additional self-haul vehicles are projected with the increase in daily tonnage.



Existing Conditions								
	Avg Total D	aily Vehicles		In	Out			
	459 ve	chicles	55†	43‡				
	Percent Traffic				9.4%			
		]	Project Traffic	c				
Transfe	r Trucks	cks Packer Trucks		Self-Hau	l Vehicles	Total		
In	Out	In	Out	In	Out	Vehicles		
$11^{1}$	9 <sup>2</sup>	3 <sup>3</sup>	$2^{4}$	10 <sup>5</sup>	8 <sup>6</sup>	43		

### TABLE 8PROJECTED SATURDAY DAILY TRIPS

† entering Saturday vehicles

<sup>1</sup> (91 weekday transfer trucks)\*12.0%

‡ exiting Saturday vehicles

<sup>2</sup> (91 weekday transfer trucks)\*9.4%

<sup>3</sup> (23 weekday packer trucks)\*12.0%

<sup>4</sup> (23 weekday packer trucks)\*9.4%

<sup>5</sup> (81 weekday self-haul)\*12.0%

<sup>6</sup> (81 weekday self-haul)\*9.4%

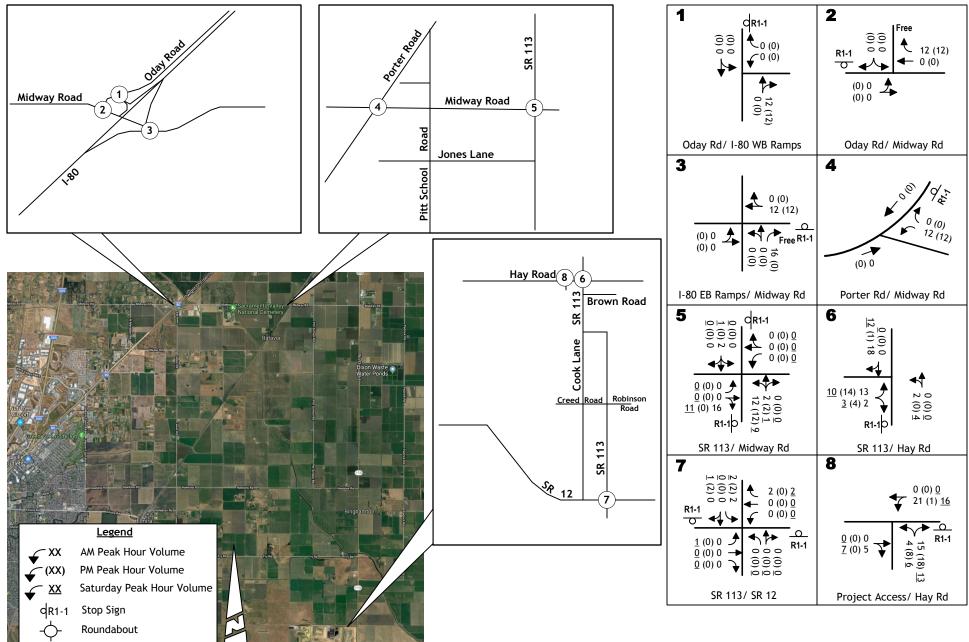
**Vehicle Trip Distribution.** The distribution of project vehicular traffic was determined based on the haul routes for semi-trailer and packer vehicles and a review of existing traffic counts at the surrounding intersections. Table 9 displays the trip distribution assumptions used for the proposed projects.

### TABLE 9TRIP DISTRIBUTION

	%	% of Total Trips			
Route	AM	PM	Saturday		
To / From I-80 west of Midway Rd	62%	46%	48%		
West on Hay Road	20%	30%	30%		
To / From SR 12 east of SR 113	9%	8%	10%		
To / From SR 12 west of SR 113	0%	8%	6%		
North on SR 113	9%	8%	6%		
Total	100%	100%	100%		

**Vehicle Trip Assignment**. Traffic generated by the project was assigned to the study roadway system based on the projected distribution percentages. Figure 3 displays the project generated traffic. Figure 4 displays the resulting sum of existing a.m., p.m. and Saturday peak hour volumes and project trips at the study intersections for the Existing plus Project condition.

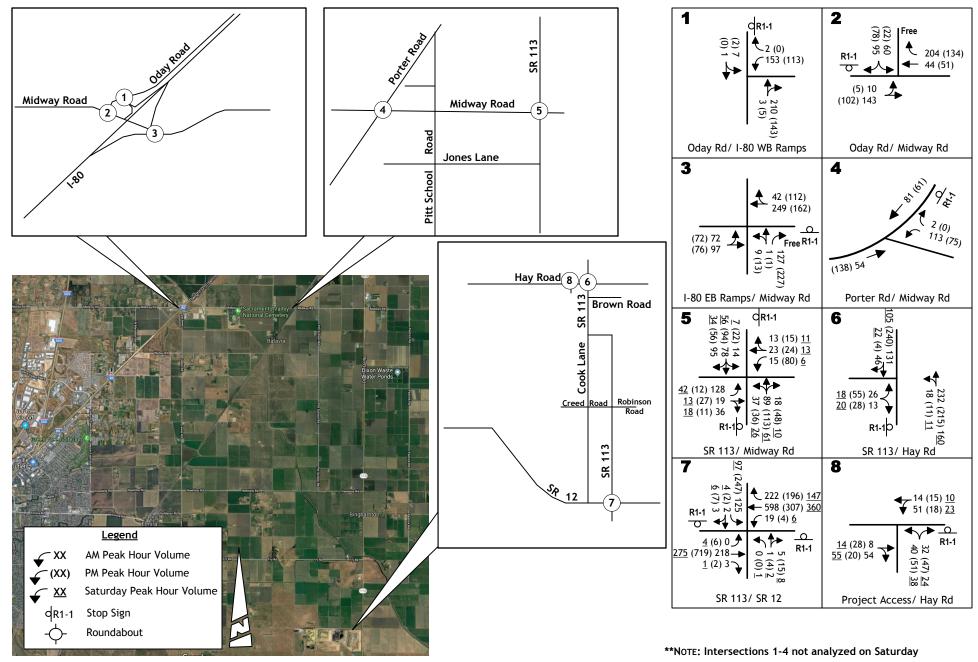




\*\*NOTE: Intersections 1-4 not analyzed on Saturday

**KD** Anderson & Associates, Inc. Transportation Engineers PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

0563-002 RA 10/18/2018



**KD** Anderson & Associates, Inc. Transportation Engineers EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

0563-002 RA 10/18/2018

### **Existing Plus Project Level of Service Impacts**

**Intersection Levels of Service.** Table 10 displays the a.m., p.m. and Saturday peak period levels of service at each study intersection under Existing plus Project conditions. All intersections except the SR 12/ SR 113 intersection will continue to operate at or above the level of service thresholds, at LOS C or better. The SR 12 / SR 113 intersection will continue to operate at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour. As identified in the Existing Conditions the intersection is scheduled to have a roundabout installed and completed by Fall 2019. No mitigations are necessary.

**Roadway Levels of Service.** Table 11 presents the peak hour roadway segment traffic volumes along the five study segments. All roadway segments along County roads will operate at LOS C or better while all roadway segments along SR 113 will operate at LOS D or better. These are within the acceptable thresholds.



			g plus Project Peak Hour		plus Project Peak Hour		plus Project y Peak Hour	Peak Hour
Location	Control	LOS	Average Delay (secs)	LOS	Average Delay (secs)	LOS	Average Delay (secs)	Warrant Met?
1. I-80 Westbound Ramps / Oday Rd	WB Stop							No
SB Left	_	А	7.7	А	7.5			
WB		В	10.3	А	9.6			
2. Midway Road / Oday Rd	SB Stop							No
SB	1	В	11.1	А	9.8			
EB Left		А	7.8	А	7.6			
3. I-80 Eastbound Ramps / Midway Rd	NB Stop							No
NB	1	В	13.2	В	12.4			
EB Left		А	8.2	А	8.1			
4. Midway Rd / Porter Rd	WB Stop							No
WB		А	9.1	А	8.9			
5. SR 113 / Midway Rd	EB/EB							No
NB Left	Stop	А	7.7	А	7.7	А	7.5	
SB Left		А	7.5	А	7.6	А	7.4	
EB		В	14.3	В	12.3	В	10.5	
WB		В	11.8	В	14.2	В	10.0	
6. SR 113 / Hay Rd	EB Stop							No
NB Left	-	А	7.6	А	7.8	А	7.5	
EB		В	11.2	В	12.5	А	9.9	
7. SR 113 / SR 12	NB/SB							Yes
NB	Stop	В	11.9	С	17.8	В	12.0	
SB	-	Е	39.4	F	376.1	С	20.6	
EB Left		А	0.0	А	8.6	А	8.6	
WB Left		А	7.8	А	9.3	А	7.9	
8. Hay Rd / Project Entrance	NB Stop							No
NB	-	А	9.5	А	9.3	А	9.2	
WB Left		А	7.4	А	7.3	А	7.4	

TABLE 10EXISTING PLUS PEAK HOUR LEVELS OF SERVICE AT INTERSECTIONS

AWS - multi-way stop



		Facility	ATS/PTSF/LOS Existing plus	ATS/PTSF/LOS Existing plus
Roadway	Location	Classification	Project AM	Project PM
Midway Rd	I-80 to Porter Rd	Class I Highway		
	EB		46.4 / 45.4 / C	45.8 / 55.6 / C
	WB		46.3 / 55.3 / C	45.9 / 51.3 / C
	Porter Rd to SR 113	Class I Highway		
	EB		47.9 / 37.5 / C	49.8 / 13.3 / C
	WB		47.6 / 32.3 / C	50.1 / 29.6 / B
SR 113	Midway Rd to Fry Rd	Class I Highway		
	NB		47.2 / 31.0 / C	45.7 / 38.5 / C
	SB		47.0 / 28.1 / C	45.7 / 37.7 / C
	Fry Rd to Hay Rd	Class I Highway		
	NB		45.3 / 45.3 / C	44.7 / 47.8 / D
	SB		45.3 / 34.0 / C	44.7 / 44.1 / D
	Hay Rd to SR 12	Class I Highway		
	NB		46.0 / 48.5 / C	44.8 / 45.0 / D
	SB		45.7 / 30.9 / C	44.8 / 50.7 / D
Hay Rd	SR 113 to Daily Rd	Class I Highway		
	EB		49.0 / 27.2 / C	49.3 / 29.3 / C
	WB		49.0 / 21.8 / C	49.2 / 13.1 / C

 TABLE 11

 EXISTING PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE

ATS – average travel speed

PTSF – percent time spent following



### **CUMULATIVE IMPACTS**

The analysis of Cumulative impacts was considered when accommodating the peak tonnage increase for the site.

### Year 2030 Traffic Forecasts and Lane Configurations

The traffic impacts associated with revising the allowable daily tonnage increase at the Hay Road Landfill site was evaluated within the context of future traffic conditions occurring in this area of Solano County. The most recent Napa-Solano regional travel demand model was used to estimate cumulative traffic in the project's vicinity.

Year 2030 daily traffic volume forecasts generated by the traffic model was the basis for future background traffic conditions. Cumulative volumes along the roadway links were developed using the difference method, i.e., using the projected model growth (i.e. 2010 to 2030) and adding this to existing traffic counts.

The "balancing" of future year intersection turning movement traffic volumes was conducted using methods described in the Transportation Research Board's (TRB's) National Cooperative Highway Research Program (NCHRP) Report 255, *Highway Traffic Data for Urbanized Area Project Planning and Design*. The NCHRP 255 method applies the desired peak hour directional volumes to the intersection turning movement volumes, using an iterative process to balance and adjust the resulting forecasts to match the desired peak hour directional volumes. The development of future year intersection turning movement traffic volumes requires that the turning movements at each intersection "balance". To achieve the balance, inbound traffic volumes must equal the outbound traffic volumes, and the volumes must be distributed among the various left-turn, through, and right-turn movements at each intersection. Figure 5 presents the projected turning movements at the study intersections.

A single lane roundabout at the SR 12 / SR 113 intersection is the only road improvement identified within the project limits.

### 2030 Conditions

**Intersection Levels of Service.** Table 12 displays the a.m. peak hour Levels of Service at each study intersection in the Cumulative 2030 condition. Two intersections will operate below County and Caltrans LOS thresholds in the 2030 No Project condition. The SR 113 / Midway Road intersection will decline to a LOS E condition in the a.m. peak hour (38.5 spv) and p.m. peak hour (46.0 spv). The SR 12/ SR 113 intersection is projected to operate at a LOS F condition in the p.m. peak hour (124.4 spv). The SR 113 / Midway Road intersection will meet the peak hour signal warrant in the a.m. and p.m. peak hours. The SR 113 / Hay Road intersection will also meet the peak hour signal warrant in the peak hour; however, the intersection operates at LOS C or better.



		AM	2030 Peak Hour		2030 Peak Hour		2030 y Peak Hour	Peak Hour
Location	Control	LOS	Average Delay (secs)	LOS	Average Delay (secs)	LOS	Average Delay (secs)	Warrant Met?
1. I-80 Westbound Ramps / Oday Rd	WB Stop							No
SB Left	-	А	7.9	А	7.6			
WB		В	11.2	В	10.1			
2. Midway Road / Oday Rd	SB Stop							No
SB	-	В	13.3	В	11.2			
EB Left		А	8.1	А	7.9			
3. I-80 Eastbound Ramps / Midway Rd	NB Stop							No
NB	_	С	16.4	С	16.0			
EB Left		А	8.6	А	8.5			
4. Midway Rd / Porter Rd	WB Stop							No
WB		А	9.2	А	9.1			
5. SR 113 / Midway Rd	EB/EB Stop							Yes <sup>1</sup>
NB Left		А	8.0	А	8.1	А	7.7	
SB Left		А	7.8	А	7.9	А	7.6	
EB		Е	38.5	С	23.6	В	13.2	
WB		С	16.1	E	46.0	В	11.1	
6. SR 113 / Hay Rd	EB Stop							Yes <sup>2</sup>
NB Left		А	8.0	А	8.4	А	7.6	
EB		В	14.1	С	21.2	В	10.7	
7. SR 113 / SR 12	Roundabout	С	20.8	F	124.4	В	10.4	N/A
8. Hay Rd / Project Entrance	NB Stop							No
NB	-	А	9.6	А	9.5	А	9.2	
WB Left		А	7.4	А	7.5	А	7.4	

TABLE 122030 PEAK HOUR LEVELS OF SERVICE AT INTERSECTIONS

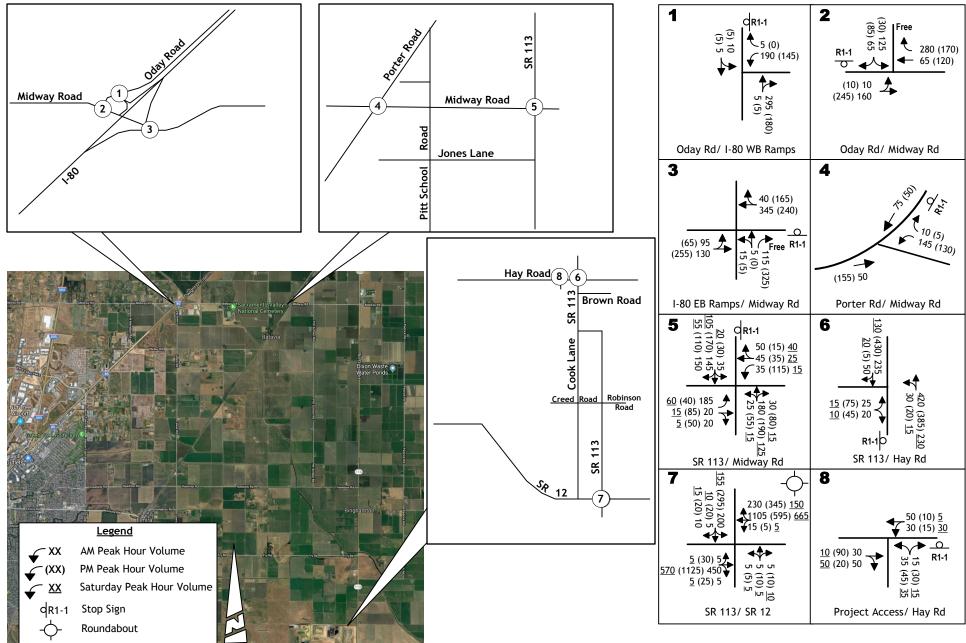
AWS - multi-way stop

N/A – not applicable

<sup>1</sup>meets peak hour traffic signal warrant (a.m. and p.m.)

<sup>2</sup>meets peak hour traffic signal warrant (p.m.)





\*\*NOTE: Intersections 1-4 not analyzed on Saturday

2030 TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc. Transportation Engineers **2030 Roadway Segment Levels of Service.** Table 13 summarizes the Levels of Service based on the projected 2030 traffic volumes on study area roads with the existing two-lane roadway configuration. All roadway segments except the Midway Road segment between I-80 and Porter Road are projected to operate acceptably, at LOS C along County roads and at LOS D or better along SR 113. The Level of Service along Midway Road between I-80 and Porter Road is projected to decline to LOS D in the p.m. peak hour in both eastbound and westbound directions.

		Facility	ATS/PTSF/LOS	ATS/PTSF/LOS
Roadway	Location	Classification	2030 AM	2030 PM
Midway Rd	I-80 to Porter Rd	Class I Highway		
	EB		45.5 / 45.3 / C	42.6 / 72.3 / D
	WB		45.4 / 62.2 / C	43.0 / 59.2 / D
	Porter Rd to SR 113	Class I Highway		
	EB		46.5 / 44.5 / C	47.3 / 36.1 / C
	WB		46.7 / 42.3 / C	47.3 / 39.8 / C
SR 113	Midway Rd to Fry Rd	Class I Highway		
	NB		44.3 / 41.4 / D	43.5 / 52.8 / D
	SB		43.7 / 53.6 / D	43.5 / 53.1 / D
	Fry Rd to Hay Rd	Class I Highway		
	NB		42.9 / 59.6 / D	41.7 / 63.1 / D
	SB		43.1 / 46.6 / D	41.8 / 60.4 / D
	Hay Rd to SR 12	Class I Highway		
	NB		43.1 / 63.0 / D	41.9 / 59.6 / D
	SB		43.4 / 44.2 / D	41.8 / 65.7 / D
Hay Rd	SR 113 to Daily Rd	Class I Highway		
	EB		49.2 / 16.6 / C	49.0 / 36.7 / C
	WB		49.2 / 29.3 / C	48.6 / 7.9 / C

TABLE 132030 ROADWAY SEGMENT LEVELS OF SERVICE

ATS – average travel speed

PTSF – percent time spent following

### 2030 Plus Project Level of Service Impacts

**Intersection Levels of Service.** Figure 6 presents the projected turning movements at the study intersections under 2030 plus Project conditions. Table 14 displays the a.m. peak hour Levels of Service at each study intersection in the 2030 plus Project condition. Two intersections will operate below County and Caltrans LOS thresholds. The SR 113 / Midway Road intersection will operate at a LOS E condition in the a.m. peak hour (45.7 spv) and LOS F condition in the p.m. peak hour (53.6 spv). This intersection will meet the peak hour signal warrant in the a.m. and p.m. peak hour. The SR 12/ SR 113 intersection is projected to operate at a LOS F condition in the p.m. peak hour (125.3 spv). The SR 113 / Hay Road intersection will also meet the peak hour signal warrant in the p.m. peak hour; however, the intersection operates at LOS C or better.

**Roadway Levels of Service.** Table 15 summarizes the Levels of Service based on the projected 2030 plus Project traffic volumes on study area roads. All roadway segments except the Midway Road segment between I-80 and Porter Road are projected to operate acceptably, at LOS C along County roads and at LOS D or better along SR 113. The Level of Service along Midway Road between I-80 and Porter Road is projected to decline to LOS D in the p.m. peak hour in both eastbound and westbound directions.





**KD Anderson & Associates, Inc.** Transportation Engineers 0563-002 RA 10/18/2018

### 2030 PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

		2030 plus Project AM Peak Hour		2030 plus Project PM Peak Hour		2030 plus Project Saturday Peak Hour		Peak Hour
Location	Control	LOS	Average Delay (secs)	LOS	Average Delay (secs)	LOS	Average Delay (secs)	Warrant Met?
1. I-80 Westbound Ramps / Oday Rd	WB Stop							No
SB Left	··· – ~···F	А	8.0	А	7.7			
WB		В	11.3	В	10.2			
2. Midway Road / Oday Rd	SB Stop							No
SB	1	В	13.4	В	11.3			
EB Left		А	8.1	А	7.9			
3. I-80 Eastbound Ramps / Midway Rd	NB Stop							No
NB		С	16.6	С	16.2			
EB Left		А	8.6	А	8.6			
4. Midway Rd / Porter Rd	WB Stop							No
WB	_	А	9.3	А	9.2			
5. SR 113 / Midway Rd	EB/EB Stop							Yes <sup>1</sup>
NB Left	-	А	8.1	А	8.1	А	7.7	
SB Left		А	7.8	А	7.9	А	7.6	
EB		E	45.7	D	25.3	В	13.3	
WB		С	17.0	F	53.6	В	11.3	
6. SR 113 / Hay Rd	EB Stop							Yes <sup>2</sup>
NB Left		А	8.0	А	8.4	А	7.6	
EB		С	15.4	С	23.1	В	11.1	
7. SR 113 / SR 12	Roundabout	С	21.0	F	125.3	В	10.5	N/A
8. Hay Rd / Project Entrance	NB Stop				1			No
NB		А	9.8	А	9.7	А	9.4	
WB Left		А	7.5	А	7.5	А	7.4	

TABLE 142030 PLUS PEAK HOUR LEVELS OF SERVICE AT INTERSECTIONS

AWS - multi-way stop

N/A – not applicable

<sup>1</sup>meets peak hour traffic signal warrant (a.m. and p.m.)

<sup>2</sup>meets peak hour traffic signal warrant (p.m.)



			ATS/PTSF/LOS	ATS/PTSF/LOS
		Facility	2030 plus Project	2030 plus Project
Roadway	Location	Classification	AM	PM
Midway Rd	I-80 to Porter Rd	Class I Highway		
	EB		45.3 / 47.4 / C	42.6 / 72.9 / D
	WB		45.1 / 61.4 / C	42.9 / 60.2 / D
	Porter Rd to SR 113	Class I Highway		
	EB		46.5 / 44.5 / C	47.2 / 35.1 / C
	WB		46.5 / 44.0 / C	47.2 / 41.1 / C
SR 113	Midway Rd to Fry Rd	Class I Highway		
	NB		44.0 / 42.8 / D	43.4 / 54.1 / D
	SB		42.9 / 47.7 / D	43.4 / 53.6 / D
	Fry Rd to Hay Rd	Class I Highway		
	NB		42.6 / 61.1 / D	41.6 / 63.7 / D
	SB		42.8 / 49.2/ D	41.7 / 60.7 / D
	Hay Rd to SR 12	Class I Highway		
	NB		43.0 / 63.0 / D	41.9 / 60.5 / D
	SB		43.3 / 44.4 / D	41.7 / 66.0 / D
Hay Rd	SR 113 to Daily Rd	Class I Highway		
	EB		48.7 / 19.0 / C	48.9 / 38.7 / C
	WB		48.9/31.6/C	48.3 / 7.6 / C

#### TABLE 15 2030 PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE

ATS – average travel speed PTSF – percent time spent following



### TEMPORARY BALE STORAGE OF RECYCLABLE MATERIALS

Due to recent import restrictions imposed by China on recyclable materials, baled, single-stream recyclable materials are planned to be temporarily stored at the Hay Road landfill site until the restrictions are lifted and/or new markets are developed to accept the material. The landfill site is proposing to store up to 3,680 bales for up to six months before being transported to off-site processing facilities. Each truck delivering bales would contain approximately 50 bales. The project applicant proposes to deliver on average five trucks per day and up to twenty trucks on a given day of baled recyclable materials. If deliveries were to occur daily the landfill would reach its storage limit in 4 to 15 days. It is assumed that similar shipments outbound would be made to the processing facilities or buyer, however, the potential destination of the material is not able to be determined. Trucks could return to the San Francisco Bay Area along westbound I-80, could head east toward Sacramento along eastbound I-80 or east toward Stockton via SR 12.

Because a reasonable projection of the number of vehicles (591) traveling to the landfill with implementation of the proposed project are not anticipated to exceed the daily vehicle limit (620) evaluated in this analysis, the potential additional truck trips associated with the delivery of bales to the landfill is within the modeling results identified above. A further qualitative assessment was conducted to determine what impacts the addition of five trucks per day would have on the local road system. As noted above the site could be filled in 15 days with no additional storage available until on-site material is shipped off-site. It is expected that the maximum of 20 truck shipments could occur on a rare basis, with the five-truck average being more likely, given the amount of storage space available and the expected storage time. With five trucks delivering recyclables and five trucks hauling recyclables to a processing facility this would add 10 round trip truck trips per day to the roadway network. While delivery and shipping times are unknown Recology has stated in their Bale Storage Management Plan that they would attempt to avoid peak hours to the extent possible. All bales would be shipped along I-80 with 75% of the baled material west of the Midway Road interchange and 25% of the baled material east of the interchange. Since Recology aims to avoid the peak hours these vehicles would not be part of the intersection or roadway analyses. The additional trips would not occur every day and would be part of the daily fluctuation in traffic. Based on this information the quantitative analysis did not include these recyclable material trips. Under Existing plus Project conditions all study intersections between the I-80 / Midway Road interchange and the site have adequate capacity to accommodate additional peak hour round trips. All roadway segments will have capacity to accommodate the additional peak hour truck traffic.

If the import restriction continues through 2030 the two intersections identified under 2030 Cumulative plus Project conditions, SR 113 at Midway Road and SR 12 at SR 113, will continue to operate at LOS E or F, below Caltrans' LOS D threshold. The Midway Road segment between I-80 and Porter Road will also continue to operate below the County's LOS C threshold.



# MITIGATION MEASURES

The preceding analysis has identified project-specific and cumulative (2030) impacts that may occur without mitigation. The following discussion identifies a strategy for mitigating the impacts and contribution to impacts of the proposed project. Recommendations are identified for facilities that require improvement but the need for improvement is not a result of the proposed project. If the project causes or contributes to a significant impact, mitigations are identified for the facility.

# Existing Conditions

The SR 12 / SR 113 intersection currently operates at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour. Caltrans has an identified safety project that would construct a single lane roundabout at this intersection. Construction is slated to be completed Fall 2019. Under the roundabout condition the intersection will operate at LOS A in the a.m. peak period (7.0 spv) and LOS C in the p.m. peak hour (18.8 spv). The remaining intersections and roadway segments operate within the Caltrans and County LOS thresholds.

# **Existing Plus Project Conditions**

Under Existing plus Project conditions, all intersections except the SR 12 / SR 113 intersection will operate within acceptable County and Caltrans LOS thresholds. The SR 12 / SR 113 intersection will continue to operate at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour. As identified under Existing Conditions Caltrans has an identified safety project that would construct a single lane roundabout at this intersection. With this project completed the intersection will operate at LOS A in the a.m. peak hour (7.1 spv) and LOS C in the p.m. peak hour (19.1 spv). All roadways will continue to operate within the Caltrans and County LOS thresholds.

No additional mitigations are necessary.

# 2030 Conditions

Under 2030 conditions the SR 113 / Midway Road intersection will decline to an LOS E condition in the a.m. peak hour (45.7 spv) and LOS F condition in the p.m. peak hour (53.6 spv). The intersection will not meet the peak hour traffic signal warrant. The SR 12 / SR 113 intersection will decline to LOS F in the p.m. peak hour (124.4 spv). One roadway segment, Midway Road between the I-80 Eastbound Ramps intersection and Porter Road will decline to LOS D in both directions. The remaining intersections and roadway segments will operate within County and Caltrans LOS thresholds.

The following recommendations are made:

# Recommendations:

- SR 113 / Midway Road: Installation of all-way stop control will improve the level of service to LOS B in both a.m. (13.3 spv) and p.m. (13.7 spv) peak hours. Caltrans has



identified a conceptual project to widen shoulders, construct a median and install a traffic signal at the SR 113 / Midway Road intersection to enhance safety; however, this project is not yet included in a planning or programming document.

- SR 12 / SR 113: Installation of a second eastbound lane through the roundabout will improve the level of service to a LOS C (21.5 spv) condition in the p.m. peak hour. Caltrans would have jurisdiction over this improvement. Additionally, there is no funding mechanism for this improvement, and no agencies with jurisdiction currently have plans for any improvements at this intersection.
- Midway Road I-80 Eastbound Ramps to Porter Road (both directions): A 0.30 mile long passing lane in both eastbound and westbound directions would be needed to improve the roadway segment to an acceptable level of service, LOS C (EB ATS 45.1 / PTSF 52.8; WB ATS 45.3 / PTSF 43.0). However, Caltrans would have jurisdiction over these improvements. Additionally, there is no funding mechanism for this improvement, and no agencies with jurisdiction currently have plans for any improvements at this intersection.

No additional recommendations are noted.

# 2030 Plus Project Conditions

The SR 113 / Midway Road intersection and the SR 12 / SR 113 intersection will continue to operate below the Caltrans LOS D threshold with implementation of the project. Additionally, both directions of Midway Road, between the I-80 Eastbound Ramps intersection and Porter Road will operate at LOS D with implementation of the project. The remaining intersections and all roadway segments will operate within County and Caltrans LOS thresholds. The following mitigation measures have been identified for the aforementioned facilities to which the project would contribute to unacceptable LOS:

# Mitigations:

- SR 113 / Midway Road: As identified in the 2030 No Project Recommendations installation of all-way stop control will improve the level of service to LOS B in both a.m. (13.7 spv) and p.m. (13.8 spv) peak hours. This intersection is under the jurisdiction of Caltrans, and Caltrans has identified a conceptual project to widen shoulders, construct a median and install a traffic signal at the SR 113 / Midway Road intersection to enhance safety. However, this project is not yet included in a planning or programming document. Any improvement of the intersection would require Caltrans concurrence and approval. The project applicant and Solano County shall coordinate with Caltrans on implementation of this improvement. However, because the final approval of the proposed improvement is outside the jurisdiction and control of the Applicant and County, there is no guarantee that this mitigation measure would be implemented prior to project-related trips occurring at this intersection. Therefore, this is considered a significant and unavoidable impact.



- SR 12 / SR 113: As identified in the 2030 No Project Recommendations installation of a second eastbound lane through the roundabout will improve the level of service to a LOS C (21.7 spv) condition in the p.m. peak hour. This improvement is under the jurisdiction of Caltrans. Any improvement of the intersection would require Caltrans concurrence and approval. The project applicant and Solano County shall coordinate with Caltrans on implementation of this improvement. However, because the final approval of the proposed improvement is outside the jurisdiction and control of the Applicant and County, there is no guarantee that this mitigation measure would be implemented prior to project-related trips occurring at this intersection. Additionally, Caltrans does not currently have plans for any improvements at this intersection. Therefore, this is considered a significant and unavoidable impact.
- Midway Road I-80 Eastbound Ramps to Porter Road (both directions): As identified in the 2030 No Project Recommendations a 0.30 mile long passing lane in both eastbound and westbound directions would be needed to improve the roadway segment LOS to an acceptable level of LOS C (EB ATS 45.0 / PTSF 53.2; WB ATS 45.2 / PTSF 43.7). This improvement is under the jurisdiction of Solano County. The project applicant shall coordinate with Solano County and shall fund the improvement of this segment to be constructed prior to vehicle trips to the landfill exceeding 2,400 per day. Therefore, with mitigation, this is considered a less-than-significant impact.

No additional mitigations are identified.



# REFERENCES

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# APPENDIX

(under separate cover)



# **TECHNICAL APPENDIX**

FOR

## RECOLOGY HAY ROAD LANDFILL EXPANSION PROJECT TRAFFIC IMPACT ANALYSIS Solano County, CA

Prepared For:

## ASCENT ENVIRONMENTAL, INC.

455 Capitol Mall, Suite 300 Sacramento, CA 95814

Prepared By:

#### **KD Anderson & Associates, Inc.** 3853 Taylor Road, Suite G Loomis, CA 95650

(916) 660-1555

No. C39543

December 5, 2018

0563-002

KD Anderson & Associates

**Transportation Engineers** 

Int Delay, s/veh	4.5						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	•
Lane Configurations	٦	1	4			<del>स</del> ्	1
Traffic Vol, veh/h	153	2	3	198	7	1	
Future Vol, veh/h	153	2	3	198	7	1	I
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	÷
RT Channelized	-	None	-	None	-	None	,
Storage Length	0	25	-	-	-	-	-
Veh in Median Storage	,#0	-	0	-	-	0	)
Grade, %	0	-	0	-	-	0	)
Peak Hour Factor	92	92	92	92	92	92	)
Heavy Vehicles, %	7	2	2	7	2	2	)
Mvmt Flow	166	2	3	215	8	1	I

Major/Minor	Minor1	N	lajor1	Ν	/lajor2	
Conflicting Flow All	128	111	0	0	218	0
Stage 1	111	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	855	942	-	-	1352	-
Stage 1	901	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	850	942	-	-	1352	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	993	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	6.7
HCM LOS	В		

Minor Lane/Major Mvmt	NBT	NBRW	/BLn1V	VBLn2	SBL	SBT	
Capacity (veh/h)	-	-	850	942	1352	-	
HCM Lane V/C Ratio	-	-	0.196	0.002	0.006	-	
HCM Control Delay (s)	-	-	10.3	8.8	7.7	0	
HCM Lane LOS	-	-	В	А	Α	Α	
HCM 95th %tile Q(veh)	-	-	0.7	0	0	-	

Intersection						
Int Delay, s/veh	3.5					
		FDT	MOT			000
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- କୀ	- <b>î</b> >		۰¥	
Traffic Vol, veh/h	5	102	44	192	95	60
Future Vol, veh/h	5	102	44	192	95	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized		None	-	None		None
Storage Length	-	-	-	-	0	-
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	7	7	2
Mvmt Flow	5	111	48	209	103	65

Major/Minor	Major1	Ν	/lajor2	I	Minor2	
Conflicting Flow All	257	0	-	0	274	153
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	4.12	-	-	-	6.47	6.22
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.218	-	-	-	3.563	3.318
Pot Cap-1 Maneuver	1308	-	-	-	705	893
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1308	-	-	-	702	893
Mov Cap-2 Maneuver	-	-	-	-	702	-
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	892	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.4		0		11	
HCM LOS			-		В	
Minor Lane/Major Mvm	<b>.</b> +	EBL	EBT	WBT	WBR	
	n		CDT	101		
Capacity (veh/h)		1308	-	-	-	765
HCM Lane V/C Ratio		0.004	-	-	-	0.22 11
HCM Control Delay (s) HCM Lane LOS		7.8	0 A	-	-	B
	١	A	A	-	-	
HCM 95th %tile Q(veh	)	0	-	-	-	0.8

## Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4		TIDE	1		HDL	र्भ	1	ODL	001	OBIC	
Traffic Vol, veh/h	72	97	0	0	237	42	9	1	111	0	0	0	
Future Vol, veh/h	72	97	0	0	237	42	9	1	111	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	78	105	0	0	258	46	10	1	121	0	0	0	

-
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-

Int Delay, s/veh	0						
Movement	NBL	NBR	NET	NER	SWL	SWT	
Lane Configurations	٦	1	1			•	
Traffic Vol, veh/h	101	2	0	0	0	0	)
Future Vol, veh/h	101	2	0	0	0	0	)
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	)
RT Channelized	-	None	-	None	-	None	)
Storage Length	0	50	-	-	-	-	
Veh in Median Storage	,# 0	-	0	-	-	0	)
Grade, %	0	-	0	-	-	0	)
Peak Hour Factor	92	92	92	92	92	92	2
Heavy Vehicles, %	7	2	2	2	2	2	
Mvmt Flow	110	2	0	0	0	0	)

Major/Minor	Minor1	Μ	lajor1	Ма	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	r 1009	-	-	-	-	-
Mov Cap-2 Maneuver	r 1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Approach	NB		NF		SW	

Approach	NB	NE	SW	
HCM Control Delay, s		0	0	
HCM LOS	-			

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.109 -	-
HCM Control Delay (s)	- 9 -	-
HCM Lane LOS	- A -	-
HCM 95th %tile Q(veh)	- 0.4 -	-

6

# Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		\$			÷		1	et F		1	et 👘		
Traffic Vol, veh/h	128	19	20	15	23	13	25	87	18	14	76	95	
Future Vol, veh/h	128	19	20	15	23	13	25	87	18	14	76	95	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	139	21	22	16	25	14	27	95	20	15	83	103	

Major/Minor	Minor2			Vinor1			Major1		ľ	Major2			
Conflicting Flow All	344	334	135	345	375	105	186	0	0	115	0	0	
Stage 1	165	165	-	159	159	-	-	-	-	-	-	-	
Stage 2	179	169	-	186	216	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	610	586	901	609	556	949	1359	-	-	1474	-	-	
Stage 1	837	762	-	843	766	-	-	-	-	-	-	-	
Stage 2	823	759	-	816	724	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	567	568	901	565	539	949	1359	-	-	1474	-	-	
Mov Cap-2 Maneuver	567	568	-	565	539	-	-	-	-	-	-	-	
Stage 1	820	754	-	826	751	-	-	-	-	-	-	-	
Stage 2	768	744	-	767	717	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	13.7	11.4	1.5	0.6	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1W	/BLn1	SBL	SBT	SBR
Capacity (veh/h)	1359	-	-	593	615	1474	-	-
HCM Lane V/C Ratio	0.02	-	-	0.306	0.09	0.01	-	-
HCM Control Delay (s)	7.7	-	-	13.7	11.4	7.5	-	-
HCM Lane LOS	А	-	-	В	В	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	0.3	0	-	-

Internetion						
Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्भ	ef 👘	
Traffic Vol, veh/h	13	11	16	232	131	28
Future Vol, veh/h	13	11	16	232	131	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-		-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	,# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mymt Flow	14	12	17	252	142	30

Major/Minor	Minor2		Major1	Ма	ajor2	
Conflicting Flow All	443	157	172	0	-	0
Stage 1	157	-	-	-	-	-
Stage 2	286	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	563	889	1405	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	555	889	1405	-	-	-
Mov Cap-2 Maneuver	555	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Approach	EB		NB		SB	

Approach	EB	NB	SB	
HCM Control Delay, s	10.6	0.5	0	
HCM LOS	В			

Minor Lane/Major Mvmt	NBL	NBT I	EBLn1	SBT	SBR
Capacity (veh/h)	1405	-	670	-	-
HCM Lane V/C Ratio	0.012	-	0.039	-	-
HCM Control Delay (s)	7.6	0	10.6	-	-
HCM Lane LOS	А	А	В	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	↑	1	۲		1		र्स	1		र्भ	1
Traffic Vol, veh/h	0	218	3	19	598	220	0	1	5	123	2	3
Future Vol, veh/h	0	218	3	19	598	220	0	1	5	123	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	305	-	120	290	-	520	-	-	35	560	-	0
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	10	2	2	10	7	2	2	2	7	2	7
Mvmt Flow	0	237	3	21	650	239	0	1	5	134	2	3

Major/Minor I	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	889	0	0	240	0	0	1051	1168	237	934	932	650	
Stage 1	-	-	-	-	-	-	237	237	-	692	692	-	
Stage 2	-	-	-	-	-	-	814	931	-	242	240	-	
Critical Hdwy	4.17	-	-	4.12	-	-	7.12	6.52	6.22	7.17	6.52	6.27	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.17	5.52	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.17	5.52	-	
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.518	4.018	3.318	3.563	4.018	3.363	
Pot Cap-1 Maneuver	742	-	-	1327	-	-	205	193	802	241	266	460	
Stage 1	-	-	-	-	-	-	766	709	-	426	445	-	
Stage 2	-	-	-	-	-	-	372	346	-	750	707	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	742	-	-	1327	-	-	200	190	802	235	262	460	
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	190	-	235	262	-	
Stage 1	-	-	-	-	-	-	766	709	-		438	-	
Stage 2	-	-	-	-	-	-	362	340	-	744	707	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	0			0.2			11.9			38.8			
HCM LOS							В			E			
Minor Lane/Major Mvm	nt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)		190	802	742	-	-	1327	-	-	235	460		
HCM Lane V/C Ratio		0.006		_	_	-	0.016	-	_	0.578			

HCM Lane V/C Ratio	0.006 (	).007	-	-	- 0.0	)16	-	- 0.578	0.007	
HCM Control Delay (s)	24.1	9.5	0	-		7.8	-	- 39.4	12.9	
HCM Lane LOS	С	А	А	-	-	А	-	- E	В	
HCM 95th %tile Q(veh)	0	0	0	-	-	0	-	- 3.3	0	

Intersection							
Int Delay, s/veh	4.6						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	ł
Lane Configurations	4Î -			<u>्</u>	۰¥		
Traffic Vol, veh/h	8	49	30	14	36	17	7
Future Vol, veh/h	8	49	30	14	36	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Free	Free	Free	Free	Stop	Stop	כ
RT Channelized	-	None	-	None	-	None	ę
Storage Length	-	-	-	-	0	-	-
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	2	)
Mvmt Flow	9	53	33	15	39	18	3

Major/Minor Ma	ajor1	Ν	/lajor2		Minor1	
Conflicting Flow All	0	0	62	0	117	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	81	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1541	-	879	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1541	-	860	1037
Mov Cap-2 Maneuver	-	-	-	-	860	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	942	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		5		9.2	
HCM LOS	U		5		9.2 A	
					A	
Minor Lane/Major Mvmt	N	IBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		910	-	-	1541	-
HCM Lane V/C Ratio		0.063	-	-	0.021	-
HCM Control Delay (s)		9.2	-	-	7.4	0
HCM Lane LOS		А	-	-	А	А

HCM 95th %tile Q(veh)

0.2

-

- 0.1

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Int Delay, s/veh	4.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	- ሽ	1	4			- 4
Traffic Vol, veh/h	113	0	5	131	2	0
Future Vol, veh/h	113	0	5	131	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage	,# 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	123	0	5	142	2	0

Major/Minor	Minor1	Ν	/lajor1	Ν	/lajor2	
Conflicting Flow All	80	76	0	0	147	0
Stage 1	76	-	-	-	-	-
Stage 2	4	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	910	985	-	-	1435	-
Stage 1	934	-	-	-	-	-
Stage 2	1006	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	909	985	-	-	1435	-
Mov Cap-2 Maneuver	909	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	7.5
HCM LOS	А		

Minor Lane/Major Mvmt	NBT	NBRW	/BLn1W	/BLn2	SBL	SBT
Capacity (veh/h)	-	-	909	-	1435	-
HCM Lane V/C Ratio	-	-	0.135	-	0.002	-
HCM Control Delay (s)	-	-	9.6	0	7.5	0
HCM Lane LOS	-	-	А	А	Α	А
HCM 95th %tile Q(veh)	-	-	0.5	-	0	-

Intersection						
Int Delay, s/veh	2.5					
111 Delay, 3/Vell	2.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- <del>स</del> ी	4		۰¥	
Traffic Vol, veh/h	10	143	51	122	22	78
Future Vol, veh/h	10	143	51	122	22	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	7	7	2
Mvmt Flow	11	155	55	133	24	85

Major/Minor	Major1	Ν	lajor2	1	Vinor2	
Conflicting Flow All	188	0	-	0	299	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.47	6.22
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.218	-	-	-	3.563	3.318
Pot Cap-1 Maneuver	1386	-	-	-	682	929
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver		-	-	-	676	929
Mov Cap-2 Maneuver	-	-	-	-	676	-
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	842	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.5		0		9.8	
HCM LOS					А	
Minor Lane/Major Mvn	nt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)		1386	-	-	-	858
HCM Lane V/C Ratio		0.008	-	-	-	0.127
HCM Control Delay (s	)	7.6	0	-	-	9.8
HCM Lane LOS		А	А	-	-	А
HCM 95th %tile Q(veh	ו)	0	-	-	-	0.4

#### Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		<del>ب</del> ا			4			र्स	1		•= •	•==	
Traffic Vol, veh/h	72	76	0	0	150	112	13	1	227	0	0	0	
Future Vol, veh/h	72	76	0	0	150	112	13	1	227	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage,	,# -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	78	83	0	0	163	122	14	1	247	0	0	0	

Major/Minor	Major1		Ν	/lajor2		I	Minor1			
Conflicting Flow All	285	0	-	-	-	0	463	524	-	
Stage 1	-	-	-	-	-	-	239	239	-	
Stage 2	-	-	-	-	-	-	224	285	-	
Critical Hdwy	4.17	-	-	-	-	-	6.47	6.52	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.47	5.52	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.47	5.52	-	
Follow-up Hdwy	2.263	-	-	-	-	-	3.563	4.018	-	
Pot Cap-1 Maneuver	1249	-	0	0	-	-	548	458	0	
Stage 1	-	-	0	0	-	-	789	708	0	
Stage 2	-	-	0	0	-	-	802	676	0	
Platoon blocked, %		-			-	-				
Mov Cap-1 Maneuver	1249	-	-	-	-	-	512	0	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	0	-	
Stage 1	-	-	-	-	-	-	738	0	-	
Stage 2	-	-	-	-	-	-	802	0	-	
Approach	EB			WB			NB			
HCM Control Delay, s	3.9			0			12.2			
HCM LOS							В			
Minor Lane/Major Mvm	nt	NBLn1N	IBLn2	EBL	EBT	WBT	WBR			
Capacity (veh/h)		512	-	1249	-	-	-			
HCM Lane V/C Ratio		0.03	-	0.063	-	-	-			
HCM Control Delay (s)		12.2	0	8.1	0	-	-			
HCM Lane LOS		В	А	А	А	-	-			
HCM 95th %tile Q(veh	)	0.1	-	0.2	-	-	-			

Intersection							
Int Delay, s/veh	8.7						
Movement	NBL	NBR	NET	NER	SWL	SWT	
Lane Configurations	۲	1	1			1	

Lane Configurations	- 1	- <b>T</b>	- <b>Ť</b>			<b>↑</b> _
Traffic Vol, veh/h	63	0	0	0	0	0
Future Vol, veh/h	63	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage,	,# 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	2	2	2
Mvmt Flow	68	0	0	0	0	0

Major/Minor	Minor1	Ν	1ajor1	Ma	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1009	-	-	-	-	-
Mov Cap-2 Maneuver	1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-

Approach	NB	NE	SW
HCM Control Delay, s	8.8	0	0
HCM LOS	А		

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.068 -	-
HCM Control Delay (s)	- 8.8 0	-
HCM Lane LOS	- A A	-
HCM 95th %tile Q(veh)	- 0.2 -	-

## Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4		۲.	ef 👘		٦	ef 👘		
Traffic Vol, veh/h	12	27	11	80	24	15	24	111	48	22	94	56	
Future Vol, veh/h	12	27	11	80	24	15	24	111	48	22	94	56	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None										
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	13	29	12	87	26	16	26	121	52	24	102	61	

Major/Minor	Minor2			Vinor1			Major1			Major2			
Conflicting Flow All	401	406	133	400	410	147	163	0	0	173	0	0	
Stage 1	181	181	-	199	199	-	-	-	-	-	-	-	
Stage 2	220	225	-	201	211	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	560	534	903	560	531	900	1386	-	-	1404	-	-	
Stage 1	821	750	-	803	736	-	-	-	-	-	-	-	
Stage 2	782	718	-	801	728	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	514	515	903	514	512	900	1386	-	-	1404	-	-	
Mov Cap-2 Maneuver	514	515	-	514	512	-	-	-	-	-	-	-	
Stage 1	805	737	-	788	722	-	-	-	-	-	-	-	
Stage 2	726	704	-	746	716	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	12	13.7	1	1	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	1386	-	-	568	543	1404	-	-
HCM Lane V/C Ratio	0.019	-	-	0.096	0.238	0.017	-	-
HCM Control Delay (s)	7.6	-	-	12	13.7	7.6	-	-
HCM Lane LOS	А	-	-	В	В	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.9	0.1	-	-

Later and Barry						
Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
		EDN	NDL	INDI	SDI	JDN
Lane Configurations	۰¥			- सी	- <b>î</b> +	
Traffic Vol, veh/h	41	24	11	215	240	3
Future Vol, veh/h	41	24	11	215	240	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	45	26	12	234	261	3

Major/Minor	Minor2	l	Major1	Ма	ajor2	
Conflicting Flow All	521	263	264	0	-	0
Stage 1	263	-	-	-	-	-
Stage 2	258	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	507	776	1300	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	501	776	1300	-	-	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	762	-	-	-	-	-
Stage 2	774	-	-	-	-	-
A 1			ND		0.0	

Approach	EB	NB	SB	
HCM Control Delay, s	12.1	0.4	0	
HCM LOS	В			

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1300	-	576	-	-
HCM Lane V/C Ratio	0.009	-	0.123	-	-
HCM Control Delay (s)	7.8	0	12.1	-	-
HCM Lane LOS	А	А	В	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

1.1			1.1		
Int	·Δr	°C 🗅	<u>eti</u>	nn	
		30	ωu	υn	

Int Delay, s/veh	62.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	•	1	۲.	•	1		÷	1		्र	1
Traffic Vol, veh/h	6	719	2	4	307	196	0	4	15	245	2	5
Future Vol, veh/h	6	719	2	4	307	196	0	4	15	245	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	305	-	120	290	-	520	-	-	35	560	-	0
Veh in Median Storage	,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	10	2	2	10	7	2	2	2	7	2	7
Mvmt Flow	7	782	2	4	334	213	0	4	16	266	2	5

Major/Minor	Major1		I	Major2			Minor1			Minor2					
Conflicting Flow All	547	0	0	784	0	0	1248	1351	782	1149	1140	334			
Stage 1	-	-	-	-	-	-	796	796	-	342	342	-			
Stage 2	-	-	-	-	-	-	452	555	-	807	798	-			
Critical Hdwy	4.17	-	-	4.12	-	-	7.12	6.52	6.22	7.17	6.52	6.27			
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.17	5.52	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.17	5.52	-			
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.518	4.018	3.318	3.563	4.018	3.363			
Pot Cap-1 Maneuver	998	-	-	834	-	-	150	150	394	~ 172	201	697			
Stage 1	-	-	-	-	-	-	380	399	-	663	638	-			
Stage 2	-	-	-	-	-	-	587	513	-	368	398	-			
Platoon blocked, %		-	-		-	-									
Mov Cap-1 Maneuver	998	-	-	834	-	-	146	148	394	~ 160	199	697			
Mov Cap-2 Maneuver	• -	-	-	-	-	-	146	148	-	~ 160	199	-			
Stage 1	-	-	-	-	-	-	377	396	-	658	635	-			
Stage 2	-	-	-	-	-	-	578	510	-	346	395	-			
Approach	EB			WB			NB			SB					
HCM Control Delay, s	0.1			0.1			17.8		g	373.3					
HCM LOS	••••			•			C			F					
							-			-					
Minor Lane/Major Mvr	mt	NBLn1		EBL	EBT	EBR	WBL	WBT		SBLn1	CDI n2				
· · · ·	III					EDR		VVDI	WDN					 	
Capacity (veh/h)		148	394	998	-	-	834	-	-	160	697 0.008				
HCM Lane V/C Ratio		0.029	0.041	0.007	-		0.005	-		1.678					
HCM Control Delay (s	5)	30.1	14.5	8.6	-	-	9.3	-		380.7	10.2				
HCM Lane LOS		D	B	A	-	-	A	-	-	F	B				
HCM 95th %tile Q(veh	n)	0.1	0.1	0	-	-	0	-	-	18.9	0				
Notes															
~: Volume exceeds ca	apacity	\$: De	elay exc	eeds 30	)0s +	+: Com	putatior	Not D	efined	*: All	major \	/olume i	n platoon		

Intersection						
Int Delay, s/veh	5.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	et 👘			÷.	Y	
Traffic Vol, veh/h	28	20	17	15	43	29
Future Vol, veh/h	28	20	17	15	43	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	2
Mvmt Flow	30	22	18	16	47	32

Major/Minor N	Major1	Ν	Major2		Minor1	
Conflicting Flow All	0	0	52	0	93	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	52	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1554	-	907	1030
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1554	-	896	1030
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	970	-
Annroach	EB				NB	
Approach			WB			
HCM Control Delay, s	0		3.9		9.1	
HCM LOS					A	
Minor Lane/Major Mvm	t N	IBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		946	-	-	1554	-
HCM Lane V/C Ratio		0.083	-	-	0.012	-
HCM Control Delay (s)		91	-	-	70	0

HUM Lane V/C Ratio	0.083	-	- 0.012	-
HCM Control Delay (s)	9.1	-	- 7.3	0
HCM Lane LOS	А	-	- A	А
HCM 95th %tile Q(veh)	0.3	-	- 0	-

# Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4		۲.	ef 👘		۲.	ર્લ		
Traffic Vol, veh/h	42	13	7	6	13	11	17	60	10	7	55	34	
Future Vol, veh/h	42	13	7	6	13	11	17	60	10	7	55	34	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	46	14	8	7	14	12	18	65	11	8	60	37	

Major/Minor	Minor2			Vinor1			Major1		Ν	/lajor2			
Conflicting Flow All	215	207	79	213	220	71	97	0	0	76	0	0	
Stage 1	95	95	-	107	107	-	-	-	-	-	-	-	
Stage 2	120	112	-	106	113	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	742	690	968	744	678	991	1466	-	-	1523	-	-	
Stage 1	912	816	-	898	807	-	-	-	-	-	-	-	
Stage 2	884	803	-	900	802	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	712	678	968	716	666	991	1466	-	-	1523	-	-	
Mov Cap-2 Maneuver	712	678	-	716	666	-	-	-	-	-	-	-	
Stage 1	901	812	-	887	797	-	-	-	-	-	-	-	
Stage 2	847	793	-	873	798	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	10.5	9.9	1.5	0.5	
HCM LOS	В	А			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	1466	-	-	726	769	1523	-	-
HCM Lane V/C Ratio	0.013	-	-	0.093	0.042	0.005	-	-
HCM Control Delay (s)	7.5	-	-	10.5	9.9	7.4	-	-
HCM Lane LOS	А	-	-	В	А	Α	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			- <del>द</del>	4	
Traffic Vol, veh/h	8	17	7	160	105	10
Future Vol, veh/h	8	17	7	160	105	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	,# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	9	18	8	174	114	11

Major/Minor	Minor2	I	Major1	Ма	jor2					
Conflicting Flow All	310	120	125	0	-	0				
Stage 1	120	-	-	-	-	-				
Stage 2	190	-	-	-	-	-				
Critical Hdwy	6.47	6.22	4.12	-	-	-				
Critical Hdwy Stg 1	5.47	-	-	-	-	-				
Critical Hdwy Stg 2	5.47	-	-	-	-	-				
Follow-up Hdwy	3.563	3.318	2.218	-	-	-				
Pot Cap-1 Maneuver	672	931	1462	-	-	-				
Stage 1	893	-	-	-	-	-				
Stage 2	830	-	-	-	-	-				
Platoon blocked, %				-	-	-				
Mov Cap-1 Maneuver		931	1462	-	-	-				
Mov Cap-2 Maneuver	668	-	-	-	-	-				
Stage 1	888	-	-	-	-	-				
Stage 2	830	-	-	-	-	-				
Approach	EB		NB		SB					

Approach	EB	NB	SB	
HCM Control Delay, s	9.5	0.3	0	
HCM LOS	А			

Minor Lane/Major Mvmt	NBL	NBTI	EBLn1	SBT	SBR
Capacity (veh/h)	1462	-	827	-	-
HCM Lane V/C Ratio	0.005	-	0.033	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	А	Α	Α	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

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Ir	Ite	ers	ie	CU	10	n	

Int Delay, s/veh

Movement         EBL         EBT         EBR         WBL         WBT         WBR         NBL         NBT         NBR         SBL         SBT         SBR           Lane Configurations         1 <t< th=""></t<>
Traffic Vol, veh/h 3 275 1 6 360 145 1 2 8 95 4 5
,
Future Vol veh/h 3 275 1 6 360 145 1 2 8 95 4 5
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 0 0 0
Sign Control Free Free Free Free Free Free Stop Stop Stop Stop Stop Stop
RT Channelized None None None None
Storage Length 305 - 120 290 - 520 35 560 - 0
Veh in Median Storage, # - 0 0 0 - 0 - 0 -
Grade, % - 0 0 0 0 -
Peak Hour Factor 92 92 92 92 92 92 92 92 92 92 92 92 92
Heavy Vehicles, % 7 10 2 2 10 7 2 2 2 7 2 7
Mvmt Flow 3 299 1 7 391 158 1 2 9 103 4 5

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	549	0	0	300	0	0	794	868	299	716	711	391	
Stage 1	-	· -	-	-	-	-	305	305	-	405	405	-	
Stage 2	-		-	-	-	-	489	563	-	311	306	-	
Critical Hdwy	4.17	· -	-	4.12	-	-	7.12	6.52	6.22	7.17	6.52	6.27	
Critical Hdwy Stg 1	-	· -	-	-	-	-	6.12	5.52	-	6.17	5.52	-	
Critical Hdwy Stg 2	-	· -	-	-	-	-	6.12	5.52	-	6.17	5.52	-	
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.518	4.018	3.318	3.563	4.018	3.363	
Pot Cap-1 Maneuver	996	i –	-	1261	-	-	306	290	741	339	358	647	
Stage 1	-	· -	-	-	-	-	705	662	-	613	598	-	
Stage 2	-	· -	-	-	-	-	561	509	-	689	662	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	996	i –	-	1261	-	-	299	287	741	331	355	647	
Mov Cap-2 Maneuver	-	· -	-	-	-	-	299	287	-	331	355	-	
Stage 1	-	· -	-	-	-	-	703	660	-	611	594	-	
Stage 2	-	· -	-	-	-	-	549	506	-	677	660	-	
Approach	EB			WB			NB			SB			
	0.1			0.1			12			20.5			
HCM Control Delay, s HCM LOS	0.1			0.1			B			20.5 C			
							D			U			
Minor Lane/Major Mvn	nt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)		291	741	996	-	-	1261	-	-	332	647		
HCM Lane V/C Ratio		0.011	0.012	0.003	-	-	0.005	-	-	0.324	0.008		
HCM Control Delay (s)	)	17.5	9.9	8.6	-	-	7.9	-	-	21	10.6		
		~								~	_		

-

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А

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В

0

HCM Lane LOS

HCM 95th %tile Q(veh)

С

0

А

0

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0

-

-

Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4î –			୍ କ	۰¥	
Traffic Vol, veh/h	14	48	7	10	32	11
Future Vol, veh/h	14	48	7	10	32	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	2
Mvmt Flow	15	52	8	11	35	12

Major/Minor	Major1	N	Major2		Minor1	
Conflicting Flow All	0	0	67	0	68	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1535	-	937	1030
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1535	-	932	1030
Mov Cap-2 Maneuver		-	-	-	932	-
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	996	-
Ŭ						
•	50					
Approach	EB		WB		NB	
HCM Control Delay, s	; O		3		9	
HCM LOS					А	
Miner Long/Maier Mur	nat N		ГРТ			
Minor Lane/Major Mvr	nt f	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		955	-	-	1535	-
HCM Lane V/C Ratio		0 0/0	_	-	0 005	_

	555	-	- 10	555	-
HCM Lane V/C Ratio	0.049	-	- 0.0	)05	-
HCM Control Delay (s)	9	-		7.4	0
HCM Lane LOS	А	-	-	А	А
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Int Delay, s/veh	4.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	- ሽ	1	4			्र
Traffic Vol, veh/h	153	2	3	210	7	1
Future Vol, veh/h	153	2	3	210	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage	, # 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	166	2	3	228	8	1

Major/Minor	Minor1	Ν	lajor1	Ν	1ajor2	
Conflicting Flow All	134	117	0	0	231	0
Stage 1	117	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	848	935	-	-	1337	-
Stage 1	896	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	· 843	935	-	-	1337	-
Mov Cap-2 Maneuver	· 843	-	-	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	993	-	-	-	-	-

Approach	WB	NB	SB	
HCM Control Delay, s	10.3	0	6.7	
HCM LOS	В			

Minor Lane/Major Mvmt	NBT	NBRWB	Ln1V	VBLn2	SBL	SBT	
Capacity (veh/h)	-	-	843	935	1337	-	
HCM Lane V/C Ratio	-	- 0.	197	0.002	0.006	-	
HCM Control Delay (s)	-	- 1	0.3	8.9	7.7	0	
HCM Lane LOS	-	-	В	А	Α	Α	
HCM 95th %tile Q(veh)	-	-	0.7	0	0	-	

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- सी	ef 👘		۰¥	
Traffic Vol, veh/h	5	102	44	204	95	60
Future Vol, veh/h	5	102	44	204	95	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	7	7	2
Mvmt Flow	5	111	48	222	103	65

Major/Minor	Major1	Ν	lajor2		Minor2	
Conflicting Flow All	270	0	-	0	280	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	4.12	-	-	-	6.47	6.22
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	• • • • •	-
Follow-up Hdwy	2.218	-	-	-	3.563	
Pot Cap-1 Maneuver	1293	-	-	-	699	886
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuve		-	-	-	696	886
Mov Cap-2 Maneuve	r -	-	-	-	696	-
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	892	-
Approach	EB		WB		SB	
HCM Control Delay,	s 0.4		0		11.1	
HCM LOS					В	
Minor Lane/Major Mv	/mt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)		1293	-	-	-	759
HCM Lane V/C Ratio	)	0.004	-	-	-	0.222
HCM Control Delay (	s)	7.8	0	-	-	11.1
HCM Lane LOS		А	А	-	-	В
HCM 95th %tile Q(ve	eh)	0	-	-	-	0.8

## Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					1			<u>्र</u>	1		001	OBIC	
Traffic Vol, veh/h	72	<b>€</b> 97	0	0	249	42	9	1	127	0	0	0	
Future Vol, veh/h	72	97	0	0	249	42	9	1	127	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	78	105	0	0	271	46	10	1	138	0	0	0	

Major1		Ν	/lajor2			Vinor1			
317	0	-	-	-	0	555	578	-	
-	-	-	-	-	-	261	261	-	
-	-	-	-	-	-	294	317	-	
4.17	-	-	-	-	-	6.47	6.52	-	
-	-	-	-	-	-	5.47	5.52	-	
-	-	-	-	-	-		5.52	-	
		-	-	-	-		4.018	-	
1215	-	0	0	-	-			0	
-	-	0	0	-	-			0	
-	-	0	0	-	-	745	654	0	
	-			-	-				
1215	-	-	-	-	-		0	-	
-	-	-	-	-	-		0	-	
-	-	-	-	-	-		0	-	
-	-	-	-	-	-	745	0	-	
EB			WB			NB			
3.5			0			13.2			
						В			
nt	NBLn1 NE	3Ln2	EBL	EBT	WBT	WBR			
		-		-	-	-			
		-		-	-	-			
		0	8.2	0	-	-			
	В	A	Α	A	-	-			
)	0.1	-	0.2	-	-	-			
	317 - 4.17 - 2.263 1215 - - 1215 - - - - - - - - - - - - - - - - - - -	317 0  4.17 -  2.263 - 1215 -  1215 -  1215 -  1215 -  1215 -  1215 -       	317       0       -         -       -       -         4.17       -       -         -       -       -         2.263       -       -         1215       -       0         -       -       0         -       -       0         -       -       0         -       -       0         -       -       0         -       -       0         -       -       -         1215       -       -         -       -       -         1215       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       - </td <td><math display="block">\begin{array}{c ccccccccccccccccccccccccccccccccccc</math></td> <td><math display="block">\begin{array}{c ccccccccccccccccccccccccccccccccccc</math></td> <td><math display="block">\begin{array}{c ccccccccccccccccccccccccccccccccccc</math></td> <td>317       0       -       -       0       555         -       -       -       -       261         -       -       -       294         <math>4.17</math>       -       -       -       6.47         -       -       -       5.47       -       -       5.47         2.263       -       -       -       5.47       -       -       484         -       0       0       -       -       484         -       0       0       -       -       745         -       -       0       0       -       745         -       -       -       -       451       -       745         -       -       -       -       -       745       B         <math>1215</math>       -       -       -       -       745         <math>1215</math>       -       -       -       -       -         <math>0.024</math>       0.064</td> <td><math display="block">\begin{array}{c ccccccccccccccccccccccccccccccccccc</math></td> <td><math display="block">\begin{array}{cccccccccccccccccccccccccccccccccccc</math></td>	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	317       0       -       -       0       555         -       -       -       -       261         -       -       -       294 $4.17$ -       -       -       294 $4.17$ -       -       -       294 $4.17$ -       -       -       294 $4.17$ -       -       -       6.47         -       -       -       5.47       -       -       5.47         2.263       -       -       -       5.47       -       -       484         -       0       0       -       -       484         -       0       0       -       -       745         -       -       0       0       -       745         -       -       -       -       451       -       745         -       -       -       -       -       745       B $1215$ -       -       -       -       745 $1215$ -       -       -       -       - $0.024$ 0.064	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

Int Delay, s/veh	0					
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	<u>۲</u>	1	<b>↑</b>			<b>↑</b>
Traffic Vol, veh/h	113	2	0	0	0	0
Future Vol, veh/h	113	2	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage	,# 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	2	2	2
Mvmt Flow	123	2	0	0	0	0

Major/Minor	Minor1	Ν	lajor1	Ма	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1009	-	-	-	-	-
Mov Cap-2 Maneuver	1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Approach	ND				C/M	

Approach	NB	NE	SW
HCM Control Delay, s		0	0
HCMLOS	-		

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.122 -	-
HCM Control Delay (s)	- 9.1 -	-
HCM Lane LOS	- A -	-
HCM 95th %tile Q(veh)	- 0.4 -	-

# Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		\$			÷		1	et F		1	et 👘		
Traffic Vol, veh/h	128	19	36	15	23	13	37	89	18	14	78	95	
Future Vol, veh/h	128	19	36	15	23	13	37	89	18	14	78	95	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	139	21	39	16	25	14	40	97	20	15	85	103	

Major/Minor	Minor2			Minor1			Major1		Ν	/lajor2			
Conflicting Flow All	374	364	137	384	405	107	188	0	0	117	0	0	
Stage 1	167	167	-	187	187	-	-	-	-	-	-	-	
Stage 2	207	197	-	197	218	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	583	564	898	574	535	947	1357	-	-	1471	-	-	
Stage 1	835	760	-	815	745	-	-	-	-	-	-	-	
Stage 2	795	738	-	805	723	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	536	542	898	517	514	947	1357	-	-	1471	-	-	
Mov Cap-2 Maneuver	536	542	-	517	514	-	-	-	-	-	-	-	
Stage 1	811	752	-	791	723	-	-	-	-	-	-	-	
Stage 2	734	717	-	741	716	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	14.3	11.8	2	0.6	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	1357	-	-	583	583	1471	-	-
HCM Lane V/C Ratio	0.03	-	-	0.341	0.095	0.01	-	-
HCM Control Delay (s)	7.7	-	-	14.3	11.8	7.5	-	-
HCM Lane LOS	А	-	-	В	В	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.5	0.3	0	-	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			- <del>द</del>	4	
Traffic Vol, veh/h	26	13	18	232	131	46
Future Vol, veh/h	26	13	18	232	131	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	, # 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	28	14	20	252	142	50

Major/Minor	Minor2		Major1	Ма	ajor2	
Conflicting Flow All	459	167	192	0	-	0
Stage 1	167	-	-	-	-	-
Stage 2	292	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	551	877	1381	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	542	877	1381	-	-	-
Mov Cap-2 Maneuver	542	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Approach	EB		NB		SB	

Approach	EB	NB	SB	
HCM Control Delay, s	11.2	0.6	0	
HCM LOS	В			

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1381	-	621	-	-
HCM Lane V/C Ratio	0.014	-	0.068	-	-
HCM Control Delay (s)	7.6	0	11.2	-	-
HCM Lane LOS	А	Α	В	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

nt	orc	ACI	tion	
110	010			

Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ľ	•	1	<u>ک</u>	•	1		÷	1		÷.	1
Traffic Vol, veh/h	0	218	3	19	598	222	0	1	5	125	2	3
Future Vol, veh/h	0	218	3	19	598	222	0	1	5	125	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	305	-	120	290	-	520	-	-	35	560	-	0
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	10	2	2	10	7	2	2	2	7	2	7
Mvmt Flow	0	237	3	21	650	241	0	1	5	136	2	3

N.A. 1 (N.A.												
	Major1			Major2			Vinor1			Mino	_	
Conflicting Flow All	891	0	0	240	0	0	1052	1170	237	934		
Stage 1	-	-	-	-	-	-	237	237	-	692		692
Stage 2	-	-	-	-	-	-	815	933	-	242		240
Critical Hdwy	4.17	-	-	4.12	-	-	7.12	6.52	6.22	7.17		6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.17		5.52
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.17		5.52
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.518	4.018	3.318	3.563	4.	018
Pot Cap-1 Maneuver	740	-	-	1327	-	-	204	193	802	241	2	266
Stage 1	-	-	-	-	-	-	766	709	-	426	44	5
Stage 2	-	-	-	-	-	-	371	345	-	750	707	,
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	740	-	-	1327	-	-	199	190	802	235	262	
Mov Cap-2 Maneuver	· _	-	-	-	-	-	199	190	-	235	262	
Stage 1	-	-	-	-	-	-	766	709	-	426	438	
Stage 2	-	-	-	-	-	-	361	339	-	744	707	
Approach	EB			WB			NB			SB		
				0.2						39.4		
HCM Control Delay, s	s 0			0.2			11.9					
HCM LOS							В			E		
Minor Lane/Major Mvr	mt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)		190	802	740	-	-	1327	-	-	235	460	
HCM Lane V/C Ratio		0.006	0.007	-	-	-	0.016	-	-	0.587	0.007	
HCM Control Delay (s	3)	24.1	9.5	0	-	-	7.8	-	-	40	12.9	

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В

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HCM Lane LOS

HCM 95th %tile Q(veh)

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Intersection							
Int Delay, s/veh	5.3						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	l
Lane Configurations	ef 👘			- <del>र</del> ्ग	۰¥		
Traffic Vol, veh/h	8	54	51	14	40	32	2
Future Vol, veh/h	8	54	51	14	40	32	2
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	)
RT Channelized	-	None	-	None	-	None	•
Storage Length	-	-	-	-	0	-	
Veh in Median Storage	, # 0	-	-	0	0	-	•
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	92	92	92	92	92	92	2
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	9	59	55	15	43	35	j

Major/Minor Ma	ajor1	Ν	/lajor2	1	Minor1	
Conflicting Flow All	0	0	68	0	164	39
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	125	-
Critical Hdwy	-	-	4.12	-	•••-	6.22
Critical Hdwy Stg 1	-	-	-	-		-
Critical Hdwy Stg 2	-	-	-	-	0.12	-
Follow-up Hdwy	-	-	2.218	-	3.518	
Pot Cap-1 Maneuver	-	-	1533	-		1033
Stage 1	-	-	-	-	000	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1533	-		1033
Mov Cap-2 Maneuver	-	-	-	-		-
Stage 1	-	-	-	-	•.•	-
Stage 2	-	-	-	-	901	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		5.8		9.5	
HCM LOS	•				A	
						MOT
Minor Lane/Major Mvmt	N	IBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		887	-	-		-
HCM Lane V/C Ratio		0.088	-	-	0.036	-
HCM Control Delay (s)		9.5	-	-		0
HCM Lane LOS		Α	-	-	A	А

	/ `			/ \	/ \			
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-			

Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	5	1	et -			र्च
Traffic Vol, veh/h	113	0	5	143	2	0
Future Vol, veh/h	113	0	5	143	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage	e, # 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	123	0	5	155	2	0

Major/Minor	Minor1	Ν	/lajor1	Ν	1ajor2		
Conflicting Flow All	87	83	0	0	160	0	
Stage 1	83	-	-	-	-	-	
Stage 2	4	-	-	-	-	-	
Critical Hdwy	6.47	6.22	-	-	4.12	-	
Critical Hdwy Stg 1	5.47	-	-	-	-	-	
Critical Hdwy Stg 2	5.47	-	-	-	-	-	
Follow-up Hdwy		3.318	-		2.218	-	
Pot Cap-1 Maneuver	902	976	-	-	1419	-	
Stage 1	928	-	-	-	-	-	
Stage 2	1006	-	-	-	-	-	
Platoon blocked, %			-	-		-	
Mov Cap-1 Maneuver		976	-	-	1419	-	
Mov Cap-2 Maneuver		-	-	-	-	-	
Stage 1	927	-	-	-	-	-	
Stage 2	1006	-	-	-	-	-	

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	7.5
HCM LOS	А		

Minor Lane/Major Mvmt	NBT	NBRW	/BLn1W	/BLn2	SBL	SBT
Capacity (veh/h)	-	-	901	-	1419	-
HCM Lane V/C Ratio	-	-	0.136	-	0.002	-
HCM Control Delay (s)	-	-	9.6	0	7.5	0
HCM Lane LOS	-	-	А	А	А	А
HCM 95th %tile Q(veh)	-	-	0.5	-	0	-

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- <del>4</del>	el 👘		Y	
Traffic Vol, veh/h	10	143	51	134	22	78
Future Vol, veh/h	10	143	51	134	22	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	7	7	2
Mvmt Flow	11	155	55	146	24	85

Major/Minor	Major1	Ν	/lajor2		Minor2	
Conflicting Flow All	201	0	-	0	305	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.47	6.22
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.218	-	-	-	3.563	
Pot Cap-1 Maneuver	1371	-	-	-	677	922
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver		-	-	-	671	922
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	842	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.5		0		9.8	
HCM LOS					А	
Minor Lane/Major Mvn	nt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)		1371			-	852
HCM Lane V/C Ratio		0.008	_	-		0.128
HCM Control Delay (s	)	7.6	0	-	-	9.8
HCM Lane LOS	/	7.0 A	A	-	_	0.0 A
HCM 95th %tile Q(veh	1)	0	-	-	-	0.4
	'/					V. T

### Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		र्स			4			र्भ	1				
Traffic Vol, veh/h	72	76	0	0	162	112	13	1	227	0	0	0	
Future Vol, veh/h	72	76	0	0	162	112	13	1	227	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage,	, # -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	78	83	0	0	176	122	14	1	247	0	0	0	

Major1		Ν	/lajor2		I	Minor1			
298	0	-	-	-	0	476	537	-	
-	-	-	-	-	-	239	239	-	
-	-	-	-	-	-	237	298	-	
4.17	-	-	-	-	-	6.47	6.52	-	
-	-	-	-	-	-	5.47	5.52	-	
-	-	-	-	-	-		5.52	-	
2.263	-	-	-	-	-		4.018	-	
1235	-	0	0	-	-	539	450	0	
-	-	0	0	-	-	789	708	0	
-	-	0	0	-	-	791	667	0	
	-			-	-				
1235	-	-	-	-	-	503	0	-	
-	-	-	-	-	-		0	-	
-	-	-	-	-	-	737	0	-	
-	-	-	-	-	-	791	0	-	
EB			WB			NB			
3.9			0			12.4			
						В			
nt	NBLn1 N	BLn2	EBL	EBT	WBT	WBR			
	503	-	1235	-	-	-			
	0.03	-		-	-	-			
	12.4	0	8.1	0	-	-			
	В	А	А	А	-	-			
)	0.1	-	0.2	-	-	-			
	- 4.17 - 2.263 1235 - - 1235 - - - - - - - - - - - - - - - - - - -	298 0  4.17 -  2.263 - 1235 -  1235 -  1235 -  1235 -  - 1235 -  - 1235 - - - - - - - - - - - - - -	298       0       -         -       -       -         4.17       -       -         -       -       -         2.263       -       -         1235       -       0         -       -       0         -       -       0         -       -       0         -       -       0         -       -       0         -       -       0         -       -       -         1235       -       -         -       -       -         1235       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         -       -       -         3.9       -       -	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	298       0       -       -       0         -       -       -       -       -         4.17       -       -       -       -         -       -       -       -       -         2.263       -       -       -       -         1235       -       0       0       -       -         -       -       0       0       -       -         -       0       0       -       -       -         1235       -       0       0       -       -         -       0       0       -       -       -       -         1235       -       -       -       -       -       -       -         1235       -       -       -       -       -       -       -       -         -       -       -       -       -       -       -       -       -       -         1235       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	298       0       -       -       0       476         -       -       -       239       -       237         4.17       -       -       -       237         4.17       -       -       -       237         -       -       -       -       237         4.17       -       -       -       6.47         -       -       -       5.47         2.263       -       -       5.47         2.263       -       -       539         -       0       0       -       539         -       0       0       -       789         -       0       0       -       791         -       -       0       0       -       791         -       -       -       503       -       791         -       -       -       -       737       -       -       737         -       -       -       -       737       -       -       791         Mt       NBLn1NBLn2       EBL       EBT       WBT       WBR         3.9       0	298       0       -       -       0       476       537         -       -       -       -       239       239         -       -       -       -       237       298         4.17       -       -       -       237       298         4.17       -       -       -       6.47       6.52         -       -       -       5.47       5.52         -       -       -       5.47       5.52         2.263       -       -       -       5.47       5.52         2.263       -       -       -       5.47       5.52         2.263       -       -       -       5.47       5.52         2.263       -       -       -       5.47       5.52         2.263       -       -       -       5.47       5.52         2.263       -       -       -       5.47       5.52         2.263       -       -       -       7.89       708         1235       -       -       -       503       0         -       -       -       -       7.91       0     <	298       0       -       -       0       476       537       -         -       -       -       239       239       -       -       237       298       -         4.17       -       -       -       237       298       -         -       -       -       -       237       298       -         4.17       -       -       -       6.47       6.52       -         -       -       -       5.47       5.52       -       -         -       -       -       -       5.47       5.52       -         2.263       -       -       -       5.39       450       0         -       0       0       -       -       789       708       0         -       -       0       0       -       -       791       667       0         -       -       -       -       503       0       -       -       8       -         1235       -       -       -       737       0       -       -       B       -       -       -       -       -       -       -

Intersection						
Int Delay, s/veh	8.8					
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	- ሽ	1	<b>↑</b>			↑
Traffic Vol, veh/h	75	0	0	0	0	0
Future Vol, veh/h	75	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage	e, # 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	2	2	2
Mvmt Flow	82	0	0	0	0	0

Major/Minor	Minor1	Ν	1ajor1	M	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1009	-	-	-	-	-
Mov Cap-2 Maneuver	· 1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Annroach	NB		NF		SW	

Approach	NB	NE	SW	
HCM Control Delay, s	8.9	0	0	
HCM LOS	А			

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.081 -	-
HCM Control Delay (s)	- 8.9 0	-
HCM Lane LOS	- A A	-
HCM 95th %tile Q(veh)	- 0.3 -	-

### Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4		۲.	ef 👘		۲.	eî 👘		
Traffic Vol, veh/h	12	27	11	80	24	15	36	113	48	22	94	56	
Future Vol, veh/h	12	27	11	80	24	15	36	113	48	22	94	56	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None										
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	13	29	12	87	26	16	39	123	52	24	102	61	

Major/Minor	Minor2			Vinor1			Major1			Major2			
Conflicting Flow All	429	434	133	428	438	149	163	0	0	175	0	0	
Stage 1	181	181	-	227	227	-	-	-	-	-	-	-	
Stage 2	248	253	-	201	211	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	536	515	903	537	512	898	1386	-	-	1401	-	-	
Stage 1	821	750	-	776	716	-	-	-	-	-	-	-	
Stage 2	756	698	-	801	728	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	488	492	903	489	489	898	1386	-	-	1401	-	-	
Mov Cap-2 Maneuver	488	492	-	489	489	-	-	-	-	-	-	-	
Stage 1	798	737	-	754	696	-	-	-	-	-	-	-	
Stage 2	694	678	-	746	716	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			

Approach	EB	WB	NB	SB	
HCM Control Delay, s	12.3	14.2	1.4	1	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR E	BLn1V	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	1386	-	-	546	519	1401	-	-
HCM Lane V/C Ratio	0.028	-	-	0.1	0.249	0.017	-	-
HCM Control Delay (s)	7.7	-	-	12.3	14.2	7.6	-	-
HCM Lane LOS	А	-	-	В	В	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1	0.1	-	-

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			÷	el el	
Traffic Vol, veh/h	55	28	11	215	240	4
Future Vol, veh/h	55	28	11	215	240	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	,# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	60	30	12	234	261	4

Major/Minor	Minor2		Major1	Maj	or2	
Conflicting Flow All	521	263	265	0	-	0
Stage 1	263	-	-	-	-	-
Stage 2	258	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	507	776	1299	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	501	776	1299	-	-	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	762	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.4	0
HCM LOS	В		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1299	-	569	-	-
HCM Lane V/C Ratio	0.009	-	0.159	-	-
HCM Control Delay (s)	7.8	0	12.5	-	-
HCM Lane LOS	А	А	В	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

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	I.	C	10	c	υı	iU	ш	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑	1	۲.	<b>↑</b>	1		र्भ	1		र्भ	1
Traffic Vol, veh/h	6	719	2	4	307	196	0	4	15	247	2	7
Future Vol, veh/h	6	719	2	4	307	196	0	4	15	247	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	305	-	120	290	-	520	-	-	35	560	-	0
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	10	2	2	10	7	2	2	2	7	2	7
Mvmt Flow	7	782	2	4	334	213	0	4	16	268	2	8

Stage 1         Stage 2         Critical Hdwy       4         Critical Hdwy Stg 1         Critical Hdwy Stg 2         Follow-up Hdwy       2.         Pot Cap-1 Maneuver         Stage 1         Stage 2         Platoon blocked, %	547 - 4.17 - 2.263 998 - -	0	-	784 - - 4.12 -	0 - -	0 - -	1250 796 454	1351 796 555	782 -	1149 342	1140 342	334 -		
Stage 2Critical Hdwy4Critical Hdwy Stg 17Critical Hdwy Stg 27Follow-up Hdwy2.Pot Cap-1 Maneuver2Stage 15Stage 27Platoon blocked, %7Mov Cap-1 Maneuver7Mov Cap-2 Maneuver7Stage 15Stage 15Cap-2 Maneuver5Stage 15Stage 15	4.17 - 2.263 998 -			-	-	-			-	342	342	-		
Critical Hdwy 4 Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy 22 Pot Cap-1 Maneuver Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	- 2.263 998 -	- - - -	-	- 4.12 -			454	555						
Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy 2. Pot Cap-1 Maneuver Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	- 2.263 998 -		-	4.12 -	-				-	807	798	-		
Critical Hdwy Stg 2 Follow-up Hdwy 2. Pot Cap-1 Maneuver Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	998 -	-	-	-		-	7.12	6.52	6.22	7.17	6.52	6.27		
Follow-up Hdwy 2. Pot Cap-1 Maneuver Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	998 -	-	-		-	-	6.12	5.52	-	6.17	5.52	-		
Pot Cap-1 Maneuver Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	998 -	-		-	-	-	6.12	5.52	-	6.17	5.52	-		
Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	-		- 2	.218	-	-	3.518	4.018	3.318	3.563	4.018	3.363		
Stage 2 Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	-	-	-	834	-	-	150	150	394	~ 172	201	697		
Platoon blocked, % Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1	-	-	-	-	-	-	380	399	-	663	638	-		
Mov Cap-1 Maneuver Mov Cap-2 Maneuver Stage 1		-	-	-	-	-	586	513	-	368	398	-		
Mov Cap-2 Maneuver Stage 1		-	-		-	-								
Stage 1	998	-	-	834	-	-	146	148	394	~ 160	199	697		
•	-	-	-	-	-	-	146	148	-	~ 160	199	-		
Stage 2	-	-	-	-	-	-	377	396	-	658	635	-		
Olugo Z	-	-	-	-	-	-	575	510	-	346	395	-		
Approach	EB			WB			NB			SB				
HCM Control Delay, s	0.1			0.1			17.8		\$	376.1				
HCM LOS	•••			•			C		Ŧ	F				
							•			·				
Minor Lane/Major Mvmt		Ln1 NBL	<b>~</b> 0	EBL	EBT		WBL	WBT		SBLn1:	0 10			
•						EBR			VDR					
Capacity (veh/h)			94	998	-	-	834	-	-	160	697			
HCM Lane V/C Ratio		029 0.0		.007	-	-	0.005	-		1.692	0.011			
HCM Control Delay (s)	,		4.5	8.6	-	-	9.3	-		386.4	10.2			
HCM Lane LOS		D	B	A	-	-	A	-	-	F	B			
HCM 95th %tile Q(veh)		0.1	).1	0	-	-	0	-	-	19.1	0			
Notes														
~: Volume exceeds capac		\$: Delay												

Intersection						
Int Delay, s/veh	5.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4			- <del>स</del> ी	۰¥	
Traffic Vol, veh/h	28	20	18	15	51	47
Future Vol, veh/h	28	20	18	15	51	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	2
Mvmt Flow	30	22	20	16	55	51

Major/Minor N	/lajor1	1	Major2		Minor1	
Conflicting Flow All	0	0	52	0	97	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	56	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	
Pot Cap-1 Maneuver	-	-	1554	-		1030
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	967	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1554	-	890	1030
Mov Cap-2 Maneuver	-	-	-	-	890	-
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	967	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4		9.3	
HCM LOS					А	
Minor Lane/Major Mvm	ŧ	NBLn1	EBT	EBR	WBL	WBT
	ι <u></u>	952	-	-		
Capacity (veh/h) HCM Lane V/C Ratio		952 0.112			0.013	-
HCM Control Delay (s)		9.3	-	-	-	- 0
HCM Lane LOS		9.3 A	-	-	7.3 A	A
HCM 95th %tile Q(veh)		0.4	-	-	0	Ā
		0.4	-	-	0	-

## Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4		۲.	ef 👘		۲.	eî 👘		
Traffic Vol, veh/h	42	13	18	6	13	11	26	61	10	7	56	34	
Future Vol, veh/h	42	13	18	6	13	11	26	61	10	7	56	34	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	46	14	20	7	14	12	28	66	11	8	61	37	

Major/Minor	Minor2			Vinor1			Major1			Μ	ajor2			
Conflicting Flow All	237	229	80	241	242	72	98	0	(	)	77	0	0	
Stage 1	96	96	-	128	128	-	-	-		-	-	-	-	
Stage 2	141	133	-	113	114	-	-	-		-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-		-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-		-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-		-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-		- 2	2.218	-	-	
Pot Cap-1 Maneuver	717	671	966	713	660	990	1464	-		-	1522	-	-	
Stage 1	911	815	-	876	790	-	-	-		-	-	-	-	
Stage 2	862	786	-	892	801	-	-	-		-	-	-	-	
Platoon blocked, %								-		-		-	-	
Mov Cap-1 Maneuver	683	655	966	674	644	990	1464	-		-	1522	-	-	
Mov Cap-2 Maneuver	683	655	-	674	644	-	-	-		-	-	-	-	
Stage 1	894	811	-	859	775	-	-	-		-	-	-	-	
Stage 2	820	771	-	854	797	-	-	-		-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	10.5	10	2	0.5	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1464	-	-	730	746	1522	-	-
HCM Lane V/C Ratio	0.019	-	-	0.109	0.044	0.005	-	-
HCM Control Delay (s)	7.5	-	-	10.5	10	7.4	-	-
HCM Lane LOS	А	-	-	В	В	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۰¥			- <del>4</del>	4	
Traffic Vol, veh/h	18	20	11	160	105	22
Future Vol, veh/h	18	20	11	160	105	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	, # 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	20	22	12	174	114	24

Major/Minor	Minor2		Major1	Ма	ajor2	
Conflicting Flow All	324	126	138	0	-	0
Stage 1	126	-	-	-	-	-
Stage 2	198	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	660	924	1446	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	654	924	1446	-	-	-
Mov Cap-2 Maneuver	654	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Approach	EB		NB		SB	

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.5	0
HCM LOS	А		

Minor Lane/Major Mvmt	NBL	NBT I	EBLn1	SBT	SBR
Capacity (veh/h)	1446	-	773	-	-
HCM Lane V/C Ratio	0.008	-	0.053	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	А	А	Α	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

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			-		-	••••	•	•

Int Delay, s/veh

<b>3</b> 7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦.	<b>↑</b>	1	- ሽ	<b>↑</b>	1		्र	1		- <del>स</del> ी	1
Traffic Vol, veh/h	4	275	1	6	360	147	1	2	8	97	4	6
Future Vol, veh/h	4	275	1	6	360	147	1	2	8	97	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	305	-	120	290	-	520	-	-	35	560	-	0
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	10	2	2	10	7	2	2	2	7	2	7
Mvmt Flow	4	299	1	7	391	160	1	2	9	105	4	7

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	551	0	0	300	0	0	798	872	299	718	713	391	
Stage 1	-	-	-		-	-	307	307	200	405	405	-	
Stage 2	-	-	-	-	-	-	491	565	-	313	308	-	
Critical Hdwy	4.17	-	-	4.12	-	-	7.12	6.52	6.22	7.17	6.52	6.27	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.17	5.52	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.17	5.52	-	
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.518	4.018	3.318	3.563	4.018	3.363	
Pot Cap-1 Maneuver	994	-	-	1261	-	-	304	289	741	338	357	647	
Stage 1	-	-	-	-	-	-	703	661	-	613	598	-	
Stage 2	-	-	-	-	-	-	559	508	-	687	660	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	994	-	-	1261	-	-	296	286	741	330	353	647	
Mov Cap-2 Maneuver	-	-	-	-	-	-	296	286	-	330	353	-	
Stage 1	-	-	-	-	-	-	700	658	-	• • •	594	-	
Stage 2	-	-	-	-	-	-	546	505	-	674	657	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s				0.1			12			20.6			
HCM LOS	0.1			0.1			B			C			
							_			J			
					EDT		ים/או			0014			
Minor Lane/Major Mvn	nt	NBLn1		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)		289	741	994	-	-	1261	-	-	331	647		
HCM Lane V/C Ratio	<b>、</b>	0.011	0.012	0.004	-	-	0.005	-	-	0.332	0.01		
HCM Control Delay (s	)	17.6	9.9	8.6	-	-	7.9	-	-	21.2	10.6		
HCM Lane LOS		С	A	A	-	-	A	-	-	С	В		

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HCM 95th %tile Q(veh)

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Intersection							
Int Delay, s/veh	4.5						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	l
Lane Configurations	4			- <del>द</del>	۰¥		
Traffic Vol, veh/h	14	55	23	10	38	24	
Future Vol, veh/h	14	55	23	10	38	24	
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Free	Free	Free	Free	Stop	Stop	)
RT Channelized	-	None	-	None	-	None	ļ
Storage Length	-	-	-	-	0	-	
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	2	2
Mvmt Flow	15	60	25	11	41	26	j

Major/Minor N	1ajor1	N	Major2		Minor1	
Conflicting Flow All	0	0	75	0	106	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	61	-
Critical Hdwy	-	-	4.12	-	••••	6.22
Critical Hdwy Stg 1	-	-	-	-	0.12	-
Critical Hdwy Stg 2	-	-	-	-	0.12	-
Follow-up Hdwy	-	-	2.218	-	3.518	
Pot Cap-1 Maneuver	-	-	1524	-		1025
Stage 1	-	-	-	-	011	-
Stage 2	-	-	-	-	962	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1524	-	0.1	1025
Mov Cap-2 Maneuver	-	-	-	-	877	-
Stage 1	-	-	-	-	000	-
Stage 2	-	-	-	-	962	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		5.2		9.2	
HCM LOS	•		•		A	
					73	
NA' 1 /NA ' NA '			EDT			WDT
Minor Lane/Major Mvm	t i	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		929	-		1524	-
HCM Lane V/C Ratio		0.073	-	-	0.016	-
HCM Control Delay (s)		9.2	-	-		0
HCM Lane LOS		A	-	-	A	А
HCM 95th %tile Q(veh)		0.2	-	-	0.1	-

# **MOVEMENT SUMMARY**

# 🕅 Site: 7 [SR 12 / SR 113]

Cumulative AM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance ft	Prop. Queued		Aver. No. Cycles	
South	: Birds L	anding Rd										
3	L2	5	3.0	0.032	7.5	LOS A	0.1	2.6	0.56	0.52	0.56	33.0
8	T1	5	3.0	0.032	7.5	LOS A	0.1	2.6	0.56	0.52	0.56	33.0
18	R2	5	3.0	0.032	7.5	LOS A	0.1	2.6	0.56	0.52	0.56	32.0
Appro	bach	16	3.0	0.032	7.5	LOS A	0.1	2.6	0.56	0.52	0.56	32.7
East:	SR 12											
1	L2	16	3.0	0.858	17.2	LOS C	11.8	317.6	0.23	0.06	0.23	29.6
6	T1	1201	10.0	0.858	17.3	LOS C	11.8	317.6	0.23	0.06	0.23	29.5
16	R2	250	7.0	0.858	17.2	LOS C	11.8	317.6	0.23	0.06	0.23	28.7
Appro	bach	1467	9.4	0.858	17.3	LOS C	11.8	317.6	0.23	0.06	0.23	29.3
North	: SR 113											
7	L2	217	7.0	0.847	61.4	LOS F	5.7	150.1	0.93	1.36	2.57	18.2
4	T1	5	3.0	0.847	60.9	LOS F	5.7	150.1	0.93	1.36	2.57	18.2
14	R2	11	7.0	0.847	61.4	LOS F	5.7	150.1	0.93	1.36	2.57	17.9
Appro	ach	234	6.9	0.847	61.4	LOS F	5.7	150.1	0.93	1.36	2.57	18.2
West:	SR 12											
5	L2	5	7.0	0.574	12.3	LOS B	4.4	117.8	0.54	0.55	0.74	31.5
2	T1	489	10.0	0.574	12.4	LOS B	4.4	117.8	0.54	0.55	0.74	31.5
12	R2	5	3.0	0.574	12.1	LOS B	4.4	117.8	0.54	0.55	0.74	30.8
Appro	ach	500	9.9	0.574	12.4	LOS B	4.4	117.8	0.54	0.55	0.74	31.5
All Ve	hicles	2217	9.2	0.858	20.8	LOS C	11.8	317.6	0.38	0.31	0.60	27.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Int Delay, s/veh	4.4						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	- ሽ	1	<b>f</b>			्र	1
Traffic Vol, veh/h	190	5	5	295	10	5	;
Future Vol, veh/h	190	5	5	295	10	5	;
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	÷
RT Channelized	-	None	-	None	-	None	,
Storage Length	0	25	-	-	-	-	-
Veh in Median Storage	, # 0	-	0	-	-	0	)
Grade, %	0	-	0	-	-	0	)
Peak Hour Factor	92	92	92	92	92	92	)
Heavy Vehicles, %	7	2	2	7	2	2	)
Mvmt Flow	207	5	5	321	11	5	;

Major/Minor	Minor1	Ν	lajor1	Ν	/lajor2	
Conflicting Flow All	193	166	0	0	326	0
Stage 1	166	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	785	878	-	-	1234	-
Stage 1	851	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	778	878	-	-	1234	-
Mov Cap-2 Maneuver	778	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	983	-	-	-	-	-
•	14/5				0.5	

Approach	WB	NB	SB	
HCM Control Delay, s	11.2	0	5.3	
HCM LOS	В			

Minor Lane/Major Mvmt	NBT	NBRV	/BLn1V	VBLn2	SBL	SBT	
Capacity (veh/h)	-	-	778	878	1234	-	
HCM Lane V/C Ratio	-	-	0.265	0.006	0.009	-	
HCM Control Delay (s)	-	-	11.3	9.1	7.9	0	
HCM Lane LOS	-	-	В	А	Α	Α	
HCM 95th %tile Q(veh)	-	-	1.1	0	0	-	

Intersection							
Int Delay, s/veh	3.7						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		÷	el 👘		Y		
Traffic Vol, veh/h	10	160	65	280	125	65	

	10	100	00	200	120	00	
Future Vol, veh/h	10	160	65	280	125	65	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
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	7	7	2	
Mvmt Flow	11	174	71	304	136	71	

Major/Minor	Major1	Ν	lajor2		Minor2	
Conflicting Flow All	375	0	-	0	419	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	4.12	-	-	-	6.47	6.22
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	• • • • •	-
Follow-up Hdwy	2.218	-	-	-	3.563	
Pot Cap-1 Maneuver	1183	-	-	-	581	817
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver		-	-	-	•.•	817
Mov Cap-2 Maneuver	-	-	-	-	575	-
Stage 1	-	-	-	-		-
Stage 2	-	-	-	-	825	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.5		0		13.3	
HCM LOS					В	
Minor Lane/Major Mvr	nt	EBL	EBT	WBT	W/RR	SBLn1
	m	1183		VUDI		
Capacity (veh/h) HCM Lane V/C Ratio		0.009	-	-	-	640 0.323
HCM Control Delay (s	1	8.1	-	-	-	13.3
HCM Lane LOS	)	0.1 A	A	-	-	13.3 B
HCM 95th %tile Q(vel	n)	0	A	-	-	ь 1.4
	1)	0	-	-	-	1.4

### Intersection

•													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		- <del>र्</del> च			et 👘			÷.	1				
Traffic Vol, veh/h	95	130	0	0	345	40	15	5	115	0	0	0	
Future Vol, veh/h	95	130	0	0	345	40	15	5	115	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	103	141	0	0	375	43	16	5	125	0	0	0	

Major/Minor I	Major1		N	Major2			Vinor1			
Conflicting Flow All	418	0	-	-	-	0	744	765	-	
Stage 1	-	-	-	-	-	-	347	347	-	
Stage 2	-	-	-	-	-	-	397	418	-	
Critical Hdwy	4.17	-	-	-	-	-	6.47	6.52	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.47	5.52	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.47	5.52	-	
Follow-up Hdwy	2.263		-	-	-	-	3.563	4.018	-	
Pot Cap-1 Maneuver	1115	-	0	0	-	-	375	333	0	
Stage 1	-	-	0	0	-	-	705	635	0	
Stage 2	-	-	0	0	-	-	668	591	0	
Platoon blocked, %		-			-	-				
Mov Cap-1 Maneuver	1115	-	-	-	-	-	338	0	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	338	0	-	
Stage 1	-	-	-	-	-	-	635	0	-	
Stage 2	-	-	-	-	-	-	668	0	-	
Approach	EB			WB			NB			
HCM Control Delay, s	3.6			0			16.4			
HCM LOS							С			
Minor Lane/Major Mvm	nt	NBLn1	VBLn2	EBL	EBT	WBT	WBR			
Capacity (veh/h)		338	-	1115	-	_	-			
HCM Lane V/C Ratio		0.064	-	0.093	-	-	-			
HCM Control Delay (s)	)	16.4	0	8.6	0	-	-			
HCM Lane LOS		С	А	А	А	-	-			
HCM 95th %tile Q(veh	)	0.2	-	0.3	-	-	-			

Int Delay, s/veh	0					
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	٦	1	1			1
Traffic Vol, veh/h	145	10	0	0	0	0
Future Vol, veh/h	145	10	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage	# 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	2	2	2
Mvmt Flow	158	11	0	0	0	0

Major/Minor	Minor1	Ν	lajor1	Ма	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1009	-	-	-	-	-
Mov Cap-2 Maneuver	1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Approach	ND				C/M	

Approach	NB	NE	SW	
HCM Control Delay, s		0	0	
HCM LOS	-			

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.156 -	-
HCM Control Delay (s)	- 9.2 -	-
HCM Lane LOS	- A -	-
HCM 95th %tile Q(veh)	- 0.6 -	-

## Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4		۲.	4		٦	4		
Traffic Vol, veh/h	185	20	20	35	45	50	25	180	30	35	145	150	
Future Vol, veh/h	185	20	20	35	45	50	25	180	30	35	145	150	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage,	, # -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	201	22	22	38	49	54	27	196	33	38	158	163	

Major/Minor	Minor2			Minor1			Major1		Ν	1ajor2			
Conflicting Flow All	634	599	240	605	664	213	321	0	0	229	0	0	
Stage 1	316	316	-	267	267	-	-	-	-	-	-	-	
Stage 2	318	283	-	338	397	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	392	415	787	410	381	827	1211	-	-	1339	-	-	
Stage 1	695	655	-	738	688	-	-	-	-	-	-	-	
Stage 2	693	677	-	676	603	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	316	395	787	367	362	827	1211	-	-	1339	-	-	
Mov Cap-2 Maneuver	316	395	-	367	362	-	-	-	-	-	-	-	
Stage 1	680	637	-	722	673	-	-	-	-	-	-	-	
Stage 2	587	662	-	617	586	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	38.5	16.1	0.9	0.8	
HCM LOS	Е	С			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1\	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	1211	-	-	340	464	1339	-	-
HCM Lane V/C Ratio	0.022	-	-	0.719	0.305	0.028	-	-
HCM Control Delay (s)	8	-	-	38.5	16.1	7.8	-	-
HCM Lane LOS	А	-	-	E	С	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	5.3	1.3	0.1	-	-

Intersection		
Int Delay, s/veh	1.1	

Int Delay, 3/Ven	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			<del>ب</del>	et	
Traffic Vol, veh/h	25	20	30	420	235	50
Future Vol, veh/h	25	20	30	420	235	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	, # 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	27	22	33	457	255	54

Major/Minor	Minor2		Major1	Ma	ijor2	
Conflicting Flow All	805	282	309	0	-	0
Stage 1	282	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	345	757	1252	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	333	757	1252	-	-	-
Mov Cap-2 Maneuver	333	-	-	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Annraach	ГР		ND		CD.	

Approach	EB	NB	SB	
HCM Control Delay, s	14.1	0.5	0	
HCM LOS	В			

Minor Lane/Major Mvmt	NBL	NBT E	BLn1	SBT	SBR
Capacity (veh/h)	1252	-	443	-	-
HCM Lane V/C Ratio	0.026	-	0.11	-	-
HCM Control Delay (s)	8	0	14.1	-	-
HCM Lane LOS	А	Α	В	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Int Delay, s/veh	3.4						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	et -			÷.	Y		
Traffic Vol, veh/h	30	50	30	50	35	15	j
Future Vol, veh/h	30	50	30	50	35	15	j
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Free	Free	Free	Free	Stop	Stop	)
RT Channelized	-	None	-	None	-	None	)
Storage Length	-	-	-	-	0	-	
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	2	)
Mvmt Flow	33	54	33	54	38	16	5

Major/Minor M	lajor1	Ν	Major2		Minor1	
Conflicting Flow All	0	0	87	0	180	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	4.0.0	-
Critical Hdwy	-	-	4.12	-		6.22
Critical Hdwy Stg 1	-	-		-		-
Critical Hdwy Stg 2	-	-	-	-		-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-		1509	-		1005
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1509	-	791	1005
Mov Cap-2 Maneuver	-	-	-	-	791	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	905	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.8		9.6	
HCM LOS	U		2.0		0.0 A	
					Λ	
Minor Lane/Major Mvmt		NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		845	-		1509	-
HCM Lane V/C Ratio		0.064	-	-	0.022	-
HCM Control Delay (s)		9.6	-	-		0
HCM Lane LOS		Α	-	-	Α	А
HCM 95th %tile Q(veh)		0.2	-	-	0.1	-

# **MOVEMENT SUMMARY**

# 🕅 Site: 7 [SR 12 / SR 113]

Cumulative PM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance ft	Prop. Queued		Aver. No. Cycles	
South	: Birds L	anding Rd										
3	L2	5	3.0	0.088	13.2	LOS B	0.3	6.7	0.74	0.74	0.74	30.8
8	T1	11	3.0	0.088	13.2	LOS B	0.3	6.7	0.74	0.74	0.74	30.8
18	R2	11	3.0	0.088	13.2	LOS B	0.3	6.7	0.74	0.74	0.74	30.0
Appro	bach	27	3.0	0.088	13.2	LOS B	0.3	6.7	0.74	0.74	0.74	30.4
East:	SR 12											
1	L2	5	3.0	0.685	10.7	LOS B	5.4	145.8	0.24	0.09	0.24	32.3
6	T1	647	10.0	0.685	10.9	LOS B	5.4	145.8	0.24	0.09	0.24	32.1
16	R2	375	7.0	0.685	10.8	LOS B	5.4	145.8	0.24	0.09	0.24	31.3
Appro	ach	1027	8.9	0.685	10.9	LOS B	5.4	145.8	0.24	0.09	0.24	31.8
North	: SR 113											
7	L2	321	7.0	0.709	25.8	LOS D	5.5	146.2	0.79	1.08	1.72	25.3
4	T1	22	3.0	0.709	25.6	LOS D	5.5	146.2	0.79	1.08	1.72	25.3
14	R2	22	7.0	0.709	25.8	LOS D	5.5	146.2	0.79	1.08	1.72	24.7
Appro	ach	364	6.8	0.709	25.8	LOS D	5.5	146.2	0.79	1.08	1.72	25.3
West:	SR 12											
5	L2	33	7.0	1.499	245.7	LOS F	162.5	4380.5	1.00	5.40	11.51	7.4
2	T1	1223	10.0	1.499	245.8	LOS F	162.5	4380.5	1.00	5.40	11.51	7.4
12	R2	27	3.0	1.499	245.5	LOS F	162.5	4380.5	1.00	5.40	11.51	7.4
Appro	ach	1283	9.8	1.499	245.8	LOS F	162.5	4380.5	1.00	5.40	11.51	7.4
All Ve	hicles	2701	9.0	1.499	124.4	LOS F	162.5	4380.5	0.68	2.75	5.80	12.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Int Delay, s/veh	4.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	٦	1	et 👘			र्च
Traffic Vol, veh/h	145	0	5	180	5	5
Future Vol, veh/h	145	0	5	180	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage	,#0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	158	0	5	196	5	5

Major/Minor	Minor1	Ν	1ajor1	Ν	1ajor2			
Conflicting Flow All	118	103	0	0	201	0		
Stage 1	103	-	-	-	-	-		
Stage 2	15	-	-	-	-	-		
Critical Hdwy	6.47	6.22	-	-	4.12	-		
Critical Hdwy Stg 1	5.47	-	-	-	-	-		
Critical Hdwy Stg 2	5.47	-	-	-	-	-		
Follow-up Hdwy	3.563	3.318	-	-	2.218	-		
Pot Cap-1 Maneuver	866	952	-	-	1371	-		
Stage 1	909	-	-	-	-	-		
Stage 2	995	-	-	-	-	-		
Platoon blocked, %			-	-		-		
Mov Cap-1 Maneuver	863	952	-	-	1371	-		
Mov Cap-2 Maneuver	863	-	-	-	-	-		
Stage 1	905	-	-	-	-	-		
Stage 2	995	-	-	-	-	-		

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	3.8
HCM LOS	В		

Minor Lane/Major Mvmt	NBT	NBRW	BLn1W	'BLn2	SBL	SBT
Capacity (veh/h)	-	-	863	-	1371	-
HCM Lane V/C Ratio	-	- (	0.183	-	0.004	-
HCM Control Delay (s)	-	-	10.1	0	7.6	0
HCM Lane LOS	-	-	В	Α	А	А
HCM 95th %tile Q(veh)	-	-	0.7	-	0	-

Intersection							
Int Delay, s/veh	2.1						
•							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	(
Lane Configurations		- सी	4		۰¥		
Traffic Vol, veh/h	10	245	120	170	30	85	;
Future Vol, veh/h	10	245	120	170	30	85	;
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Free	Free	Free	Free	Stop	Stop	)
RT Channelized	-	None	-	None	-	None	,
Storage Length	-	-	-	-	0	-	-
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	7	7	2	,
Mymt Flow	11	266	130	185	33	92	)

Major/Minor	Major1	Ν	1ajor2		Minor2		
Conflicting Flow All	315	0	-	0	511	223	}
Stage 1	-	-	-	-	223	-	-
Stage 2	-	-	-	-	288	-	
Critical Hdwy	4.12	-	-	-	6.47	6.22	2
Critical Hdwy Stg 1	-	-	-	-	5.47	-	
Critical Hdwy Stg 2	-	-	-	-	5.47	-	
Follow-up Hdwy	2.218	-	-	-	3.563		
Pot Cap-1 Maneuver	1245	-	-	-	514	817	<b>'</b>
Stage 1	-	-	-	-	802	-	•
Stage 2	-	-	-	-	750	-	•
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver		-	-	-	509	817	<b>'</b>
Mov Cap-2 Maneuver	• -	-	-	-	509	-	•
Stage 1	-	-	-	-	794	-	•
Stage 2	-	-	-	-	750	-	•
Approach	EB		WB		SB		
HCM Control Delay, s	s 0.3		0		11.2		
HCM LOS					В		
Minor Lane/Major Mv	mt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)		1245	-	-	-	706	;
HCM Lane V/C Ratio		0.009	-	-	-	0.177	,
HCM Control Delay (s	5)	7.9	0	-	-	11.2	)
HCM Lane LOS		А	А	-	-	В	
HCM 95th %tile Q(ve	h)	0	-	-	-	0.6	;

### Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ન			1			ન	1				
Traffic Vol, veh/h	65	255	0	0	240	165	5	0	325	0	0	0	
Future Vol, veh/h	65	255	0	0	240	165	5	0	325	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	71	277	0	0	261	179	5	0	353	0	0	0	

Major/Minor M	Major1		I	Major2		1	Minor1			
Conflicting Flow All	440	0	-	-	-	0	770	859	-	
Stage 1	-	-	-	-	-	-	419	419	-	
Stage 2	-	-	-	-	-	-	351	440	-	
Critical Hdwy	4.17	-	-	-	-	-	6.47	6.52	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.47	5.52	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.47	5.52	-	
Follow-up Hdwy	2.263		-	-	-	-		4.018	-	
Pot Cap-1 Maneuver	1094	-	0	0	-	-	362	294	0	
Stage 1	-	-	0	0	-	-	653	590	0	
Stage 2	-	-	0	0	-	-	702	578	0	
Platoon blocked, %	4004	-			-	-	004	•		
Mov Cap-1 Maneuver	1094		-	-	-	-	334	0	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	334 603	0	-	
Stage 1	-	-	-	-	-	-	702	0 0	-	
Stage 2	-	-	-	-	-	-	70Z	0	-	
Approach	EB			WB			NB			
HCM Control Delay, s	1.7			0			16			
HCM LOS							С			
Minor Lane/Major Mvm	nt	NBLn1N	IBLn2	EBL	EBT	WBT	WBR			
Capacity (veh/h)		334	-	1094	-	-	-			
HCM Lane V/C Ratio		0.016	-	0.065	-	-	-			
HCM Control Delay (s)		16	0	8.5	0	-	-			
HCM Lane LOS		С	Α	А	А	-	-			

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0.2

-

0.1

HCM 95th %tile Q(veh)

Int Delay, s/veh	0					
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	٦	1	1			•
Traffic Vol, veh/h	130	5	0	0	0	0
Future Vol, veh/h	130	5	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage	,# 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	2	2	2
Mvmt Flow	141	5	0	0	0	0

Major/Minor	Minor1	Μ	lajor1	M	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1009	-	-	-	-	-
Mov Cap-2 Maneuver	· 1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Approach	NB		NE		SW	

Approach	NB	NE	SW	
HCM Control Delay, s		0	0	
HCM LOS	-			

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.14 -	-
HCM Control Delay (s)	- 9.1 -	-
HCM Lane LOS	- A -	-
HCM 95th %tile Q(veh)	- 0.5 -	-

## Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4		۲.	4		۲.	4		
Traffic Vol, veh/h	40	85	50	115	35	15	55	190	80	30	170	110	
Future Vol, veh/h	40	85	50	115	35	15	55	190	80	30	170	110	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	43	92	54	125	38	16	60	207	87	33	185	120	

Major/Minor	Minor2			Minor1			Major1		1	Major2			
Conflicting Flow All	709	725	245	755	742	251	305	0	0	294	0	0	
Stage 1	311	311	-	371	371	-	-	-	-	-	-	-	
Stage 2	398	414	-	384	371	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	349	352	782	325	344	788	1228	-	-	1268	-	-	
Stage 1	699	658	-	649	620	-	-	-	-	-	-	-	
Stage 2	628	593	-	639	620	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	294	326	782	224	319	788	1228	-	-	1268	-	-	
Mov Cap-2 Maneuver	294	326	-	224	319	-	-	-	-	-	-	-	
Stage 1	665	641	-	617	590	-	-	-	-	-	-	-	
Stage 2	547	564	-	496	604	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	23.6	46	1.4	0.8	
HCM LOS	С	Е			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	1228	-	-	380	257	1268	-	-
HCM Lane V/C Ratio	0.049	-	-	0.501	0.698	0.026	-	-
HCM Control Delay (s)	8.1	-	-	23.6	46	7.9	-	-
HCM Lane LOS	А	-	-	С	Е	Α	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.7	4.7	0.1	-	-

Intersection						
Int Delay, s/veh	2.8					
				NOT	0.D.T	
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۰¥			- सी	- <b>Þ</b>	
Traffic Vol, veh/h	75	45	20	385	430	5
Future Vol, veh/h	75	45	20	385	430	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	e, # 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	82	49	22	418	467	5

Major/Minor	Minor2	I	Major1	Ма	ajor2	
Conflicting Flow All	932	470	472	0	-	0
Stage 1	470	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	290	594	1090	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	282	594	1090	-	-	-
Mov Cap-2 Maneuver	282	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Approach	FB		NB		SB	

Approach	EB	NB	SB	
HCM Control Delay, s	21.2	0.4	0	
HCM LOS	С			

Minor Lane/Major Mvmt	NBL	NBT E	EBLn1	SBT	SBR
Capacity (veh/h)	1090	-	351	-	-
HCM Lane V/C Ratio	0.02	-	0.372	-	-
HCM Control Delay (s)	8.4	0	21.2	-	-
HCM Lane LOS	А	Α	С	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-

Intersection		
Int Delay, s/veh	3.9	

Major/Minor	Major1	1	Major2		Minor1	
Conflicting Flow All	0		120	0		109
Stage 1	-		-	-	109	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	-		4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1468	-	840	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	979	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver		-	1468	-	•••	945
Mov Cap-2 Maneuver	· -	-	-	-	831	-
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	979	-
Approach	EB		WB		NB	
HCM Control Delay, s	s 0		4.5		9.5	
HCM LOS					А	
Minor Lane/Major Mvr	mt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		873	-	-	1468	-
HCM Lane V/C Ratio		0.093	-		0.011	-
HCM Control Delay (s	5)	9.5	-	-	7.5	0
HCM Lane LOS	,	А	-	-	А	А
HCM 95th %tile Q(vel	h)	0.3	-	-	0	-

# **MOVEMENT SUMMARY**

# 🕅 Site: 7 [SR 12 / SR 113]

Cumulative Saturday Site Category: (None) Roundabout

Move	Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance ft	Prop. Queued		Aver. No. Cycles		
South	: Birds L	anding Rd											
3	L2	5	3.0	0.047	8.4	LOS A	0.1	3.7	0.59	0.59	0.59	32.8	
8	T1	5	3.0	0.047	8.4	LOS A	0.1	3.7	0.59	0.59	0.59	32.7	
18	R2	11	3.0	0.047	8.4	LOS A	0.1	3.7	0.59	0.59	0.59	31.8	
Appro	bach	22	3.0	0.047	8.4	LOS A	0.1	3.7	0.59	0.59	0.59	32.3	
East:	SR 12												
1	L2	5	3.0	0.543	7.3	LOS A	3.3	88.2	0.10	0.03	0.10	34.0	
6	T1	723	10.0	0.543	7.5	LOS A	3.3	88.2	0.10	0.03	0.10	33.8	
16	R2	163	7.0	0.543	7.4	LOS A	3.3	88.2	0.10	0.03	0.10	32.8	
Appro	ach	891	9.4	0.543	7.5	LOS A	3.3	88.2	0.10	0.03	0.10	33.6	
North	: SR 113												
7	L2	168	7.0	0.414	15.0	LOS B	1.8	46.9	0.68	0.76	0.96	28.7	
4	T1	11	3.0	0.414	14.7	LOS B	1.8	46.9	0.68	0.76	0.96	28.8	
14	R2	16	7.0	0.414	15.0	LOS B	1.8	46.9	0.68	0.76	0.96	28.0	
Appro	ach	196	6.8	0.414	15.0	LOS B	1.8	46.9	0.68	0.76	0.96	28.6	
West:	SR 12												
5	L2	5	7.0	0.641	13.0	LOS B	5.7	154.4	0.53	0.48	0.68	31.2	
2	T1	620	10.0	0.641	13.1	LOS B	5.7	154.4	0.53	0.48	0.68	31.2	
12	R2	5	3.0	0.641	12.9	LOS B	5.7	154.4	0.53	0.48	0.68	30.5	
Appro	ach	630	9.9	0.641	13.1	LOS B	5.7	154.4	0.53	0.48	0.68	31.2	
All Ve	hicles	1739	9.2	0.641	10.4	LOS B	5.7	154.4	0.33	0.28	0.42	32.0	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		\$			\$		۳	et P		1	4		
Traffic Vol, veh/h	60	15	5	15	25	40	15	125	15	20	105	55	
Future Vol, veh/h	60	15	5	15	25	40	15	125	15	20	105	55	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	65	16	5	16	27	43	16	136	16	22	114	60	

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	399	372	144	375	394	144	174	0	0	152	0	0	
Stage 1	188	188	-	176	176	-	-	-	-	-	-	-	
Stage 2	211	184	-	199	218	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	561	558	890	582	542	903	1373	-	-	1429	-	-	
Stage 1	814	745	-	826	753	-	-	-	-	-	-	-	
Stage 2	791	747	-	803	723	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	503	543	890	553	527	903	1373	-	-	1429	-	-	
Mov Cap-2 Maneuver	503	543	-	553	527	-	-	-	-	-	-	-	
Stage 1	804	734	-	816	744	-	-	-	-	-	-	-	
Stage 2	717	738	-	768	712	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	13.2	11.1	0.7	0.8	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1\	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1373	-	-	524	673	1429	-	-
HCM Lane V/C Ratio	0.012	-	-	0.166	0.129	0.015	-	-
HCM Control Delay (s)	7.7	-	-	13.2	11.1	7.6	-	-
HCM Lane LOS	А	-	-	В	В	Α	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.4	0	-	-

Intersection							ļ
Int Delay, s/veh	0.9						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	ł
Lane Configurations	۰¥			<u>्</u>	4		
Traffic Vol, veh/h	15	10	15	230	130	20	)
Future Vol, veh/h	15	10	15	230	130	20	)
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	;
RT Channelized	-	None	-	None	-	None	)
Storage Length	0	-	-	-	-	-	-
Veh in Median Storage	,# 0	-	-	0	0	-	-
Grade, %	0	-	-	0	0	-	-
Peak Hour Factor	92	92	92	92	92	92	)
Heavy Vehicles, %	7	2	2	7	7	7	,
Mvmt Flow	16	11	16	250	141	22	)

Major/Minor	Minor2	1	Major1	Ма	jor2	
Conflicting Flow All	434	152	163	0	-	0
Stage 1	152	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	570	894	1416	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver		894	1416	-	-	-
Mov Cap-2 Maneuver	563	-	-	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Approach	EB		NB		SB	

Approach	EB	NB	SB	
HCM Control Delay, s	10.7	0.5	0	
HCM LOS	В			

Minor Lane/Major Mvmt	NBL	NBT E	EBLn1	SBT	SBR
Capacity (veh/h)	1416	-	661	-	-
HCM Lane V/C Ratio	0.012	-	0.041	-	-
HCM Control Delay (s)	7.6	0	10.7	-	-
HCM Lane LOS	А	А	В	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

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Int Delay, s/veh	4.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	el 🗧			÷	Y	
Traffic Vol, veh/h	10	50	30	5	35	15
Future Vol, veh/h	10	50	30	5	35	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	2
Mvmt Flow	11	54	33	5	38	16

N.A'/N.A'	1		4		1	
	/lajor1		Major2		Minor1	
Conflicting Flow All	0	0	65	0	109	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.12	-	•••	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1537	-	888	1034
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1537	-	868	1034
Mov Cap-2 Maneuver	-	-	-	-	868	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	952	-
Ŭ						
			14/5			
Approach	EB		WB		NB	
HCM Control Delay, s	0		6.3		9.2	
HCM LOS					А	
Minor Lane/Major Mvm	t	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		912	-	-	4-0-	-
HCM Lane V/C Ratio		0.06			0.021	-
HCM Control Delay (s)		9.2	-	-		0
HCM Lane LOS		9.2 A			7.4 A	A
		0.2	-	-	0.1	A -
HCM 95th %tile Q(veh)		0.2	-	-	0.1	-

# **MOVEMENT SUMMARY**

# 🕅 Site: 7 [SR 12 / SR 113]

Cumulative plus Project AM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov ID	Turn	Demand Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back Vehicles	of Queue Distance	Prop. Queued		Aver. No. Cycles	Average Speed
		veh/h	%	v/c	sec		veh	ft				mph
South	: Birds La	anding Rd										
3	L2	5	3.0	0.032	7.6	LOS A	0.1	2.6	0.56	0.52	0.56	33.0
8	T1	5	3.0	0.032	7.6	LOS A	0.1	2.6	0.56	0.52	0.56	32.9
18	R2	5	3.0	0.032	7.6	LOS A	0.1	2.6	0.56	0.52	0.56	32.0
Appro	ach	16	3.0	0.032	7.6	LOS A	0.1	2.6	0.56	0.52	0.56	32.7
East:	SR 12											
1	L2	16	3.0	0.859	17.2	LOS C	11.9	319.5	0.23	0.06	0.23	29.6
6	T1	1201	10.0	0.859	17.4	LOS C	11.9	319.5	0.23	0.06	0.23	29.4
16	R2	252	7.0	0.859	17.3	LOS C	11.9	319.5	0.23	0.06	0.23	28.7
Appro	ach	1470	9.4	0.859	17.4	LOS C	11.9	319.5	0.23	0.06	0.23	29.3
North	: SR 113											
7	L2	220	7.0	0.855	62.8	LOS F	5.9	154.8	0.93	1.37	2.63	18.0
4	T1	5	3.0	0.855	62.3	LOS F	5.9	154.8	0.93	1.37	2.63	18.0
14	R2	11	7.0	0.855	62.8	LOS F	5.9	154.8	0.93	1.37	2.63	17.7
Appro	ach	236	6.9	0.855	62.8	LOS F	5.9	154.8	0.93	1.37	2.63	18.0
West:	SR 12											
5	L2	5	7.0	0.576	12.4	LOS B	4.4	119.9	0.55	0.56	0.75	31.5
2	T1	489	10.0	0.576	12.5	LOS B	4.4	119.9	0.55	0.56	0.75	31.5
12	R2	5	3.0	0.576	12.2	LOS B	4.4	119.9	0.55	0.56	0.75	30.7
Appro		500	9.9	0.576	12.5	LOS B	4.4	119.9	0.55	0.56	0.75	31.4
All Ve	hicles	2222	9.2	0.859	21.0	LOS C	11.9	319.5	0.38	0.31	0.61	27.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Int Delay, s/veh	4.4						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	•
Lane Configurations	- ኘ	1	<b>f</b>			्र	1
Traffic Vol, veh/h	190	5	5	307	10	5	j
Future Vol, veh/h	190	5	5	307	10	5	j
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	)
RT Channelized	-	None	-	None	-	None	)
Storage Length	0	25	-	-	-	-	-
Veh in Median Storage	,#0	-	0	-	-	0	)
Grade, %	0	-	0	-	-	0	)
Peak Hour Factor	92	92	92	92	92	92	)
Heavy Vehicles, %	7	2	2	7	2	2	)
Mvmt Flow	207	5	5	334	11	5	)

Minor1	Ν	1ajor1	Ν	1ajor2	
199	172	0	0	339	0
172	-	-	-	-	-
27	-	-	-	-	-
6.47	6.22	-	-	4.12	-
5.47	-	-	-	-	-
5.47	-	-	-	-	-
	3.318	-	-	2.218	-
778	872	-	-	1220	-
846	-	-	-	-	-
983	-	-	-	-	-
		-	-		-
r 771	872	-	-	1220	-
r 771	-	-	-	-	-
838	-	-	-	-	-
983	-	-	-	-	-
	199 172 27 6.47 5.47 3.563 778 846 983 r 771 r 771 838	199         172           172         -           27         -           6.47         6.22           5.47         -           3.563         3.318           778         872           846         -           983         -           r         771         872           s388         -	199       172       0         172       -       -         27       -       -         6.47       6.22       -         5.47       -       -         5.47       -       -         3.563       3.318       -         778       872       -         846       -       -         983       -       -         r       771       872       -         r       771       872       -         s38       -       -       -	199       172       0       0         172       -       -       -         27       -       -       -         6.47       6.22       -       -         5.47       -       -       -         5.47       -       -       -         3.563       3.318       -       -         778       872       -       -         846       -       -       -         983       -       -       -         r       771       872       -         r       771       872       -         s38       -       -       -	199       172       0       0       339         172       -       -       -       -         27       -       -       -       -         6.47       6.22       -       -       4.12         5.47       -       -       -       -         5.47       -       -       -       -         3.563       3.318       -       2.218       -         778       872       -       1220       846       -       -         983       -       -       -       -       -       -         r       771       872       -       1220       -       -         s838       -       -       -       -       -

Approach	WB	NB	SB	
HCM Control Delay, s	11.3	0	5.3	
HCM LOS	В			

Minor Lane/Major Mvmt	NBT	NBRW	/BLn1V	VBLn2	SBL	SBT
Capacity (veh/h)	-	-	771	872	1220	-
HCM Lane V/C Ratio	-	-	0.268	0.006	0.009	-
HCM Control Delay (s)	-	-	11.4	9.2	8	0
HCM Lane LOS	-	-	В	А	А	А
HCM 95th %tile Q(veh)	-	-	1.1	0	0	-

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- सी	4		۰¥	
Traffic Vol, veh/h	10	160	65	292	125	65
Future Vol, veh/h	10	160	65	292	125	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	7	7	2
Mvmt Flow	11	174	71	317	136	71

Major/Minor	Major1	Ν	lajor2		Minor2	
Conflicting Flow All	388	0	-	0	426	230
Stage 1	-	-	-	-	230	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	4.12	-	-	-	6.47	6.22
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.218	-	-	-	3.563	
Pot Cap-1 Maneuver	1170	-	-	-	576	809
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver		-	-	-	0.0	809
Mov Cap-2 Maneuver	r -	-	-	-	570	-
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	825	-
Approach	EB		WB		SB	
HCM Control Delay, s	s 0.5		0		13.4	
HCM LOS					В	
Minor Lane/Major Mv	mt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)		1170	-	-	-	634
HCM Lane V/C Ratio	1	0.009	-	-	-	0.326
HCM Control Delay (s	s)	8.1	0	-	-	13.4
HCM Lane LOS		А	А	-	-	В
HCM 95th %tile Q(ve	h)	0	-	-	-	1.4

#### Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		्रस्			4			- 4	1				
Traffic Vol, veh/h	95	130	0	0	357	40	15	5	131	0	0	0	
Future Vol, veh/h	95	130	0	0	357	40	15	5	131	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	103	141	0	0	388	43	16	5	142	0	0	0	

Major/Minor	Major1		Ν	1ajor2		1	Minor1		
Conflicting Flow All	431	0	-	-	-	0	757	778	-
Stage 1	-	-	-	-	-	-	347	347	-
Stage 2	-	-	-	-	-	-	410	431	-
Critical Hdwy	4.17	-	-	-	-	-	6.47	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.47	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.47	5.52	-
Follow-up Hdwy	2.263		-	-	-	-	3.563	4.018	-
Pot Cap-1 Maneuver	1102	-	0	0	-	-	368	328	0
Stage 1	-	-	0	0	-	-	705	635	0
Stage 2	-	-	0	0	-	-	659	583	0
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1102	-	-	-	-	-	331	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	0	-
Stage 1	-	-	-	-	-	-	634	0	-
Stage 2	-	-	-	-	-	-	659	0	-
Approach	EB			WB			NB		
HCM Control Delay, s	3.6			0			16.6		
HCM LOS							С		
Minor Lane/Major Mvn	nt	NBLn1N	BLn2	EBL	EBT	WBT	WBR		
Capacity (veh/h)		331	-	1102	-	-	-		
HCM Lane V/C Ratio		0.066	-	0.094	-	-	-		
HCM Control Delay (s)	)	16.6	0	8.6	0	-	-		
HCM Lane LOS		С	А	А	А	-	-		
HCM 95th %tile Q(veh	I)	0.2	-	0.3	-	-	-		

Int Delay, s/veh	0						
Movement	NBL	NBR	NET	NER	SWL	SWT	•
Lane Configurations	٦	1	1			1	
Traffic Vol, veh/h	157	10	0	0	0	0	)
Future Vol, veh/h	157	10	0	0	0	0	)
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	)
RT Channelized	-	None	-	None	-	None	)
Storage Length	0	50	-	-	-	-	-
Veh in Median Storage	, # 0	-	0	-	-	0	)
Grade, %	0	-	0	-	-	0	)
Peak Hour Factor	92	92	92	92	92	92	)
Heavy Vehicles, %	7	2	2	2	2	2	)
Mvmt Flow	171	11	0	0	0	0	)

Major/Minor	Minor1	Ν	lajor1	М	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1009	-	-	-	-	-
Mov Cap-2 Maneuver	1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Approach	NR				S/W	

Approach	NB	NE	SW
HCM Control Delay, s		0	0
HCM LOS	-		

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.169 -	-
HCM Control Delay (s)	- 9.3 -	-
HCM Lane LOS	- A -	-
HCM 95th %tile Q(veh)	- 0.6 -	-

1	- 1			12.5	
I	nt	ers	ser	nıtı	n

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4		٦	4Î		٦	4		
Traffic Vol, veh/h	185	20	36	35	45	50	37	182	30	35	147	150	
Future Vol, veh/h	185	20	36	35	45	50	37	182	30	35	147	150	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	201	22	39	38	49	54	40	198	33	38	160	163	

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	664	629	242	643	694	215	323	0	0	231	0	0	
Stage 1	318	318	-	295	295	-	-	-	-	-	-	-	
Stage 2	346	311	-	348	399	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	374	399	785	386	366	825	1209	-	-	1337	-	-	
Stage 1	693	654	-	713	669	-	-	-	-	-	-	-	
Stage 2	670	658	-	668	602	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	297	375	785	334	344	825	1209	-	-	1337	-	-	
Mov Cap-2 Maneuver	297	375	-	334	344	-	-	-	-	-	-	-	
Stage 1	670	636	-	689	647	-	-	-	-	-	-	-	
Stage 2	559	636	-	596	585	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	45.7	17	1.2	0.8	
HCM LOS	Е	С			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1\	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1209	-	-	334	439	1337	-	-
HCM Lane V/C Ratio	0.033	-	-	0.784	0.322	0.028	-	-
HCM Control Delay (s)	8.1	-	-	45.7	17	7.8	-	-
HCM Lane LOS	А	-	-	Е	С	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	6.4	1.4	0.1	-	-

Intersection							
Int Delay, s/veh	1.5						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	ł
Lane Configurations	۰¥			- <del>द</del>	4		
Traffic Vol, veh/h	38	22	32	420	235	68	3
Future Vol, veh/h	38	22	32	420	235	68	}
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	;
RT Channelized	-	None	-	None	-	None	;
Storage Length	0	-	-	-	-	-	-
Veh in Median Storage,	,# 0	-	-	0	0	-	-
Grade, %	0	-	-	0	0	-	-
Peak Hour Factor	92	92	92	92	92	92	)
Heavy Vehicles, %	7	2	2	7	7	7	7
Mvmt Flow	41	24	35	457	255	74	ŀ

Major/Minor	Minor2		Major1	Ma	ajor2	
Conflicting Flow All	819	292	329	0	-	0
Stage 1	292	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	338	747	1231	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	325	747	1231	-	-	-
Mov Cap-2 Maneuver	325	-	-	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	EB	NB	SB	
HCM Control Delay, s	15.4	0.6	0	
HCM LOS	С			

Minor Lane/Major Mvmt	NBL	NBTI	EBLn1	SBT	SBR
Capacity (veh/h)	1231	-	410	-	-
HCM Lane V/C Ratio	0.028	-	0.159	-	-
HCM Control Delay (s)	8	0	15.4	-	-
HCM Lane LOS	А	А	С	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4			÷	۰¥	
Traffic Vol, veh/h	30	55	51	50	39	30
Future Vol, veh/h	30	55	51	50	39	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	2
Mvmt Flow	33	60	55	54	42	33

N / = : = = / N / : = = = = = = = = = = = =	4-:4		4-:0		1:	
	/lajor1		/lajor2		Minor1	
Conflicting Flow All	0	0	93	0	227	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1501	-	761	1002
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	865	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1501	-	732	1002
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-		-
Stage 2	-	_	_	_	865	-
Oldgo Z					000	
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.8		9.8	
HCM LOS					А	
			EDZ			
Minor Lane/Major Mvm	t N	BLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		829	-	-	1001	-
HCM Lane V/C Ratio		0.09	-	-	0.037	-
HCM Control Delay (s)		9.8	-	-	7.5	0
HCM Lane LOS		Α	-	-	А	Α
		~ ~				

HCM 95th %tile Q(veh)

0.3

0.1

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## ₩ Site: 7 [SR 12 / SR 113]

Cumulative plus Project PM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov	Turn	Demand		Deg.	Average	Level of	95% Back		Prop.		Aver. No.	
ID		Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Cycles	Speed
South	· Birds La	veh/h anding Rd	%	v/c	sec	_	veh	ft	_	_	_	mph
3	L2	5	3.0	0.088	13.2	LOS B	0.3	6.7	0.73	0.73	0.73	30.8
8	T1	11	3.0	0.088	13.2	LOS B	0.3	6.7	0.73	0.73	0.73	30.8
18	R2	11	3.0	0.088	13.2	LOS B	0.3	6.7	0.73	0.73	0.73	30.0
-		27	3.0	0.088	13.2	LOS B	0.3	6.7	0.73	0.73	0.73	30.4
Appro	acn	21	3.0	0.000	13.2	LU3 D	0.5	0.7	0.75	0.75	0.75	30.4
East:	SR 12											
1	L2	5	3.0	0.684	10.7	LOS B	5.4	145.7	0.24	0.09	0.24	32.3
6	T1	647	10.0	0.684	10.9	LOS B	5.4	145.7	0.24	0.09	0.24	32.1
16	R2	375	7.0	0.684	10.8	LOS B	5.4	145.7	0.24	0.09	0.24	31.3
Appro	bach	1027	8.9	0.684	10.8	LOS B	5.4	145.7	0.24	0.09	0.24	31.8
North	: SR 113											
7	L2	323	7.0	0.717	26.4	LOS D	5.7	150.9	0.80	1.10	1.76	25.1
4	T1	22	3.0	0.717	26.1	LOS D	5.7	150.9	0.80	1.10	1.76	25.2
14	R2	24	7.0	0.717	26.4	LOS D	5.7	150.9	0.80	1.10	1.76	24.6
Appro	bach	368	6.8	0.717	26.4	LOS D	5.7	150.9	0.80	1.10	1.76	25.1
West:	SR 12											
5	L2	33	7.0	1.504	247.7	LOS F	163.1	4397.0	1.00	5.43	11.59	7.4
2	T1	1223	10.0	1.504	247.8	LOS F	163.1	4397.0	1.00	5.43	11.59	7.4
12	R2	27	3.0	1.504	247.5	LOS F	163.1	4397.0	1.00	5.43	11.59	7.3
Appro	bach	1283	9.8	1.504	247.8	LOS F	163.1	4397.0	1.00	5.43	11.59	7.4
All Ve	hicles	2705	9.0	1.504	125.3	LOS F	163.1	4397.0	0.68	2.76	5.83	12.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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#### Intersection

Int Delay, s/veh	4.3						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	1	et –			÷	1
Traffic Vol, veh/h	145	0	5	192	5	5	;
Future Vol, veh/h	145	0	5	192	5	5	,
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	;
RT Channelized	-	None	-	None	-	None	,
Storage Length	0	25	-	-	-	-	-
Veh in Median Storage	,#0	-	0	-	-	0	)
Grade, %	0	-	0	-	-	0	)
Peak Hour Factor	92	92	92	92	92	92	ļ
Heavy Vehicles, %	7	2	2	7	2	2	)
Mvmt Flow	158	0	5	209	5	5	;

Major/Minor	Minor1	Ν	lajor1	Ν	/lajor2			
Conflicting Flow All	125	110	0	0	214	0		
Stage 1	110	-	-	-	-	-		
Stage 2	15	-	-	-	-	-		
Critical Hdwy	6.47	6.22	-	-	4.12	-		
Critical Hdwy Stg 1	5.47	-	-	-	-	-		
Critical Hdwy Stg 2	5.47	-	-	-	-	-		
Follow-up Hdwy	3.563	3.318	-	-	2.218	-		
Pot Cap-1 Maneuver	858	943	-	-	1356	-		
Stage 1	902	-	-	-	-	-		
Stage 2	995	-	-	-	-	-		
Platoon blocked, %			-	-		-		
Mov Cap-1 Maneuver	855	943	-	-	1356	-		
Mov Cap-2 Maneuver	855	-	-	-	-	-		
Stage 1	898	-	-	-	-	-		
Stage 2	995	-	-	-	-	-		

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	3.8
HCM LOS	В		

Minor Lane/Major Mvmt	NBT	NBRW	/BLn1W	BLn2	SBL	SBT
Capacity (veh/h)	-	-	855	-	1356	-
HCM Lane V/C Ratio	-	-	0.184	-	0.004	-
HCM Control Delay (s)	-	-	10.2	0	7.7	0
HCM Lane LOS	-	-	В	Α	Α	А
HCM 95th %tile Q(veh)	-	-	0.7	-	0	-

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- <del>स</del> ी	4		۰¥	
Traffic Vol, veh/h	10	245	120	182	30	85
Future Vol, veh/h	10	245	120	182	30	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	7	7	2
Mvmt Flow	11	266	130	198	33	92

Major/Minor	Major1	N	lajor2		Minor2	
Conflicting Flow All	328	0	-	0	517	229
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	288	-
Critical Hdwy	4.12	-	-	-	6.47	6.22
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	• • • • •	-
Follow-up Hdwy	2.218	-	-	-	3.563	
Pot Cap-1 Maneuver	1232	-	-	-	510	810
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	750	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver		-	-	-	505	810
Mov Cap-2 Maneuver	• -	-	-	-	505	-
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	750	-
Approach	EB		WB		SB	
HCM Control Delay, s	s 0.3		0		11.3	
HCM LOS					В	
Minor Lane/Major Mv	mt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)		1232	_	-	-	700
HCM Lane V/C Ratio		0.009	-	-	-	0.179
HCM Control Delay (s	5)	7.9	0	-	-	11.3
HCM Lane LOS		А	А	-	-	В
HCM 95th %tile Q(ve	h)	0	-	-	-	0.6

0.8

#### Intersection

<b>3</b> .													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		- सी			4			- 4	1				
Traffic Vol, veh/h	65	255	0	0	252	165	5	0	325	0	0	0	
Future Vol, veh/h	65	255	0	0	252	165	5	0	325	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None	
Storage Length	-	-	-	-	-	-	50	-	0	-	-	-	
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	7	7	2	2	7	7	7	2	7	2	2	2	
Mvmt Flow	71	277	0	0	274	179	5	0	353	0	0	0	

Major/Minor	Major1		1	Major2		١	Minor1			
Conflicting Flow All	453		-	_	-	0	783	872	-	
Stage 1	-		-	-	-	-	419	419	-	
Stage 2	-		-	-	-	-	364	453	-	
Critical Hdwy	4.17	-	-	-	-	-	6.47	6.52	-	
Critical Hdwy Stg 1	-		-	-	-	-	5.47	5.52	-	
Critical Hdwy Stg 2	-		-	-	-	-	5.47	5.52	-	
Follow-up Hdwy	2.263		-	-	-	-	3.563	4.018	-	
Pot Cap-1 Maneuver	1082		0	0	-	-	355	289	0	
Stage 1	-		0	0	-	-	653	590	0	
Stage 2	-		0	0	-	-	692	570	0	
Platoon blocked, %		-			-	-				
Mov Cap-1 Maneuve		-	-	-	-	-	327	0	-	
Mov Cap-2 Maneuve	er -		-	-	-	-	327	0	-	
Stage 1	-		-	-	-	-	602	0	-	
Stage 2	-		-	-	-	-	692	0	-	
Approach	EB			WB			NB			
HCM Control Delay,	s 1.7			0			16.2			
HCM LOS							С			
Minor Lane/Major M	/mt	NBLn1	VBI n2	EBL	EBT	WBT	WBR			
Capacity (veh/h)	VIIIL	327	-	1082						
HCM Lane V/C Ratio	<b>`</b>	0.017		0.065	-	-	-			
HCM Control Delay (		16.2	0	8.6	0	-	-			
HCM Lane LOS	(5)	10.2 C	A	0.0 A	A	_	-			
HCM 95th %tile Q(ve	eh)	0.1	-	0.2	-	-	-			
	<i>(</i> , , , , , , , , , , , , , , , , , , ,	0.1		0.2						

#### Intersection

Int Delay, s/veh	0					
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	٦	1	1			1
Traffic Vol, veh/h	142	5	0	0	0	0
Future Vol, veh/h	142	5	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage	,# 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	2	2	2
Mvmt Flow	154	5	0	0	0	0

Major/Minor	Minor1	Ν	lajor1	M	ajor2	
Conflicting Flow All	1	0	0	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	1009	-	-	0	0	-
Stage 1	-	-	-	0	0	-
Stage 2	1009	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	1009	-	-	-	-	-
Mov Cap-2 Maneuver	1009	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
A www.e.e.e.					014/	

Approach	NB	NE	SW	
HCM Control Delay, s		0	0	
HCM LOS	-			

Minor Lane/Major Mvmt	NET NBLn1 NBLn2	SWT
Capacity (veh/h)	- 1009 -	-
HCM Lane V/C Ratio	- 0.153 -	-
HCM Control Delay (s)	- 9.2 -	-
HCM Lane LOS	- A -	-
HCM 95th %tile Q(veh)	- 0.5 -	-

14.2

#### Intersection

Maximum		FDT						NDT			ODT	000	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		- <del>4</del> >			- <del>4</del> >		ግ	ર્ન 👘		ገ	- î÷		
Traffic Vol, veh/h	40	85	50	115	35	15	67	192	80	30	170	110	
Future Vol, veh/h	40	85	50	115	35	15	67	192	80	30	170	110	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-	
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2	
Mvmt Flow	43	92	54	125	38	16	73	209	87	33	185	120	

Major/Minor	Minor2			Vinor1			Major1		1	Major2			
Conflicting Flow All	737	753	245	783	770	253	305	0	0	296	0	0	
Stage 1	311	311	-	399	399	-	-	-	-	-	-	-	
Stage 2	426	442	-	384	371	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	-	2.218	-	-	
Pot Cap-1 Maneuver	334	339	782	311	331	786	1228	-	-	1265	-	-	
Stage 1	699	658	-	627	602	-	-	-	-	-	-	-	
Stage 2	606	576	-	639	620	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	277	311	782	209	304	786	1228	-	-	1265	-	-	
Mov Cap-2 Maneuver	277	311	-	209	304	-	-	-	-	-	-	-	
Stage 1	658	641	-	590	566	-	-	-	-	-	-	-	
Stage 2	521	542	-	496	604	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	25.3	53.6	1.6	0.8	
HCM LOS	D	F			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR
Capacity (veh/h)	1228	-	-	363	241	1265	-	-
HCM Lane V/C Ratio	0.059	-	-	0.524	0.744	0.026	-	-
HCM Control Delay (s)	8.1	-	-	25.3	53.6	7.9	-	-
HCM Lane LOS	Α	-	-	D	F	Α	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.9	5.2	0.1	-	-

Intersection							
Int Delay, s/veh	3.4						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	2
Lane Configurations	Y			- <del>द</del>	ef 👘		
Traffic Vol, veh/h	89	49	20	385	430	6	5
Future Vol, veh/h	89	49	20	385	430	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0	)
Sign Control	Stop	Stop	Free	Free	Free	Free	;
RT Channelized	-	None	-	None	-	None	;
Storage Length	0	-	-	-	-	-	-
Veh in Median Storage	, # 0	-	-	0	0	-	-
Grade, %	0	-	-	0	0	-	-
Peak Hour Factor	92	92	92	92	92	92	2
Heavy Vehicles, %	7	2	2	7	7	7	7
Mvmt Flow	97	53	22	418	467	7	7

Major/Minor	Minor2		Major1	Μ	ajor2	
Conflicting Flow All	933	471	474	0	-	0
Stage 1	471	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Critical Hdwy	6.47	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	289	593	1088	-	-	-
Stage 1	618	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver		593	1088	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	624	-	-	-	-	-
<b>A</b> 1					0.0	

Approach	EB	NB	SB
HCM Control Delay, s	23.1	0.4	0
HCM LOS	С		

Minor Lane/Major Mvmt	NBL	NBT E	BLn1	SBT	SBR
Capacity (veh/h)	1088	-	346	-	-
HCM Lane V/C Ratio	0.02	-	0.434	-	-
HCM Control Delay (s)	8.4	0	23.1	-	-
HCM Lane LOS	А	Α	С	-	-
HCM 95th %tile Q(veh)	0.1	-	2.1	-	-

Intersection						
Int Delay, s/veh	4.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4			- सी	۰¥	
Traffic Vol, veh/h	90	20	16	10	53	48
Future Vol, veh/h	90	20	16	10	53	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	2
Mvmt Flow	98	22	17	11	58	52

Major/Minor M	ajor1	Ν	/lajor2		Minor1	
Conflicting Flow All	0	0	120	0	154	109
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	45	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	0.12	-
Follow-up Hdwy	-	-	2.218	-	3.518	
Pot Cap-1 Maneuver	-	-	1468	-	838	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	977	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1468	-		945
Mov Cap-2 Maneuver	-	-	-	-	828	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	977	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.6		9.7	
HCM LOS	•				A	
					73	
NA' 1 /NA - ' NA 1			FDT			
Minor Lane/Major Mvmt	[	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		880	-	-		-
HCM Lane V/C Ratio		0.125	-		0.012	-
HCM Control Delay (s)		9.7	-	-		0
HCM Lane LOS		A	-	-	A	А
HCM 95th %tile Q(veh)		0.4	-	-	0	-

## **W** Site: 7 [SR 12 / SR 113]

Cumulative plus Project Saturday Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov	Turn	Demand		Deg.	Average	Level of	95% Back		Prop.		Aver. No.	
ID		Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Cycles	Speed
South	Birds L	veh/h anding Rd	%	v/c	sec	_	veh	ft	_	_	_	mph
3	L2	5	3.0	0.047	8.5	LOS A	0.1	3.7	0.59	0.59	0.59	32.8
8	T1	5	3.0	0.047	8.5	LOSA	0.1	3.7		0.59	0.59	32.0
-									0.59			
18	R2	11	3.0	0.047	8.5	LOSA	0.1	3.7	0.59	0.59	0.59	31.8
Appro	bach	22	3.0	0.047	8.5	LOS A	0.1	3.7	0.59	0.59	0.59	32.3
East:	SR 12											
1	L2	5	3.0	0.548	7.5	LOS A	3.3	89.8	0.11	0.03	0.11	33.9
6	T1	723	10.0	0.548	7.6	LOS A	3.3	89.8	0.11	0.03	0.11	33.7
16	R2	165	7.0	0.548	7.5	LOS A	3.3	89.8	0.11	0.03	0.11	32.8
Appro	ach	893	9.4	0.548	7.6	LOS A	3.3	89.8	0.11	0.03	0.11	33.6
	: SR 113											
7	L2	171	7.0	0.421	15.2	LOS C	1.8	48.2	0.68	0.77	0.98	28.6
4	T1	11	3.0	0.421	14.9	LOS B	1.8	48.2	0.68	0.77	0.98	28.7
14	R2	17	7.0	0.421	15.2	LOS C	1.8	48.2	0.68	0.77	0.98	27.9
Appro	ach	199	6.8	0.421	15.2	LOS C	1.8	48.2	0.68	0.77	0.98	28.6
West:	SR 12											
5	L2	7	7.0	0.644	13.2	LOS B	6.0	161.0	0.54	0.50	0.71	31.2
2	T1	620	10.0	0.644	13.3	LOS B	6.0	161.0	0.54	0.50	0.71	31.1
12	R2	5	3.0	0.644	13.1	LOS B	6.0	161.0	0.54	0.50	0.71	30.4
Appro		632	9.9	0.644	13.3	LOS B	6.0	161.0	0.54	0.50	0.71	31.1
		002	5.0	0.011	10.0	1000	0.0	.01.0	0.01	0.00	0.11	51.1
All Ve	hicles	1746	9.2	0.644	10.5	LOS B	6.0	161.0	0.33	0.29	0.43	32.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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4.7

#### Intersection

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		WDL	4	WDIX	ħ	1	HDR	5	1	ODIX
Traffic Vol, veh/h	60	15	16	15	25	40	24	126	15	20	106	55
Future Vol, veh/h	60	15	16	15	25	40	24	126	15	20	106	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	-	120	-	-
Veh in Median Storage	, # -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2
Mvmt Flow	65	16	17	16	27	43	26	137	16	22	115	60

Major/Minor	Minor2			Minor1			Major1		N	lajor2				
Conflicting Flow All	421	394	145	403	416	145	175	0	0	153	0	0		_
Stage 1	189	189	-	197	197	-	-	-	-	-	-	-		
Stage 2	232	205	-	206	219	-	-	-	-	-	-	-		
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.22	4.17	-	-	4.12	-	-		
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-		
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.318	2.263	-	- 2	2.218	-	-		
Pot Cap-1 Maneuver	543	542	889	558	527	902	1372	-	-	1428	-	-		
Stage 1	813	744	-	805	738	-	-	-	-	-	-	-		
Stage 2	771	732	-	796	722	-	-	-	-	-	-	-		
Platoon blocked, %								-	-		-	-		
Mov Cap-1 Maneuver	483	524	889	520	509	902	1372	-	-	1428	-	-		
Mov Cap-2 Maneuver	483	524	-	520	509	-	-	-	-	-	-	-		
Stage 1	798	733	-	790	724	-	-	-	-	-	-	-		
Stage 2	693	718	-	751	711	-	-	-	-	-	-	-		

Approach	EB	WB	NB	SB	
HCM Control Delay, s	13.3	11.3	1.1	0.8	
HCM LOS	В	В			

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1\	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	533	654	1428	-	-
HCM Lane V/C Ratio	0.019	-	-	0.186	0.133	0.015	-	-
HCM Control Delay (s)	7.7	-	-	13.3	11.3	7.6	-	-
HCM Lane LOS	А	-	-	В	В	Α	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.5	0	-	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۰¥			- <del>द</del>	4	
Traffic Vol, veh/h	25	13	19	230	130	32
Future Vol, veh/h	25	13	19	230	130	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	,#0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	2	2	7	7	7
Mvmt Flow	27	14	21	250	141	35

Major/Minor	Minor2	I	Major1	Ма	ijor2					
Conflicting Flow All	451	159	176	0	-	0				
Stage 1	159	-	-	-	-	-				
Stage 2	292	-	-	-	-	-				
Critical Hdwy	6.47	6.22	4.12	-	-	-				
Critical Hdwy Stg 1	5.47	-	-	-	-	-				
Critical Hdwy Stg 2	5.47	-	-	-	-	-				
Follow-up Hdwy		3.318		-	-	-				
Pot Cap-1 Maneuver	557	886	1400	-	-	-				
Stage 1	858	-	-	-	-	-				
Stage 2	747	-	-	-	-	-				
Platoon blocked, %				-	-	-				
Mov Cap-1 Maneuver		886	1400	-	-	-				
Mov Cap-2 Maneuver	548	-	-	-	-	-				
Stage 1	843	-	-	-	-	-				
Stage 2	747	-	-	-	-	-				
Approach	EB		NB		SB					

Approach	EB	NB	SB	
HCM Control Delay, s	11.1	0.6	0	
HCM LOS	В			

Minor Lane/Major Mvmt	NBL	NBT E	EBLn1	SBT	SBR
Capacity (veh/h)	1400	-	630	-	-
HCM Lane V/C Ratio	0.015	-	0.066	-	-
HCM Control Delay (s)	7.6	0	11.1	-	-
HCM Lane LOS	А	А	В	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	5.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4			<u>्</u>	۰¥	
Traffic Vol, veh/h	10	57	46	5	41	28
Future Vol, veh/h	10	57	46	5	41	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
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	2
Mvmt Flow	11	62	50	5	45	30

Major/Minor	Major1	Ν	Major2		Minor1	
Conflicting Flow All	0	0	73	0	147	42
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	105	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1527	-	845	1029
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	919	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1527	-	817	1029
Mov Cap-2 Maneuver	-	-	-	-	817	-
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	919	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		6.7		9.4	
HCM LOS	Ū		0.1		A	
					7	
Minor Lane/Major Mvm	nt N	IBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		892	-	-		-
HCM Lane V/C Ratio		0.084	-	-	0.033	-
HCM Control Delay (s)		9.4	-	-	7.4	0
HCM Lane LOS		Α	-	-	Α	Α

HCM 95th %tile Q(veh)	0.3	-	-	0.1	-		

🐺 Site: 7 [SR 12 / SR 113]

MITIG8 Existing AM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov ID	Turn	Demand Total	Flows HV	Deg. Satn	Average	Level of	95% Back Vehicles	of Queue Distance	Prop.		Aver. No.	
<b>ט</b> ו		veh/h	нv %	Sain v/c	Delay sec	Service	venicies veh	Distance	Queuea	Stop Rate	Cycles	Speed mph
South	: Birds La	anding Rd	,,,	110			Von					mpri
3	L2	1	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.28	0.42	34.8
8	T1	1	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.28	0.42	34.7
18	R2	5	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.28	0.42	33.7
Appro	ach	8	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.28	0.42	34.0
East:	SR 12											
1	L2	21	3.0	0.502	6.4	LOS A	2.9	76.9	0.04	0.00	0.04	34.4
6	T1	650	10.0	0.502	6.5	LOS A	2.9	76.9	0.04	0.00	0.04	34.2
16	R2	239	7.0	0.502	6.4	LOS A	2.9	76.9	0.04	0.00	0.04	33.3
Appro	ach	910	9.1	0.502	6.5	LOS A	2.9	76.9	0.04	0.00	0.04	34.0
North	: SR 113											
7	L2	134	7.0	0.275	11.2	LOS B	0.9	24.5	0.62	0.62	0.62	29.9
4	T1	2	3.0	0.275	10.9	LOS B	0.9	24.5	0.62	0.62	0.62	30.0
14	R2	3	7.0	0.275	11.2	LOS B	0.9	24.5	0.62	0.62	0.62	29.2
Appro	ach	139	6.9	0.275	11.2	LOS B	0.9	24.5	0.62	0.62	0.62	29.9
West:	SR 12											
5	L2	1	7.0	0.266	6.6	LOS A	1.0	27.4	0.33	0.22	0.33	34.2
2	T1	237	10.0	0.266	6.7	LOS A	1.0	27.4	0.33	0.22	0.33	34.2
12	R2	3	3.0	0.266	6.5	LOS A	1.0	27.4	0.33	0.22	0.33	33.3
Appro	ach	241	9.9	0.266	6.7	LOS A	1.0	27.4	0.33	0.22	0.33	34.2
All Ve	hicles	1298	8.9	0.502	7.0	LOS A	2.9	76.9	0.15	0.11	0.15	33.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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### V Site: 7 [SR 12 / SR 113]

mitig8 Existing PM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance ft	Prop. Queued		Aver. No. Cycles	
South	: Birds L	anding Rd										
3	L2	1	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	31.9
8	T1	4	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	31.8
18	R2	16	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	31.0
Appro		22	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	31.2
East:	SR 12											
1	L2	4	3.0	0.339	4.9	LOS A	1.5	40.6	0.07	0.01	0.07	35.2
6	T1	334	10.0	0.339	5.1	LOS A	1.5	40.6	0.07	0.01	0.07	35.0
16	R2	213	7.0	0.339	5.0	LOS A	1.5	40.6	0.07	0.01	0.07	34.0
Appro	ach	551	8.8	0.339	5.0	LOS A	1.5	40.6	0.07	0.01	0.07	34.6
North:	: SR 113											
7	L2	266	7.0	0.376	9.8	LOS A	1.5	40.2	0.53	0.50	0.53	30.4
4	T1	2	3.0	0.376	9.6	LOS A	1.5	40.2	0.53	0.50	0.53	30.5
14	R2	5	7.0	0.376	9.8	LOS A	1.5	40.2	0.53	0.50	0.53	29.7
Appro	ach	274	7.0	0.376	9.8	LOS A	1.5	40.2	0.53	0.50	0.53	30.4
West:	SR 12											
5	L2	7	7.0	0.895	31.7	LOS D	25.8	697.7	0.90	1.56	2.55	24.9
2	T1	782	10.0	0.895	31.8	LOS D	25.8	697.7	0.90	1.56	2.55	24.8
12	R2	2	3.0	0.895	31.6	LOS D	25.8	697.7	0.90	1.56	2.55	24.4
Appro	ach	790	10.0	0.895	31.8	LOS D	25.8	697.7	0.90	1.56	2.55	24.8
All Ve	hicles	1637	9.0	0.895	18.8	LOS C	25.8	697.7	0.56	0.85	1.35	28.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## V Site: 7 [SR 12 / SR 113]

MITIG8 Existing plus Project AM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance ft	Prop. Queued		Aver. No. Cycles	Average Speed mph
South	: Birds La	anding Rd										
3	L2	1	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.29	0.42	34.8
8	T1	1	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.29	0.42	34.7
18	R2	5	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.29	0.42	33.7
Appro	ach	8	3.0	0.010	5.0	LOS A	0.0	0.9	0.42	0.29	0.42	34.0
East:	SR 12											
1	L2	21	3.0	0.503	6.4	LOS A	2.9	77.3	0.04	0.00	0.04	34.4
6	T1	650	10.0	0.503	6.5	LOS A	2.9	77.3	0.04	0.00	0.04	34.2
16	R2	241	7.0	0.503	6.5	LOS A	2.9	77.3	0.04	0.00	0.04	33.3
Appro	ach	912	9.0	0.503	6.5	LOS A	2.9	77.3	0.04	0.00	0.04	34.0
North	: SR 113											
7	L2	136	7.0	0.280	11.3	LOS B	1.0	25.1	0.62	0.62	0.63	29.9
4	T1	2	3.0	0.280	11.0	LOS B	1.0	25.1	0.62	0.62	0.63	29.9
14	R2	3	7.0	0.280	11.3	LOS B	1.0	25.1	0.62	0.62	0.63	29.1
Appro	ach	141	6.9	0.280	11.3	LOS B	1.0	25.1	0.62	0.62	0.63	29.9
West:	SR 12											
5	L2	1	7.0	0.267	6.7	LOS A	1.0	27.5	0.33	0.22	0.33	34.2
2	T1	237	10.0	0.267	6.8	LOS A	1.0	27.5	0.33	0.22	0.33	34.2
12	R2	3	3.0	0.267	6.5	LOS A	1.0	27.5	0.33	0.22	0.33	33.3
Appro	ach	241	9.9	0.267	6.8	LOS A	1.0	27.5	0.33	0.22	0.33	34.2
All Ve	hicles	1302	8.9	0.503	7.1	LOS A	2.9	77.3	0.16	0.11	0.16	33.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## V Site: 7 [SR 12 / SR 113]

MITIG8 Existing plus Project PM Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov	Turn	Demand		Deg.	Average	Level of	95% Back		Prop.		Aver. No.	
ID		Total veh/h	HV %	Satn v/c	Delay sec	Service	Vehicles veh	Distance ft	Queued	Stop Rate	Cycles	Speed mph
South	: Birds La	anding Rd	/0	v/C	300		VCII					трп
3	L2	1	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	31.9
8	T1	4	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	31.8
18	R2	16	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	30.9
Appro	bach	22	3.0	0.063	11.4	LOS B	0.2	4.8	0.70	0.70	0.70	31.2
East:	SR 12											
1	L2	4	3.0	0.339	4.9	LOS A	1.5	40.6	0.07	0.01	0.07	35.2
6	T1	334	10.0	0.339	5.1	LOS A	1.5	40.6	0.07	0.01	0.07	35.0
16	R2	213	7.0	0.339	5.0	LOS A	1.5	40.6	0.07	0.01	0.07	34.0
Appro	bach	551	8.8	0.339	5.0	LOS A	1.5	40.6	0.07	0.01	0.07	34.6
North	: SR 113											
7	L2	268	7.0	0.382	9.9	LOS A	1.6	41.0	0.53	0.50	0.53	30.4
4	T1	2	3.0	0.382	9.7	LOS A	1.6	41.0	0.53	0.50	0.53	30.5
14	R2	8	7.0	0.382	9.9	LOS A	1.6	41.0	0.53	0.50	0.53	29.6
Appro	bach	278	7.0	0.382	9.9	LOS A	1.6	41.0	0.53	0.50	0.53	30.4
West:	SR 12											
5	L2	7	7.0	0.898	32.2	LOS D	26.1	704.6	0.91	1.58	2.58	24.7
2	T1	782	10.0	0.898	32.3	LOS D	26.1	704.6	0.91	1.58	2.58	24.7
12	R2	2	3.0	0.898	32.0	LOS D	26.1	704.6	0.91	1.58	2.58	24.2
Appro	bach	790	10.0	0.898	32.3	LOS D	26.1	704.6	0.91	1.58	2.58	24.7
All Ve	hicles	1641	9.0	0.898	19.1	LOS C	26.1	704.6	0.56	0.86	1.36	28.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Intersection											
Intersection Delay, s/veh	13.3										
Intersection LOS	В										
Movement	EDI	EDT	EDD	\//DI		NDI	NDT	NDD	CDI	СРТ	CDD

Movement	EBL	EBT	EBR	WBL	WBI	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		٦.	ef 👘		٦.	ef 👘	
Traffic Vol, veh/h	185	20	20	35	45	50	25	180	30	35	145	150
Future Vol, veh/h	185	20	20	35	45	50	25	180	30	35	145	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2
Mvmt Flow	201	22	22	38	49	54	27	196	33	38	158	163
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	13.4			11			12.8			14.5		
HCM LOS	В			В			В			В		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	82%	27%	100%	0%
Vol Thru, %	0%	86%	9%	35%	0%	49%
Vol Right, %	0%	14%	9%	38%	0%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	210	225	130	35	295
LT Vol	25	0	185	35	35	0
Through Vol	0	180	20	45	0	145
RT Vol	0	30	20	50	0	150
Lane Flow Rate	27	228	245	141	38	321
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.052	0.397	0.412	0.237	0.07	0.523
Departure Headway (Hd)	6.874	6.263	6.067	6.028	6.652	5.867
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Сар	519	571	589	591	536	612
Service Time	4.647	4.036	4.143	4.115	4.418	3.633
HCM Lane V/C Ratio	0.052	0.399	0.416	0.239	0.071	0.525
HCM Control Delay	10	13.1	13.4	11	9.9	15
HCM Lane LOS	А	В	В	В	А	В
HCM 95th-tile Q	0.2	1.9	2	0.9	0.2	3

Intersection												
Intersection Delay, s/veh	13.7											
Intersection LOS	В											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$		۲	4Î		۲	4Î	
Traffic Vol, veh/h	40	85	50	115	35	15	55	190	80	30	170	110
Future Vol, veh/h	40	85	50	115	35	15	55	190	80	30	170	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2
Mvmt Flow	43	92	54	125	38	16	60	207	87	33	185	120
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	12.2			12.4			14.2			14.6		
HCM LOS	В			В			В			В		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	23%	70%	100%	0%
Vol Thru, %	0%	70%	49%	21%	0%	61%
Vol Right, %	0%	30%	29%	9%	0%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	270	175	165	30	280
LT Vol	55	0	40	115	30	0
Through Vol	0	190	85	35	0	170
RT Vol	0	80	50	15	0	110
Lane Flow Rate	60	293	190	179	33	304
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.113	0.498	0.325	0.317	0.061	0.513
Departure Headway (Hd)	6.829	6.109	6.142	6.368	6.772	6.069
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Сар	522	587	580	560	526	590
Service Time	4.61	3.889	4.235	4.463	4.552	3.849
HCM Lane V/C Ratio	0.115	0.499	0.328	0.32	0.063	0.515
HCM Control Delay	10.5	14.9	12.2	12.4	10	15.1
HCM Lane LOS	В	В	В	В	А	С
HCM 95th-tile Q	0.4	2.8	1.4	1.4	0.2	2.9

# 🐺 Site: 7 [SR 12 / SR 113]

MITIG8 Cumulative PM Add 2nd EB Lane Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov	Turn	Demand		Deg.	Average	Level of	95% Back		Prop.		Aver. No.	
ID		Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Cycles	Speed
South	· Birde La	veh/h anding Rd	%	v/c	sec	_	veh	ft	_	_	_	mph
3	L2	5	3.0	0.083	12.4	LOS B	0.2	5.1	0.72	0.72	0.72	31.1
8	L2 T1	5 11	3.0	0.083	12.4	LOS B		5.1	0.72	0.72	0.72	31.1
-							0.2					
18	R2	11	3.0	0.083	12.4	LOS B	0.2	5.1	0.72	0.72	0.72	30.3
Appro	bach	27	3.0	0.083	12.4	LOS B	0.2	5.1	0.72	0.72	0.72	30.8
East:	SR 12											
1	L2	5	3.0	0.713	11.8	LOS B	6.0	159.9	0.30	0.12	0.30	31.8
6	T1	647	10.0	0.713	12.0	LOS B	6.0	159.9	0.30	0.12	0.30	31.6
16	R2	375	7.0	0.713	11.9	LOS B	6.0	159.9	0.30	0.12	0.30	30.8
Appro	bach	1027	8.9	0.713	12.0	LOS B	6.0	159.9	0.30	0.12	0.30	31.3
North	: SR 113											
7	L2	321	7.0	0.709	25.8	LOS D	5.5	146.2	0.79	1.08	1.72	25.3
4	T1	22	3.0	0.709	25.6	LOS D	5.5	146.2	0.79	1.08	1.72	25.3
14	R2	22	7.0	0.709	25.8	LOS D	5.5	146.2	0.79	1.08	1.72	24.7
Appro	bach	364	6.8	0.709	25.8	LOS D	5.5	146.2	0.79	1.08	1.72	25.3
West:	SR 12											
5	L2	33	7.0	0.855	29.7	LOS D	17.3	466.8	0.86	1.47	2.37	25.3
2	T1	1223	10.0	0.855	28.0	LOS D	17.3	466.8	0.84	1.40	2.23	25.9
12	R2	27	3.0	0.817	25.9	LOS D	14.3	385.7	0.82	1.33	2.08	25.9
Appro	bach	1283	9.8	0.855	28.0	LOS D	17.3	466.8	0.84	1.40	2.23	25.9
All Ve	hicles	2701	9.0	0.855	21.5	LOS C	17.3	466.8	0.63	0.87	1.41	27.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

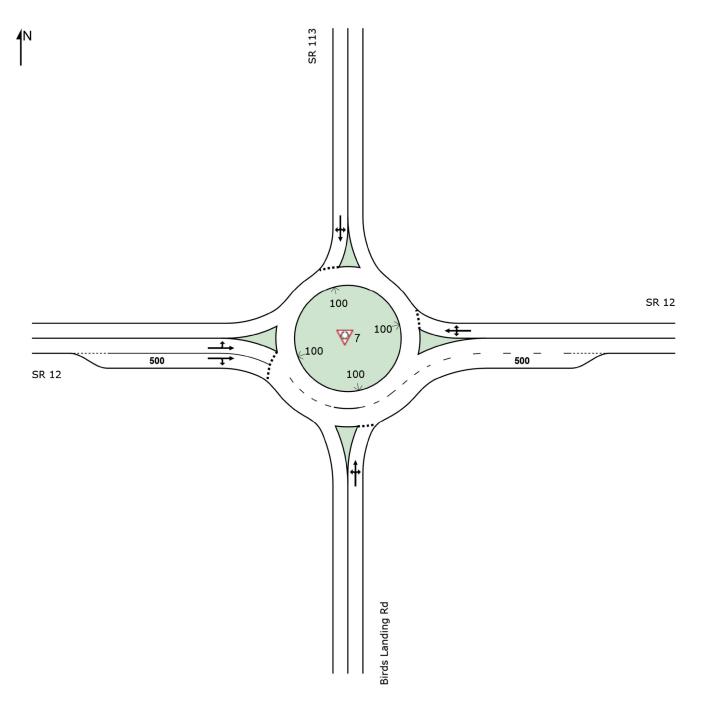
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# SITE LAYOUT

# **V** Site: 7 [SR 12 / SR 113]

MITIG8 Cumulative PM Add 2nd EB Lane Site Category: (None) Roundabout



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Intersection												
Intersection Delay, s/veh	13.7											
Intersection LOS	В											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$		ľ	el el		ľ	el el	
Traffic Vol, veh/h	185	20	36	35	45	50	37	182	30	35	147	150
Future Vol, veh/h	185	20	36	35	45	50	37	182	30	35	147	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2
Mumt Flow	201	22	30	38	10	5/	40	108	23	38	160	163

Mvmt Flow	201	22	39	38	49	54	40	198	33	38	160	163
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	14			11.2			13			14.9		
HCM LOS	В			В			В			В		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	77%	27%	100%	0%
Vol Thru, %	0%	86%	8%	35%	0%	49%
Vol Right, %	0%	14%	15%	38%	0%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	212	241	130	35	297
LT Vol	37	0	185	35	35	0
Through Vol	0	182	20	45	0	147
RT Vol	0	30	36	50	0	150
Lane Flow Rate	40	230	262	141	38	323
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.078	0.406	0.443	0.241	0.071	0.535
Departure Headway (Hd)	6.957	6.347	6.084	6.138	6.75	5.968
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Сар	512	565	587	579	528	600
Service Time	4.739	4.128	4.166	4.233	4.525	3.742
HCM Lane V/C Ratio	0.078	0.407	0.446	0.244	0.072	0.538
HCM Control Delay	10.3	13.5	14	11.2	10	15.5
HCM Lane LOS	В	В	В	В	А	С
HCM 95th-tile Q	0.3	2	2.3	0.9	0.2	3.2

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	В

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		٦.	4Î		٦.	ef 👘	
Traffic Vol, veh/h	40	85	50	115	35	15	67	192	80	30	170	110
Future Vol, veh/h	40	85	50	115	35	15	67	192	80	30	170	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	7	2	2	2	7	7	2	2	7	2
Mvmt Flow	43	92	54	125	38	16	73	209	87	33	185	120
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	12.3			12.5			14.2			14.8		
HCM LOS	В			В			В			В		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	23%	70%	100%	0%
Vol Thru, %	0%	71%	49%	21%	0%	61%
Vol Right, %	0%	29%	29%	9%	0%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	272	175	165	30	280
LT Vol	67	0	40	115	30	0
Through Vol	0	192	85	35	0	170
RT Vol	0	80	50	15	0	110
Lane Flow Rate	73	296	190	179	33	304
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.138	0.503	0.326	0.319	0.062	0.516
Departure Headway (Hd)	6.84	6.121	6.179	6.405	6.805	6.102
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Сар	521	585	576	556	523	587
Service Time	4.62	3.901	4.276	4.503	4.584	3.881
HCM Lane V/C Ratio	0.14	0.506	0.33	0.322	0.063	0.518
HCM Control Delay	10.7	15	12.3	12.5	10	15.3
HCM Lane LOS	В	В	В	В	А	С
HCM 95th-tile Q	0.5	2.8	1.4	1.4	0.2	3

# V Site: 7 [SR 12 / SR 113]

MITIG8 Cumulative plus Project PM Add 2nd EB Lane Site Category: (None) Roundabout

Move	ement P	erformanc	e - Veh	icles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance ft	Prop. Queued		Aver. No. Cycles	Average Speed mph
South	: Birds L	anding Rd										
3	L2	5	3.0	0.083	12.4	LOS B	0.2	5.1	0.72	0.72	0.72	31.1
8	T1	11	3.0	0.083	12.4	LOS B	0.2	5.1	0.72	0.72	0.72	31.1
18	R2	11	3.0	0.083	12.4	LOS B	0.2	5.1	0.72	0.72	0.72	30.3
Appro	bach	27	3.0	0.083	12.4	LOS B	0.2	5.1	0.72	0.72	0.72	30.8
East:	SR 12											
1	L2	5	3.0	0.713	11.8	LOS B	6.0	159.9	0.30	0.12	0.30	31.8
6	T1	647	10.0	0.713	12.0	LOS B	6.0	159.9	0.30	0.12	0.30	31.6
16	R2	375	7.0	0.713	11.9	LOS B	6.0	159.9	0.30	0.12	0.30	30.8
Appro	bach	1027	8.9	0.713	12.0	LOS B	6.0	159.9	0.30	0.12	0.30	31.3
North	: SR 113											
7	L2	323	7.0	0.717	26.4	LOS D	5.7	150.9	0.80	1.10	1.76	25.1
4	T1	22	3.0	0.717	26.1	LOS D	5.7	150.9	0.80	1.10	1.76	25.2
14	R2	24	7.0	0.717	26.4	LOS D	5.7	150.9	0.80	1.10	1.76	24.6
Appro	ach	368	6.8	0.717	26.4	LOS D	5.7	150.9	0.80	1.10	1.76	25.1
West:	SR 12											
5	L2	33	7.0	0.857	30.1	LOS D	17.5	471.0	0.87	1.49	2.39	25.2
2	T1	1223	10.0	0.857	28.4	LOS D	17.5	471.0	0.85	1.42	2.25	25.8
12	R2	27	3.0	0.820	26.2	LOS D	14.4	388.9	0.83	1.34	2.10	25.8
Appro	ach	1283	9.8	0.857	28.4	LOS D	17.5	471.0	0.85	1.42	2.25	25.8
All Ve	hicles	2705	9.0	0.857	21.7	LOS C	17.5	471.0	0.63	0.87	1.43	27.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

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

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6). Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: KD ANDERSON & ASSOCIATES INC. | Processed: Monday, October 8, 2018 1:25:25 PM Project: C:\Users\JDF\KDA\Reports\Solano County\Hay Road Landfill\00 UPDATED PROJECT 9-2018\SIDRA\13 MITIG8 11 SR 12\_SR 113 CPP PM.sip8

General Information		Y SEGMENT WORK			
Analyst	JF	Highway / Direction of Travel	Midway Rd		
Agency or Company	57	From/To	west of Porter Rd EB		
Date Performed	10/8/18	Jurisdiction	Solano County		
Analysis Time Period	Exist AM	Analysis Year	2018		
Project Description: Recology Hay Rd	Landfill				
Input Data	1				
	Shoulder width tt				
	Lane width tt				
	Lane width ft		highway 📃 Class II		
	Shoulder width ft	highway	Class III highway		
		Terrain	Level Rolling		
Segment lengt	ո, Լ, mi	Grade Lengt	-		
Segment lengu	кции	Peak-hour fa	actor, PHF 0.92		
		No-passing :			
Analysis direction vol., V <sub>d</sub> 208\	reh/h	Show North Arrow % Trucks an	id Buses , P <sub>T</sub> 7 %		
	reh/h	% Recreatio	nal vehicles, P <sub>R</sub> 0%		
Shoulder width ft $3.0$		Access point	IX IX		
Lane Width ft 12.0					
Segment Length mi 2.0					
Average Travel Speed		-	-		
		Analysis Direction (d)	Opposing Direction (o)		
Passenger-car equivalents for trucks, E	<sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.4		
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-11 or 15-13)	1.0	1.0		
Heavy-vehicle adjustment factor, f <sub>HV,AT</sub>	$_{\rm S}$ =1/(1+P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.966	0.973		
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhil	bit 15-9)	1.00	1.00		
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHI	<sup>=*</sup> f <sub>g,ATS</sub> <sup>*</sup> f <sub>HV,ATS</sub> )	234	312		
Free-Flow Speed fro	om Field Measurement	Estimated Fi	ree-Flow Speed		
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l		
		Adj. for lane and shoulder width,	<sup>4</sup> f. $_{\circ}$ (Exhibit 15-7) 2.6 <i>mi/h</i>		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>			20		
Total demand flow rate, both directions,	V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhit	oit 15-8) 0.3 mi/h		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> /	funcate)	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/l		
	,	Average travel speed, ATS <sub>d</sub> =FF	$S_{-0.00776(y_{1},y_{2},y_{3},y_{4$		
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhi	bit 15-15) 1.3 mi/h		46.6 mi/l		
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>			
		Percent free flow speed, PFFS	89.4 %		
Percent Time-Spent-Following		Analysis Disset (1)			
		Analysis Direction (d)	Opposing Direction (o)		
Passenger-car equivalents for trucks, E	<sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1		
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-18 or 15-19)	1.0	1.0		
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1	/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993		
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhi		1.00	1.00		
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PH	F*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	228	305		
Base percent time-spent-following <sup>4</sup> , BP	TSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )		26.5		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhi	bit 15-21)		38.2		
Percent time-spent-following, PTSF <sub>d</sub> (%	)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> /v <sub>d,PTSF</sub> +		42.8		
V <sub>o,PTSF</sub> )					
Level of Service and Other Performa	nce Measures				
Level of service, LOS (Exhibit 15-3)			С		
Volume to capacity ratio, v/c		1	0.14		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	226.1
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.32
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

b. EXNIDIT 15-20 provides coefficients a and b for Equation 15-10.
 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information		Site Information	
Analyst	JF	Highway / Direction of Travel	Midway Rd
Agency or Company	57	From/To	west of Porter Rd WB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd I	Landfill		
Input Data	80	1	
	Shoulder width ft		
			_
		Class I	highway 📃 Class II
	Lane width tt	highway	Class III highway
فيحص والمحص والمراجع	Shoulder widthft		
-		Terrain	Level Rolling
Segment length	, L <sub>t</sub> mi	Grade Lengt	
31	а	No-passing z	
Analysis direction vol., V <sub>d</sub> 279v	ah/h	Show North Arrow % Trucks and	
ŭ			·
Opposing direction vol., V <sub>o</sub> 208v	eh/h		nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0		Access point	is <i>mi</i> 1/mi
Lane Width ft 12.0			
Segment Length mi 2.0			
Average Travel Speed		Analysis Direction (d)	Opposing Direction (c)
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>1</sub>	- (Exhibit 15-11 or 15-12)	1.4	1.5
Passenger-car equivalents for RVs, E <sub>R</sub> (	Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,ATS</sub>	$_{\rm S}$ =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.973	0.966
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhib	it 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF	* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	312	234
Free-Flow Speed fro	m Field Measurement	Estimated Fr	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>			
Total demand flow rate, both directions,	V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/		Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/ł
	,		20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhib	vit 15-15) 1.4 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00770(v <sub>d,ATS</sub> + 46.5 mi/ł
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	89.2 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>1</sub>	(Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (	Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/	(1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhib	it 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF	<sup>**f</sup> HV,PTSF <sup>*</sup> f <sub>g,PTSF</sub> )	305	228
Base percent time-spent-following <sup>4</sup> , BP1	$FSF_{d}(\%) = 100(1 - e^{av_{d}b})$	31.4	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhit	bit 15-21)		38.2
Percent time-spent-following, PTSF <sub>d</sub> (%)	=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> /v <sub>d,PTSF</sub> +		53.3
v <sub>o,PTSF</sub> )		· · · · · · · · · · · · · · · · · · ·	
Level of Service and Other Performan	ce Measures		
Level of service, LOS (Exhibit 15-3)			С
, - (		0.18	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h	303.3
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.47
Bicycle level of service (Exhibit 15-4)	E
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of downgrade segments are treated as level terrain.	the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15.20 provides coefficients a and b for Equation 15.10	

5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information		Site Information	SHEET
	JF	Highway / Direction of Travel	Midway Rd
Agency or Company		From/To	west of Porter Rd EB
Date Performed	10/8/19	Jurisdiction	Solano County
5	Exist PM	Analysis Year	2018
Project Description: Recology Hay Rd L	andfill		
Input Data	84	1	
<b>-</b>	Shoulder width tt		
-			_
		Class I	highway 📃 Class II
	Lane width It	highway	Class III highway
	Shoulder width ft		
-		Terrain	Level Rolling
Segment length,	L <sub>t</sub> mi	Grade Lengtl	
31	.1	No-passing z	
Analysis direction vol., V, 303ve	b/b	Show North Arrow % Trucks and	
, u	1/11		·
Opposing direction vol., V <sub>o</sub> 262ve	h/h		nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0		Access point	s <i>mi</i> 1/mi
Lane Width ft 12.0			
Segment Length mi 2.0			
Average Travel Speed		Analysis Direction (d)	Opposing Direction (c)
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub>	(Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, $E_{R}$ (I	Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,ATS</sub>	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.973	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit	: 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>j</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PHF*	<sup>f</sup> g,ATS <sup>* f</sup> HV,ATS)	338	293
Free-Flow Speed fror	n Field Measurement	Estimated Fr	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
			<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	
Total demand flow rate, both directions, v	,	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f		Free-flow speed, FFS (FSS=BF	FS-f <sub>1,0</sub> -f <sub>4</sub> ) 52.2 mi/i
			20 / 1
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibi	t 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(V <sub>d,ATS</sub> + 45.9 mi/i
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	88.1 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub>	(Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (I	Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (	1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibi	t 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF	*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	332	287
Base percent time-spent-following <sup>4</sup> , BPT		34.6	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhib	it 15-21)	38.0	
Percent time-spent-following, PTSF <sub>d</sub> (%)=	BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> /v <sub>d,PTSF</sub> +		55.0
v <sub>o,PTSF</sub> )			JU.U
Level of Service and Other Performance	ce Measures	•	
_evel of service, LOS (Exhibit 15-3)			С
		0.20	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	88.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	329.3
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.51
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information	Site Information	
General Information	Highway / Direction of Travel	Midway Rd
Agency or Company	From/To	west of Porter Rd WB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period Exist PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width tt		
Lane width		
Lane width	Class I highway	
Shoulder width It	highway	Class III highway
	Terrain	🗹 Level 📃 Rolling
Segment length, L <sub>l</sub> mi	Grade Lengt	
Segment lengur, L m	Peak-hour fa	
	Show North Arrow % Trucks an	
Analysis direction vol., V <sub>d</sub> 262veh/h	% Trucks an	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V 303veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0	Access point	
Lane Width ft 12.0		
Segment Length mi 2.0		
Average Travel Speed	1	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	293	338
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	-	EG
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/h
	Average travel speed, ATS <sub>d</sub> =FF	20 / 1
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.3 mi/h		46.0 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	88.1 %
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (a)
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	287	332
Base percent time-spent-following <sup>4</sup> , $BPTSF_d(\%)=100(1-e^{av_d^b})$	32.2	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		38.0
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $		49.8
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
Volume to capacity ratio, v/c	0.17	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	88.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	284.8
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.44
Bicycle level of service (Exhibit 15-4)	E
Notes	
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information		Site Information	
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of SR 113 EB Solano County
Analysis Time Period	Exist AM	Analysis Year	2018
Project Description: Recology Hay F	d Landfill		
Input Data	1		
	Shoulder width ft		
	Lane width It	Class I h	ighway 📃 Class II
	🖞 Lane width ft		Class III highway
	Shoulder width ft		
		Grade Length	Level Rolling mi Up/down
Segment len	gth, L <sub>L</sub> mi	Peak-hour fac	
15.		No-passing zo	
Analysis direction vol., V <sub>d</sub> 16	7veh/h	Show North Arrow % Trucks and	Buses , P <sub>T</sub> 7 %
ŭ	3veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $3.1$		Access points	΄ <b>Γ</b>
Lane Width ft 12.	0		
Segment Length mi 2.0			
Average Travel Speed		Analysis Direction (d)	Opposing Direction (c)
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.6	1.7
Passenger-car equivalents for RVs, E	R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,</sub>	ATS=1/(1+P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.960	0.953
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex		1.00	1.00
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (P	HF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	189	163
Free-Flow Speed	from Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/i
<u>^</u>		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit	20
Total demand flow rate, both directior			
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(	// f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	hibit 15-15) 0.9 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	-0.00776(v <sub>d,ATS</sub> + 48.2 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	92.9 %
Percent Time-Spent-Following		Analysis Direction (d)	Opposing Direction (o)
Dessender ogr og ujvelente for truele	E (Exhibit 15 19 or 15 10)	Analysis Direction (d)	1.1
Passenger-car equivalents for trucks,		1.1	1.0
Passenger-car equivalents for RVs, E Heavy-vehicle adjustment factor, f <sub>HV</sub> -		0.993	0.993
Grade adjustment factor <sup>1</sup> , $f_{g,PTSF}$ (Ex		1.00	1.00
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i/(F$		183	157
Base percent time-spent-following <sup>4</sup> , E			0.0
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Ex		20.0	
1,			
	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	3.	5.3
v <sub>o,PTSF</sub> ) Level of Service and Other Perforn	nance Measures	1	
Level of service, LOS (Exhibit 15-3)			С
= = = = = = = = = = = = = = = = =		0.11	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1620
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	92.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	181.5
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.21
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the ba downgrade segments are treated as level terrain.</li> </ol>	ase conditions. For the purpose of grade adjustment, specific
2. If v <sub>i</sub> (v <sub>d</sub> or v <sub>o</sub> ) >=1,700 pc/h, terminate analysisthe LOS is F.	

For the analysis direction only and for v>200 veh/h.
 For the analysis direction only
 Exhibit 15-20 provides coefficients a and b for Equation 15-10.
 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Site Information Highway / Direction of Travel // From/To	Midway Rd
	-
	Solano County 2018
🗹 Class I hig	ghway 📃 Class II
highway 🗌 Class III highway	
Terrain	✓ Level Rolling
Grade Length	mi Up/down
	I
Access points <i>mi</i> 2/mi	
Analysis Direction (d)	Opposing Direction (o)
1.7	1.6
1.0	1.0
0.953	0.960
1.00	1.00
163	189
Estimated Free-Flow Speed	
Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
	(Exhibit 15-7) 2.6 mi/h
	20
	20 //
Average travel speed, ATS <sub>d</sub> =FFS-	0.00776(v <sub>d,ATS</sub> + 48.0 mi/ł
Percent free flow speed, PFFS	92.4 %
Analysis Direction (1)	
• • • • •	Opposing Direction (o)
	1.1
1.0	1.0
0.993	0.993
1.00	1.00
157	183
17.4	
28	.4
30	.5
-	
	highway C Terrain Grade Length Peak-hour fact. No-passing zor % Trucks and R % Recreationa Access points A (No-passing zor % Trucks and R % Recreationa Access points A (No-passing zor % Trucks and R % Recreationa Access points A 1.0 0.953 1.00 163 Estimated Free Base free-flow speed <sup>4</sup> , BFFS Adj. for lane and shoulder width, <sup>4</sup> f Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit Free-flow speed, FFS (FSS=BFFS Average travel speed, ATS <sub>d</sub> =FFS- V <sub>0,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS Analysis Direction (d) 1.1 1.0 0.993 1.00 157

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1632
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	92.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	155.4
Effective width, Wv (Eq. 15-29) ft	19.27
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.40
Bicycle level of service (Exhibit 15-4)	D
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the downgrade segments are treated as level terrain.</li> </ol>	e base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >= 1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	

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Conserval Information	AY SEGMENT WORK	-	
General Information	Site Information	Midway Dd	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Midway Rd west of SR 113 EB	
Date Performed 4/13/2018	Jurisdiction	Solano County	
Analysis Time Period Exist PM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill			
Input Data	•		
Shoulder width tt			
	Class I	highway 📃 Class II	
Lane width tt	highway	Class III highway	
Shoulder width tt			
	Grade Lengtl	-	
Segment length, L mi	Peak-hour fa No-passing z	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 50veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V <sub>o</sub> 104veh/h		nal vehicles, P <sub>R</sub> 0%	
Shoulder width ft 3.0	Access points <i>mi</i> 2/mi		
Lane Width ft 12.0 Segment Length mi 2.0			
Average Travel Speed			
Average Travel Speed	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.8	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.947	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	58	119	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h	
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>EM</sub>			
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>I S</sub> -f <sub>A</sub> ) 51.9 mi/h	
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) 0.5 <i>mi/h</i>	Average travel speed, ATS <sub>d</sub> =FF5	20 / 1	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	96.4 %	
Percent Time-Spent-Following			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>/</sub> (PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	55	114	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )		6.7	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	22.2		
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+$		13.9	
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures			
Level of service, LOS (Exhibit 15-3)		В	
Volume to capacity ratio, v/c		0.03	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1610
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	54.3
Effective width, Wv (Eq. 15-29) ft	26.25
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.27
Bicycle level of service (Exhibit 15-4)	В
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the downgrade segments are treated as level terrain.</li> </ol>	e base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=$ 1,700 pc/h, terminate analysisthe LOS is F.	

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General Information		Site Information	Midway Dd	
Analyst JF Agency or Company		Highway / Direction of Travel From/To	Midway Rd west of SR 113 WB	
	3/2018	Jurisdiction	Solano County	
,	st PM	Analysis Year	2018	
Project Description: Recology Hay Rd Land	fill			
Input Data	178	1		
+	houlder width tt			
		Class I h	nighway 📃 Class II	
	ane width ft	highway	Class III highway	
<u>+_</u> >	houlder width It	Terrain	Level Rolling	
-	-	Grade Length	-	
Segment length, L <sub>t</sub>	mi	Peak-hour fac		
1.1.		No-passing z		
Analysis direction vol., V <sub>d</sub> 104veh/h		Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
-			al vehicles, P <sub>R</sub> 0%	
Opposing direction vol., V <sub>o</sub> 50veh/h		Access points	΄ Γ.	
Shoulder width ft 3.0 Lane Width ft 12.0		Access points	Access points mi 2/mi	
Segment Length mi 2.0				
Average Travel Speed		8		
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Ex	hibit 15-11 or 15-12)	1.8	1.9	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exh	ibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV,ATS</sub> =1/	(1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.947	0.941	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15	-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,i}$	ats <sup>* f</sup> hv,ats)	119 56		
Free-Flow Speed from F	ield Measurement	Estimated Fre	ee-Flow Speed	
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h	
		Adj. for lane and shoulder width, <sup>4</sup>	<sup>1</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>			20	
Total demand flow rate, both directions, v		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV./</sub>	- <b>T</b> C )	Free-flow speed, FFS (FSS=BFF	=S-f <sub>LS</sub> -f <sub>A</sub> ) 51.9 mi/h	
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15		Average travel speed, ATS <sub>d</sub> =FFS	20 / (	
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	00.2 111/1	
		Percent free flow speed, PFFS	96.7 %	
Percent Time-Spent-Following				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Ex	nibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exh	ibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+	P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15	5-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>H</sub> )	(,PTSF <sup>*</sup> f <sub>g,PTSF</sub> )	114	55	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>c</sub>	(%)=100(1-e <sup>av</sup> d <sup>b</sup> )	1	3.1	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 1	5-21)	22.2		
Percent time-spent-following, PTSF <sub>d</sub> (%)=BP	TSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	2	28.1	
v <sub>o,PTSF</sub> )			-	
Level of Service and Other Performance I	Measures			
Level of service, LOS (Exhibit 15-3)			В	
Volume to capacity ratio, v/c			0.07	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	113.0
Effective width, Wv (Eq. 15-29) ft	22.20
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	3.63
Bicycle level of service (Exhibit 15-4)	D
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the bas downgrade segments are treated as level terrain.</li> </ol>	e conditions. For the purpose of grade adjustment, specific
2. If ν <sub>i</sub> (ν <sub>d</sub> or ν <sub>o</sub> ) >=1,700 pc/h, terminate analysisthe LOS is F.	

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Concercial information	Y SEGMENT WORK	
General Information	Site Information	00.440
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 south of Midway Rd NB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill	-	
Input Data		
Shoulder width ft		
Lane width	✓ Class I	highway
	_	
Shoulder widtht	highway 🛄	Class III highway
	Terrain	🗹 Level 📃 Rolling
Segment length, L <sub>l</sub> mi	Grade Lengt	h mi Up/down
	Peak-hour fa	
	Show North Arrow % Trucks an	
Analysis direction vol., V <sub>d</sub> <i>130</i> veh/h	% Trucks an	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V 111veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access point	' K
Lane Width ft 12.0		
Segment Length mi 3.5		
Average Travel Speed	-	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, $E_{T}$ (Exhibit 15-11 or 15-12)	1.7	1.8
Passenger-car equivalents for trucks, ET (Exhibit 15-11 or 15-12)	1.7	1:0
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.953	0.947
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	148 127	
Free-Flow Speed from Field Measurement	Estimated Fr	ree-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhit	oit 15-8) 0.5 mi/h
	Free-flow speed, FFS (FSS=BF	FS-f <sub>to</sub> -f <sub>t</sub> ) 50.3 mi/ł
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )		20 / 1
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.5 mi/h	Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(v <sub>d,ATS</sub> +
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	<sup>47.7</sup> 47.7 mi/ł
	Percent free flow speed, PFFS	94.8 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , $v_{\rm (pc/h)} v_{\rm i} = V_{\rm i}/({\rm PHF^{*}f_{\rm HV,PTSF}^{*} f_{\rm g,PTSF}})$	142	121
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )		
	16.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	· · · · · · · · · · · · · · · · · · ·	24.3
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $		29.1
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
Volume to capacity ratio, v/c	0.09	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1610
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	94.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	141.3
Effective width, Wv (Eq. 15-29) ft	16.88
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.78
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the bas downgrade segments are treated as level terrain.</li> </ol>	se conditions. For the purpose of grade adjustment, specific
2. If v <sub>i</sub> (v <sub>d</sub> or v <sub>o</sub> ) >=1,700 pc/h, terminate analysisthe LOS is F.	

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General Information	Site Information		
Analyst JF Agency or Company Date Performed 4/13/2018	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Midway Rd SB Caltrans	
Analysis Time Period Exist AM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill			
Input Data	1		
1 Shoulder width tt			
Lane width			
Lane width		highway 📃 Class II	
Shoulder width tt	highway	highway 🗌 Class III highway	
	Terrain	Level Rolling	
Segment length, L <sub>t</sub> mi	Grade Lengt Peak-hour fa No-passing	actor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 111veh/h	Show North Arrow % Trucks an	nd Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V <sub>o</sub> 130veh/h	% Recreational vehicles, P <sub>R</sub> 0% Access points <i>mi</i> 2/mi		
Shoulder width ft0.5Lane Width ft12.0		Z/111	
Segment Length mi 3.5			
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.8	1.7	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.947	0.953	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	127 14		
Free-Flow Speed from Field Measurement	Estimated F	ree-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/	
	Adj. for lane and shoulder width	, <sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhil	bit 15-8) 0.5 mi/h	
	Free-flow speed, FFS (FSS=BF		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )Adj. for no-passing zones, f <sub>np ATS</sub> (Exhibit 15-15)0.7 mi/h	Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(Vd ATS +	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	94.4 %	
Percent Time-Spent-Following	r creent nee now speed, i i i o	34.4 70	
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	121	142	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )		13.8	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		24.3	
Percent time-spent-following, PTSF <sub>d</sub> (%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	25.0		
V <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures	1	<u>^</u>	
	C 0.07		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1620
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	94.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	120.7
Effective width, Wv (Eq. 15-29) ft	18.06
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.50
Bicycle level of service (Exhibit 15-4)	D
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700$ pc/h, terminate analysisthe LOS is F. 3. For the analysis direction only and for $v > 200$ veh/h	

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General Information		Site Information		
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Midway Rd NB Caltrans	
Analysis Time Period	Exist PM	Analysis Year	2018	
Project Description: <i>Recology Hay R</i>	d Landfill			
Input Data	100	1		
	1 Shoulder width ft			
*	Lane width tt		highway 🔲 Class II	
	Lane width tt	_		
	Shoulder width It	highway 🔛 Class III highway		
		/ Terrain	🗹 Level 📃 Rolling	
Segment leng	jth, L <sub>l</sub> mi	Grade Lengtl Peak-hour fa No-passing z	ctor, PHF 0.92	
<b>,</b> u	3veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
11 0 70	5veh/h	% Recreation Access point	nal vehicles, P <sub>R</sub> 0% s <i>mi 2</i> /mi	
Shoulder width ft 0.5 Lane Width ft 12.0		Access point	2/11II	
Segment Length mi 3.5				
Average Travel Speed				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.5	
Passenger-car equivalents for RVs, E		1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV,/</sub>		0.966	0.966	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ext		1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (Pl	HF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	206	208	
Free-Flow Speed f	rom Field Measurement	Estimated Fr	ee-Flow Speed	
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/i	
		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib		
Total demand flow rate, both direction		<i>/</i> ··		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(	v/ f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BF	LO A	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	hibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FF3 v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	S-0.00776(v <sub>d,ATS</sub> + 45.9 mi/	
		Percent free flow speed, PFFS	91.2 %	
Percent Time-Spent-Following		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E	R (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex	hibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(P		200	202	
Base percent time-spent-following <sup>4</sup> , B	$PTSF_{d}(\%) = 100(1 - e^{av_{d}}^{b})$	2	21.4	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	:	31.0	
	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	36.8		
v <sub>o,PTSF</sub> )	M			
Level of Service and Other Perform	ance Measures		<u>^</u>	
_evel of service, LOS (Exhibit 15-3)		C 0.12		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	198.9
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.60
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >= 1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	
<ol><li>For the analysis direction only and for v&gt;200 veh/h.</li></ol>	

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General Information		Site Information	
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	SR 113 south of Midway Rd SB
Date Performed Analysis Time Period	4/13/2018 Exist PM	Jurisdiction Analysis Year	Caltrans 2018
Project Description: Recology Hay I			2070
Input Data			
	<b>,</b>		
4.4	Shoulder width ft		
	Lane width It	Class I	highway 📃 Class II
()	Lane width ft	highway	Class III highway
	Shoulder width ft _		
-		Grade Lengt	
Segment ler	igth, L <sub>t</sub> mi	Peak-hour fa	
		No-passing z	
Analysis direction vol., V <sub>d</sub> 16	85veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 16	83veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
	5	Access point	
Lane Width ft 12			
Segment Length mi 3.8 Average Travel Speed	)		
Average Traver Speed		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	E <sub>-</sub> (Exhibit 15-11 or 15-12)	1.5	1.5
Passenger-car equivalents for RVs, I	•	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>		0.966	0.966
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (E)		1.00	1.00
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i / (F_i)$		208	206
Free-Flow Speed	from Field Measurement		ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directio	ns v	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776		Free-flow speed, FFS (FSS=BF	FS-f <sub>1,0</sub> -f <sub>4</sub> ) 50.3 mi/
	,	Average travel speed, ATS <sub>d</sub> =FF	
Adj. for no-passing zones, f <sub>np,ATS</sub> (E	xnibit 15-15) 1.2 mi/n		45.9 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS 91.2 9	
Percent Time-Spent-Following		reicent nee now speed, FFF3	91.2 %
en e		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, I		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (E		1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(	PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	202	200
Base percent time-spent-following <sup>4</sup> ,		2	21.7
Adj. for no-passing zone, f <sub>np,PTSF</sub> (E		31.0	
	(%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	37.3	
v <sub>o,PTSF</sub> )		Ì	51.5
Level of Service and Other Perforr	nance Measures		
_evel of service, LOS (Exhibit 15-3)			С
, , , , , , , , , , , , , , , , , , , ,		0.12	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	201.1
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.61
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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General Information		Site Information	SHEET
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To Jurisdiction	SR 113 north of Hay Rd NB Caltrans
Analysis Time Period	Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd	Landfill		
Input Data	123	1	
	\$ Shoulder width It		
4-3	Lane width		
	Lane width tt	Class I highway Class II highway highway	
	Shoulder width It		
		/ Terrain	🗹 Level 📃 Rolling
Segment lengt	հ, Լլ mi	Grade Length Peak-hour fac No-passing z	ctor, PHF 0.92
<b>,</b> U	veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
- TT 5 , 0	veh/h		al vehicles, P <sub>R</sub> 0%
Shoulder width ft0.5Lane Width ft12.0		Access points <i>mi</i> 2/mi	
Segment Length mi 3.5			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	- <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.6
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,AT</sub>	$F_{S}=1/(1+P_{T}(E_{T}-1)+P_{R}(E_{R}-1))$	0.973	0.960
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhi		1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PH	F* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	274	180
Free-Flow Speed fr	om Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
<u>^</u>		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	EO
Total demand flow rate, both directions		· · ·	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> /	'f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exh	bit 15-15) 1.0 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	6-0.00776(v <sub>d,ATS</sub> + 45.8 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	91.0 %
Percent Time-Spent-Following		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1	/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exh	bit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PH	F*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	268	174
Base percent time-spent-following <sup>4</sup> , BP	TSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	2	7.6
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exh	ibit 15-21)	2	7.3
_	)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	44.2	
V <sub>o,PTSF</sub> )			
Level of Service and Other Performa	nce Measures	1	
_evel of service, LOS (Exhibit 15-3)		C 0.16	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1632
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	266.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.75
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	

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General Information		Site Information	
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To	SR 113 north of Hay Rd SB Caltrans
Analysis Time Period	Exist AM	Analysis Year	2018
Project Description: Recology Hay I	Rd Landfill		
Input Data		•	
	1 Shoulder width tt		
9 <b></b>	Lane width		
	Lane width tt	_	ighway 📃 Class II
1-1 - SM-01	Shoulder width ft	highway 🗌 Class III highway	
		Terrain	Level Rolling
Segment len	igth, L <sub>t</sub> mi	Grade Length Peak-hour fac No-passing zo	
<b>,</b> u	59veh/h	Show North Arrow % Trucks and	•
Opposing direction vol., V <sub>o</sub> 24 Shoulder width ft 0.	45veh/h 5	% Recreation Access points	' R
Lane Width ft 12			
Segment Length mi 3.5	5		
Average Travel Speed		<b>1</b>	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.6	1.4
Passenger-car equivalents for RVs, I		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>	$_{ATS}$ =1/(1+P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.960	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex		1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (F		180	274
Free-Flow Speed	from Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/i
Mean aread of completing C		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directio		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit	15-8) 0.5 mi/h
		Free-flow speed, FFS (FSS=BFF	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776 Adj. for no-passing zones, f <sub>np.ATS</sub> (E:		Average travel speed, ATS <sub>d</sub> =FFS	LO A
		45.6 v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS 90.7	
Percent Time-Spent-Following		Apolycic Direction (d)	Opposing Direction (c)
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	·	1.1	1.1
Passenger-car equivalents for RVs, I		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (E		1.00	1.00
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i/(f$		174	268
Base percent time-spent-following <sup>4</sup> , I		21.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (E		27	7.3
	(%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	3	1.7
v <sub>o,PTSF</sub> ) Level of Service and Other Perform	nance Measures		
Level of service, LOS (Exhibit 15-3)	nunce measures		<u>c</u>
-0+0, 0, 00, 100, EOO (EAHDIL 10-0)		C 0.11	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	90.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	172.8
Effective width, Wv (Eq. 15-29) ft	15.06
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.18
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >= 1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	
2 For the analysis direction only and for v>200 yeh/h	

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	WO-LANE HIGHWA			
General Information		Site Information	SD 440	
Analyst JF Agency or Company		Highway / Direction of Travel From/To	SR 113 north of Hay Rd NB	
Date Performed 4/13/20	018	Jurisdiction	Caltrans	
Analysis Time Period Exist Pl		Analysis Year	2018	
Project Description: Recology Hay Rd Landfill		•		
Input Data				
Chou	Ider width ft			
Lane	widthft	Class I	nighway 📃 Class II	
	widthft			
Shou	lder widthtt	highway 🛄 Class III highway		
		/ Terrain	🗹 Level 📃 Rolling	
Segment length, L <sub>I</sub>	mi	Grade Length		
		Peak-hour fa		
		Show North Arrow % Trucks and		
Analysis direction vol., V <sub>d</sub> 256veh/h		Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V <sub>o</sub> 243veh/h		% Recreation	nal vehicles, P <sub>R</sub> 0%	
5		Access points	΄ Γ	
Shoulder width ft 0.5 Lane Width ft 12.0		Access points	2/110	
Segment Length mi 3.5				
Average Travel Speed				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibi	t 15-11 or 15-12)	1.4	1.4	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit	15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV.ATS</sub> =1/ (1+	P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.973	0.973	
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9)		1.00	1.00	
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,ATS}$	* f <sub>HV.ATS</sub> )	286 271		
Free-Flow Speed from Field		Estimated Fro	ee-Flow Speed	
•			55.0 mi/h	
		Base free-flow speed <sup>4</sup> , BFFS		
Maan anood of complet <sup>3</sup> C		Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.5 mi/h		
Total demand flow rate, both directions, <i>v</i>				
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV,ATS</sub> )	)	Free-flow speed, FFS (FSS=BFI	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/ł	
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15	) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> +	
ip,aro e		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	44.8 mi/f	
		Percent free flow speed, PFFS	89.1 %	
Percent Time-Spent-Following				
, ,		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit	15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit		1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (I		0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g.PTSF</sub> (Exhibit 15-16		1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PT</sub>		280	266	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)		3	31.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21		29.5		
Percent time-spent-following, PTSF <sub>d</sub> (%)=BPTSF			16.1	
v <sub>o,PTSF</sub> )		4	46.1	
Level of Service and Other Performance Mea	sures			
			D	
Level of service, LOS (Exhibit 15-3)		0.17		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	278.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.77
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00,as level terrain is one of t downgrade segments are treated as level terrain.</li> </ol>	he base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	
3. For the analysis direction only and for v>200 veh/h.	

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<b>•</b> • • • •		Y SEGMENT WORK		
General Information		Site Information	05.440	
Analyst JF Agency or Company		Highway / Direction of Travel From/To	SR 113 north of Hay Rd SB	
Date Performed 4/13/2018		Jurisdiction	Caltrans	
Analysis Time Period Exist PM		Analysis Year	2018	
Project Description: Recology Hay Rd Landfill				
Input Data	- 24			
+******				
Shoulder wid		_	_	
Lane width	h	Class I h	nighway 📃 Class II	
Lane width	t	highway 🗌 Class III highway		
Shoulder wid	<u>dth</u> tt	Terrain	Level Rolling	
	-	Grade Length	-	
Segment length, L <sub>t</sub>	_ <sup>mi</sup>	Peak-hour fac		
		No-passing z	one 12%	
Analysis direction vol., V <sub>d</sub> 243veh/h		Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V <sub>o</sub> 256veh/h		% Recreation	al vehicles, P <sub>R</sub> 0%	
Shoulder width ft 0.5		Access points	΄ Γ.	
Lane Width ft 12.0			_/	
Segment Length mi 3.5				
Average Travel Speed				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11	or 15-12)	1.4	1.4	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or	15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}$ =1/ (1+ P <sub>T</sub> (E <sub>T</sub> .	-1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.973	0.973	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)		1.00	1.00	
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,ATS} * f_{HV,AT}$	s)	271 286		
Free-Flow Speed from Field Measur	rement	Estimated Fre	e-Flow Speed	
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł	
		Adj. for lane and shoulder width, <sup>4</sup>	f. (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		-	EG	
Total demand flow rate, both directions, <i>v</i>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )		Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/ł	
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15)	1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	20 //	
, , , , , , , , , , , , , , , , , , ,		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	44.8 111/1	
		Percent free flow speed, PFFS	89.1 %	
Percent Time-Spent-Following				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 c	or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or	15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV}^{}=1/(1+P_{T}^{}(E_{T}^{}-1)+P$	P <sub>R</sub> (E <sub>R</sub> -1))	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 1	5-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i$ =V $_i$ /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PT</sub>		266	280	
Base percent time-spent-following <sup>4</sup> , $BPTSF_{d}(\%)$ =100(1-	e <sup>av</sup> d <sup>b</sup> )	2	9.4	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		29.5		
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,P}$	TSF *(V <sub>d,PTSF</sub> / V <sub>d,PTSF</sub> +	4	3.8	
v <sub>o,PTSF</sub> )				
Level of Service and Other Performance Measures				
Level of service, LOS (Exhibit 15-3)			D	
Volume to capacity ratio, v/c			.16	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	264.1
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.74
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00,as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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General Information		Site Information	
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Hay Rd NB Caltrans
Analysis Time Period	Exist AM	Analysis Year	2018
Project Description: Recology Hay I	Rd Landfill		
Input Data	5.		
	1 Shoulder width tt		
	Lane widthtt		nighway 🔲 Class II
	Lane widthtt	highway 🗌 Class III highway	
	Shoulder width tt		
Analysis direction vol., V <sub>d</sub> 2-	ıgth, L <sub>t</sub> mi	Show North Arrow % Trucks and	ctor, PHF 0.92 one 18%
u u			•
11 0 0		% Recreational vehicles, P <sub>R</sub> 0% Access points <i>mi</i> 2/mi	
Average Travel Speed	,		
J		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.7
Passenger-car equivalents for RVs, I	E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>	$_{ATS}$ =1/(1+P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.973	0.953
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex	xhibit 15-9) 1.00		1.00
Demand flow rate <sup>2</sup> , <i>v<sub>j</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (F	PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	277	162
Free-Flow Speed	from Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
Maan analy of complete S		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
		Free-flow speed, FFS (FSS=BFF	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776 Adj. for no-passing zones, f <sub>np,ATS</sub> (E	1	Average travel speed, ATS <sub>d</sub> =FFS	
		40.7 V <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS 91.6	
Percent Time-Spent-Following		Applycia Direction (d)	Opposing Direction (o)
	E (Exhibit de 40 45 40)	Analysis Direction (d)	
Passenger-car equivalents for trucks		1.1	1.1
Passenger-car equivalents for RVs, I Heavy-vehicle adjustment factor, f <sub>HV</sub>		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>q.PTSF</sub> (E		1.00	1.00
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i/(l)$		271	155
Base percent time-spent-following <sup>4</sup> , I		2	7.8
Adj. for no-passing zone, f <sub>np,PTSF</sub> (E	-	32.0	
Percent time-spent-following, PTSF <sub>d</sub>	(%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	48.2	
v <sub>o,PTSF</sub> ) Level of Service and Other Perforr	nance Measures		
Level of service, LOS (Exhibit 15-3)			С
· · · · · · · · · · · · · · · · · · ·		0.16	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1620
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.6
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	269.6
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.75
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	

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	Oite Information	
General Information Analyst JF	Site Information	00 110
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 south of Hay Rd SB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width tt		
Lane width		
	Class I	highway 📃 Class II
	highway 🗌 Class III highway	
J Shoulder width It	Terrain	✓ Level Rolling
Segment length, L, mi	Grade Lengt	-
Segment length, L <sub>t</sub> mi	V / Peak-hour fa	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 142veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V 248veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access point	' R
Lane Width ft 12.0		
Segment Length mi 8.5		
Average Travel Speed	•	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.7	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.953	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	162 277	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Le</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		EO
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> )
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(v <sub>d,ATS</sub> + 45.7 mi/ł
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	40.7 111/1
	Percent free flow speed, PFFS	90.9 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	155	271
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub> <sup>b</sup>)</sup>	18.9	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	:	32.0
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d + f_{np,PTSF} *(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		30.5
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures	I	
Level of service, LOS (Exhibit 15-3)		С
/olume to capacity ratio, v/c	1 /	0.10

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	90.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, $v_{ m OL}$ (Eq. 15-24) veh/h	154.3
Effective width, Wv (Eq. 15-29) ft	16.13
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.95
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of downgrade segments are treated as level terrain.</li> </ol>	the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) \ge 1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	

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General Information		Site Information	
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To	SR 113 south of Hay Rd NB Caltrans
Analysis Time Period	Exist PM		2018
Project Description: Recology Hay Ro	l Landfill		
Input Data			
	*		
8 <b></b>	Shoulder width tt		—
	Lane width It	Class I h	ighway 📃 Class II
	Lane width ft t	highway	Class III highway
	L Shoulder width ft	Terrain	Level Rolling
<ul> <li>Segment lengt</li> </ul>	h, L <sub>l</sub> mi	Grade Length Peak-hour fac No-passing zo	mi Up/down ctor, PHF 0.92
<b>,</b> 4	veh/h	Show North Arrow % Trucks and	
Opposing direction vol., V <sub>o</sub> 264 Shoulder width ft 0.5	veh/h	Access points	al vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi
Lane Width ft 0.5		Access points	ζ, μη το <b>Δ</b> /1111
Segment Length mi 8.5			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.4
Passenger-car equivalents for RVs, E <sub>R</sub>		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,A</sub>		0.966	0.973
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhi		1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PH	F* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	254	295
Free-Flow Speed fr	om Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/i
		Adj. for lane and shoulder width, <sup>4</sup>	fue (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	
Total demand flow rate, both directions	, <i>V</i>		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i>	/ f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>E</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exh	ibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	6-0.00776(v <sub>d,ATS</sub> + 44.9 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	89.2 %
Percent Time-Spent-Following		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	E <sub>⊤</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub>		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exh		1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(Ph	IF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	247	289
Base percent time-spent-following <sup>4</sup> , BF	$PTSF_{d}(\overline{w})=100(1-e^{av_{d}b})$	2	8.8
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exh	ibit 15-21)	35.9	
	$\Rightarrow = BPTSF_{d} + f_{np,PTSF} * (v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	45.3	
V <sub>o,PTSF</sub> ) Lovel of Sorvice and Other Berforme			
Level of Service and Other Performa	ince weasures		<b>D</b>
Level of service, LOS (Exhibit 15-3)		D 0.15	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, $v_{ m OL}$ (Eq. 15-24) veh/h	245.7
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.71
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o)$ >=1,700 pc/h, terminate analysisthe LOS is F.	
<ol><li>For the analysis direction only and for v&gt;200 veh/h.</li></ol>	

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	Oite Information	
General Information	Site Information	00.440
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 south of Hay Rd SB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period Exist PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data	•	
Shoulder widthft		
	Class I h	nighway 📃 Class II
Lane width tt	highway	Class III highway
Shoulder widthft	Terrain	Level Rolling
•	Grade Length	mi Up/down
Segment length, L <sub>t</sub> mi	Peak-hour fac	
	No-passing ze	one 18%
Analysis direction vol., V <sub>d</sub> 264veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
-	% Recreation	al vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 226veh/h Shoulder width ft 0.5	Access points	΄ Γ.
Lane Width ft 12.0		_/
Segment Length mi 8.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.5
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS} = 1/(1 + P_T(E_T - 1) + P_R(E_R - 1))$	0.973	0.966
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	295	254
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	·	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
Mann encod of communal C	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Total demand flow rate, both directions, v		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	20 //
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	6-0.00776(v <sub>d,ATS</sub> +
προτο	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	44.9 mi/h
	Percent free flow speed, PFFS	89.2 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>a,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	289	247
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	3	1.0
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)	35.9	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	5	0.4
v <sub>o,PTSF</sub> )	5	<b></b> т
Level of Service and Other Performance Measures	<u>.</u>	
Level of service, LOS (Exhibit 15-3)		D
/olume to capacity ratio, v/c	0.17	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	287.0
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.79
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for $v_2 200 \text{ yeb/h}$	

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	Y SEGMENT WORK	_
General Information	Site Information	Llov Dd
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 EB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width	Class   h	nighway 📃 Class II
Shoulder widtht	highway	Class III highway
	/ Terrain	Level Rolling
Segment length, L <sub>I</sub> mi	Grade Length	
	Peak-hour fac	ctor, PHF 0.92
	Show North Arrow % Trucks and	
Analysis direction vol., V <sub>d</sub> 44veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
-	% Recreation	al vehicles, P <sub>R</sub> 0%
	Access points	Υ R
Shoulder width ft 1.0 Lane Width ft 12.0	700033 points	//110
Segment Length mi 0.7		
Average Travel Speed		
- •	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV.ATS</sub> =1/ (1+ P <sub>7</sub> (E <sub>7</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.941	0.941
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	51	29
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
· · · · · · · · · · · · · · · · · · ·		
	Base free-flow speed <sup>4</sup> , BFFS	. 55.0 mi/ł
Mean speed of sample <sup>3</sup> , S <sub>EM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	<sup>1</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
Total demand flow rate, both directions, <i>v</i>		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>-</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/ł
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 49.7 mi/ł
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	+9.7 1101
	Percent free flow speed, PFFS	98.3 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v</i> <sub>/</sub> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	48	27
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )		5.9
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	29.7	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} +$		24.9
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
_evel of service, LOS (Exhibit 15-3)		С
/olume to capacity ratio, v/c	0.03	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	98.3
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	47.8
Effective width, Wv (Eq. 15-29) ft	23.14
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.98
Bicycle level of service (Exhibit 15-4)	С
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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		SHEET
General Information	Site Information	Llav Dd
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 WB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width	Class I I	nighway 🔲 Class II
Lane widtht		
Shoulder widtht	nignway 🛄	Class III highway
	/ Terrain	🗹 Level 📃 Rolling
Segment length, L <sub>I</sub> mi	Grade Length	
	Peak-hour fa	ctor, PHF 0.92
	Show North Arrow % Trucks and	
Analysis direction vol., V <sub>d</sub>	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 25veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $1.0$	Access points	Υ <b>Γ</b>
Lane Width ft 12.0		
Segment Length mi 0.7		
Average Travel Speed	-	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	51 29	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	
		55.0  mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	<sup>1</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
	Free-flow speed, FFS (FSS=BFI	=S-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV,ATS</sub> )		20 / (
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 49.7 mi/h
· · · · · ·	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	49.7 111/1
	Percent free flow speed, PFFS	98.3 %
Percent Time-Spent-Following		
· · · · · · · · · · · · · · · · · · ·	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	48	27
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )		5.9
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	29.7	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		24.9
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
	0.03	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	98.3
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	47.8
Effective width, Wv (Eq. 15-29) ft	23.14
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.98
Bicycle level of service (Exhibit 15-4)	С
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h.	

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	Y SEGMENT WORK	
General Information	Site Information	Llav Dd
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 EB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period Exist PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width	Class I I	nighway 📃 Class II
Lane widtht		
Shoulder widtht	nignway 🛄	Class III highway
	/ Terrain	🗹 Level 📃 Rolling
Segment length, L <sub>I</sub> mi	Grade Length	
	Peak-hour fa	ctor, PHF 0.92
	Show North Arrow % Trucks and	
Analysis direction vol., V <sub>d</sub>	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 32veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $1.0$	Access points	Υ <b>Γ</b>
Lane Width ft 12.0		
Segment Length mi 0.7		
Average Travel Speed	-	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	66 37	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed Base free-flow speed <sup>4</sup> , BFFS 55.0	
		<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	20
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
	Free-flow speed, FFS (FSS=BFI	FS-f <sub>10</sub> -f <sub>1</sub> ) 50.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV,ATS</sub> )		20 / 1
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 49.5 mi/h
· · · · · ·	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	49.0 11/1
	Percent free flow speed, PFFS	98.0 %
Percent Time-Spent-Following		
· · · · · · · · · · · · · · · · · · ·	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	62	35
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )		7.5
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)	29.6	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		26.4
v <sub>o,PTSF</sub> )		-v. 7
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
	0.04	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	98.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	62.0
Effective width, Wv (Eq. 15-29) ft	22.30
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	3.30
Bicycle level of service (Exhibit 15-4)	С
Notes	
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	

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General Information	Site Information	Llov Dd
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 WB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period Exist PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width ft		
Lane width		
	Class I h	nighway 📃 Class II
Lane widtht Shoulder width tt	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
<ul> <li>Segment length, L, mi</li> </ul>	Grade Length	•
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 32veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 57veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $1.0$	Access points	Υ R
Lane Width ft 12.0		
Segment Length mi 0.7		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	2.6	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.1	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.899	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	0.78	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	50 66	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed Base free-flow speed <sup>4</sup> , BFFS 55.0	
	Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	it 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>-</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/ł
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	G-0.00776(v <sub>d,ATS</sub> + 49.4 mi/ł
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	10.1 11.
	Percent free flow speed, PFFS	97.8 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	35	62
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub>b</sup> )	· · · · · ·	4.4
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	2	29.6
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	1	5.1
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures	1	-
Level of service, LOS (Exhibit 15-3)		С
/olume to capacity ratio, v/c	0.03	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1192
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	97.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	34.8
Effective width, Wv (Eq. 15-29) ft	23.92
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.64
Bicycle level of service (Exhibit 15-4)	С
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> <li>Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a</li> </ol>	specific downgrade.

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information	Site Information	
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of Porter Rd EB Solano County
Analysis Time Period Exist + Project AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		highway 🗌 Class II
Lane width		
t Shoulder widthtt	highway Terrain	Class III highway
Segment length, L <sub>t</sub> mi	Grade Lengtl Peak-hour fa No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 224veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 291veh/h	% Recreation Access point	nal vehicles, P <sub>R</sub> 0% s <i>mi</i>
Shoulder width ft3.0Lane Width ft12.0Segment Length mi2.0	Access point	5 ////
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.966	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	252 325	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS 55.0 mi	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 m	
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS-0.00776(v <sub>d,ATS</sub> + 46.4 m	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS 88.9 %	
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (c)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	Analysis Direction (d)	Opposing Direction (o) 1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.993	0.993
Grade adjustment factor <sup>1</sup> , $f_{q,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , $v_i(pc/h) v_i = V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	245	319
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	28.8	
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)	38.3	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	+	
V <sub>o,PTSF</sub> )	45.4	
Level of Service and Other Performance Measures	•	
Level of service, LOS (Exhibit 15-3)	С	
Volume to capacity ratio, v/c	0.15	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	88.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	243.5
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.36
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> </ol>	

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General Information	Site Information	
General Information	Highway / Direction of Travel	Midway Rd
Adaiyst Jr Agency or Company	From/To	west of Porter Rd WB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
T Shoulder width tt		
Lane width		
Lane width		highway 📃 Class II
Shoulder width tt	highway	Class III highway
	Terrain	🗹 Level 📃 Rolling
Segment length, L <sub>l</sub> mi	Grade Lengt	-
Segment lengur, L	Peak-hour fa	
	Show North Arrow % Trucks an	
Analysis direction vol., V <sub>d</sub> 291veh/h	% Trucks an	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V 224veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0	Access point	i v
Lane Width ft 12.0	, i i i i i i i i i i i i i i i i i i i	
Segment Length mi 2.0		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.5
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.966
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	325 252	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/h
,	Average travel speed, ATS <sub>d</sub> =FF	20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.4 mi/h		46.3 mi/r
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	88.8 %
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)
	• • • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	319	245
Base percent time-spent-following <sup>4</sup> , $BPTSF_d(\%)=100(1-e^{av_d^b})$	33.6	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		38.3
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $		55.3
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)	С	
Volume to capacity ratio, v/c	0.19	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	88.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	316.3
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.49
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the downgrade segments are treated as level terrain.</li> </ol>	base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information		Site Information	
Analyst JF Agency or Company Date Performed 10/8/ <sup>-</sup>		Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of Porter Rd EB Solano County
Analysis Time Period Exist Project Description: Recology Hay Rd Landfil	plus Project PM	Analysis Year	2018
Input Data	1		
	oulderwidthtt newidth tt		_
<u> </u>	e width It		nighway 📃 Class II
	oulder widthft	highway	Class III highway
Segment length, L <sub>t</sub>	mi	Terrain Grade Length Peak-hour fav No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 303veh/h		Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 274veh/h Shoulder width ft 3.0 Lane Width ft 12.0		% Recreation Access points	al vehicles, P <sub>R</sub> 0% s <i>mi</i> 1/mi
Segment Length mi 2.0 Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhi	bit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibi	t 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,ATS</sub> =1/ (1	+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.973	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9	)	1.00	1.00
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,AT}$	s <sup>* f</sup> HV,ATS)	338	306
Free-Flow Speed from Fiel	d Measurement	Estimated Fre	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS 55.0 mi/	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Total demand flow rate, both directions, $v$		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.AT</sub>	<sub>S</sub> )	Free-flow speed, FFS (FSS=BFF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-1	5) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	6-0.00776(v <sub>d,ATS</sub> + 45.8 mi/h
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	87.9 %
Percent Time-Spent-Following		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhit	nit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, $E_{R}$ (Exhibit		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P-		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-1		1.00	1.00
Directional flow rate <sup>2</sup> , $v_i(\text{pc/h}) v_i = V_i/(\text{PHF*f}_{\text{HV,F}})$		332	300
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%		35.7	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-2		37.9	
Percent time-spent-following, PTSF <sub>d</sub> (%)=BPTS		+ 55.6	
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Me	asures	1	<u>^</u>
Level of service, LOS (Exhibit 15-3)		C 0.20	
Volume to capacity ratio, <i>v/c</i>		L	.20

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	87.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	329.3
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, S <sub>f</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.51
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information	Site Information	
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of Porter Rd WB Solano County
Analysis Time Period Exist plus Project PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width ft		_
Lane widthtt	Class I h	nighway 📃 Class II
Lane width It	highway	Class III highway
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fac	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 274veh/h	Show North Arrow % Trucks and	
Opposing direction vol., V <sub>o</sub> 303veh/h Shoulder width ft 3.0	% Recreation Access points	al vehicles, P <sub>R</sub> 0% s <i>mi</i> 1/mi
Lane Width ft 12.0 Segment Length mi 2.0		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	306 338	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	it 15-8) 0.3 <i>mi/h</i>
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>-</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 45.9 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	87.9 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , $v_i(\text{pc/h}) v_i = V_i/(\text{PHF}^* f_{\text{HV,PTSF}} * f_{g,\text{PTSF}})$	300 332	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	33.3	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	37.9	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF}+$	51.3	
V <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures Level of service, LOS (Exhibit 15-3)	С	
Volume to capacity ratio, v/c	0.18	
	<b>+</b>	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	87.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	297.8
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.46
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>For the analysis coefficients a and b for Equation 15-10</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information	Site Information	
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of SR 113 EB Solano County
Analysis Time Period Exist + Project AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill Input Data		
Shoulder width ft Lane width ft	Class I f	nighway 🗌 Class II
Lane width It	highway 🗌	Class III highway
Segment length, L <sub>t</sub> mi	Terrain Grade Length Peak-hour fai	Level Rolling mi Up/down ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 183veh/h	Show North Arrow % Trucks and	one 13%
Opposing direction vol., V <sub>o</sub> 155veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0 Lane Width ft 12.0 Segment Length mi 2.0	Access points	s <i>mi 2/</i> mi
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.6
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.966	0.960
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	206	175
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS 55.0 mi/h	
Maan around of commula <sup>3</sup>	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	-S-f <sub>IS</sub> -f <sub>Δ</sub> ) 51.9 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15)1.1 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	20 //
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	92.3 %
Percent Time-Spent-Following	T	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	200	170
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	21.5	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	29.6	
Percent time-spent-following, $PTSF_{d}$ (%)= $BPTSF_{d}$ +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	+ 37.5	
V <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures Level of service, LOS (Exhibit 15-3)	1	С
Volume to capacity ratio, v/c	0.12	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1632
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	92.3
Bicycle Level of Service	
Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h	198.9
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.26
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Explicit 15.20 requires exception to a and b for Equation 15.10	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information	neral Information Site Information	
Analyst JF	Highway / Direction of Travel From/To	Midway Rd west of SR 113 WB
Agency or Company Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period Exist + Project AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill Input Data		
Shoulder width ft		
Lane width	Class I h	nighway 🔲 Class II
Lane width It	highway 🗌	Class III highway
	Terrain	Level Rolling
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fac No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 155veh/h	Show North Arrow % Trucks and	Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 183veh/h		al vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0 Lane Width ft 12.0	Access points	s <i>mi 2</i> /mi
Segment Length mi 2.0		
Average Travel Speed	An aluaia Dinastian (1)	Organization Direction (c)
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.6	1.5
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.960	0.966
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	175	206
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 51.9 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 47.6 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	91.8 %
Percent Time-Spent-Following	-	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> (PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	170	200
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	18.7	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	29.6	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	+ 32.3	
V <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		<u>^</u>
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, v/c	C 0.10	
	0.10	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	168.5
Effective width, Wv (Eq. 15-29) ft	18.38
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.61
Bicycle level of service (Exhibit 15-4)	E
Notes	
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the b downgrade segments are treated as level terrain.	ase conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>For the transvides coefficients a and b for Foruction 15, 10</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information	Site Information	
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of SR 113 EB Solano County
Analysis Time Period Exist plus Projcet PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft Lane width ft	Class I	nighway 🔲 Class II
Lane width tt		Class III highway
Shoulder width tt		
Segment length, L <sub>t</sub> mi	Terrain Grade Length Peak-hour fac No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 50veh/h	Show North Arrow % Trucks and	I Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 116veh/h Shoulder width ft 3.0 Lane Width ft 12.0 Segment Length mi 2.0	% Recreation Access points	al vehicles, P <sub>R</sub> 0% s <i>mi 2</i> /mi
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.8
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941 0.947	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	58	133
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS 55.0 r	
	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 51.9 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.6 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	20 //
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	95.9 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> (PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	55	127
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	6.7	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	21.8	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 13.3	
V <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)	С	
Volume to capacity ratio, v/c	0.03	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1610
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	95.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	54.3
Effective width, Wv (Eq. 15-29) ft	26.25
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.27
Bicycle level of service (Exhibit 15-4)	В
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the t downgrade segments are treated as level terrain.</li> </ol>	base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of SR 113 WB Solano County	
Analysis Time Period Exist plus Project PM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill			
Input Data			
Shoulder width ftt Lane widthtt		nighway 🗌 Class II	
Lane widthtt		<b>o</b>	
Shoulder width tt		Class III highway	
■Segment length, L <sub>t</sub> mi	Terrain Grade Length Peak-hour fa No-passing z	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 116veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
Opposing direction vol., Vo50veh/hShoulder width ft3.0Lane Width ft12.0Segment Length mi2.0	% Recreation Access points	nal vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi	
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.8	1.9	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.947	0.941	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00 1.00		
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	133	58	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0		
Many and of complete O	Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFFS- $f_{IS}$ - $f_A$ ) 51.		
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	20 / (	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	96.5 %	
Percent Time-Spent-Following	1	1	
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	127	55	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	14.4		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	21.8		
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	+ 29.6		
V <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures		D	
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, v/c	B 0.08		
· · · · · · · · · · · · · · · · · · ·			

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	126.1
Effective width, Wv (Eq. 15-29) ft	21.30
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	3.88
Bicycle level of service (Exhibit 15-4)	D
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Midway Rd NB Caltrans	
Analysis Time Period         Exist + Project AM           Project Description:         Recology Hay Rd Landfill	Analysis Year	2018	
Input Data			
Shoulder width ft Lane width ft	Class I I	nighway 🗌 Class II	
Lane width tt	highway	Class III highway	
	Terrain	✓ Level	
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fa No-passing z	n mi Up/down ctor, PHF <i>0.92</i>	
Analysis direction vol., V <sub>d</sub> 143veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V <sub>o</sub> 129veh/h		nal vehicles, P <sub>R</sub> 0%	
Shoulder width ft 0.5 Lane Width ft 12.0	Access points	s <i>mi 2</i> /mi	
Segment Length mi 3.5			
Average Travel Speed	•		
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.7	1.7	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.953	0.953	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	163	147	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed		
	Base free-flow speed <sup>4</sup> , BFFS 55.0 m		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) <i>4.2 mi/h</i>	
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	<sup>-</sup> S-f <sub>I S</sub> -f <sub>A</sub> ) 50.3 mi/h	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.7 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 47.2 mi/h	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	93.8 %	
Percent Time-Spent-Following	· · · · · · · · · · · · · · · · · · ·		
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> (PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	157	141	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	17.4		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	25.8		
Percent time-spent-following, $PTSF_{d}$ (%)= $BPTSF_{d}$ +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	+ 31.0		
V <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures Level of service, LOS (Exhibit 15-3)	el of Service and Other Performance Measures		
Volume to capacity ratio, v/c	C 0.10		
counter to outputing ratio, no	+		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1620
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	93.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	155.4
Effective width, Wv (Eq. 15-29) ft	16.06
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.96
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Midway Rd SB Caltrans	
Analysis Time Period Exist + Project AM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill Input Data			
Shoulder width ft		nighway 🔲 Class II	
Lane widthtt			
t Shoulder widthtt		Class III highway	
• Segment length, L <sub>t</sub> mi	Terrain Grade Length Peak-hour fai No-passing z	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 129veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V <sub>o</sub> 143veh/h Shoulder width ft 0.5 Lane Width ft 12.0	% Recreation Access points	nal vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi	
Segment Length mi 3.5			
Average Travel Speed	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.7	1.7	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.953	0.953	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	147	163	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0 mi		
Maan around of complete S	Adj. for lane and shoulder width, <sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 m		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	=S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/h	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.8 mi/h	Average travel speed, ATS <sub>d</sub> =FFS-0.00776(v <sub>d,ATS</sub> + 47.0		
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	93.5 %	
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , $v_i(pc/h) v_i = V_i/(PHF^*f_{HV,PTSF}^*f_{g,PTSF})$	141	157	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	15.9		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	25.8		
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 28.1		
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures	1	<u></u>	
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, <i>v/c</i>	C 0.09		
Volume to supulity ratio, we	0.09		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1620
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	93.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	140.2
Effective width, Wv (Eq. 15-29) ft	16.94
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.77
Bicycle level of service (Exhibit 15-4)	E
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one downgrade segments are treated as level terrain.	of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Midway Rd NB Caltrans	
Analysis Time Period Exist plus Project PM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill Input Data			
Shoulder width ftLane width ft	Class I h	nighway 📃 Class II	
Lane width tt		Class III highway	
Letter Shoulder width ft	Terrain	Level Rolling	
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fau No-passing z	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 197veh/h	Show North Arrow % Trucks and		
Opposing direction vol., V <sub>o</sub> 186veh/h Shoulder width ft 0.5	Access points	al vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi	
Lane Width ft     12.0       Segment Length mi     3.5		2	
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.5	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.966	0.966	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	222	209	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed		
	Base free-flow speed <sup>4</sup> , BFFS 55.0 m		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h	
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/h	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	6-0.00776(v <sub>d,ATS</sub> + 45.7 mi/h	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	90.9 %	
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , $v_i(pc/h) v_i = V_i/(PHF^*f_{HV,PTSF}^*f_{g,PTSF})$	216	204	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	22.9		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	30.4		
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 38.5		
v <sub>o,PTSF</sub> )			
	evel of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, <i>v/c</i>		C	
	0.13		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	90.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, $v_{ m OL}$ (Eq. 15-24) veh/h	214.1
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.64
Bicycle level of service (Exhibit 15-4)	
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is o downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Midway Rd SB Caltrans	
Analysis Time Period Exist plus Projcet PM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill			
Input Data			
Shoulder widthftLane widthft	✓ Class I	nighway 🔲 Class II	
		Class III highway	
t_Shoulder widthtt _	Terrain	Level Rolling	
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour far No-passing z	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 186veh/h	Show North Arrow % Trucks and		
Opposing direction vol., V <sub>o</sub> 197veh/h	% Recreation Access points	nal vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi	
Shoulder width ft0.5Lane Width ft12.0Segment Length mi3.5		2/111	
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.5	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.966	0.966	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	209 222		
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0 <i>n</i>		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h	
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFFS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3		
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS-0.00776(v <sub>d,ATS</sub> + 45.7		
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	91.0 %	
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	204	216	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	22.9		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	30.4		
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	+ 37.7		
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures			
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, <i>v/c</i>	C 0.12		
volume to capacity ratio, v/c			

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	202.2
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.61
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	eneral Information Site Information		
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 north of Hay Rd NB	
Date Performed 10/8/18	Jurisdiction	Caltrans	
Analysis Time Period         Exist + Project AM           Project Description:         Recology Hay Rd Landfill	Analysis Year	2018	
Input Data			
Shoulder widthft			
Lane width		nighway 📃 Class II	
Shoulder width tt	highway	Class III highway	
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fa	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 258veh/h	Show North Arrow % Trucks and		
Opposing direction vol., V <sub>o</sub> 177veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%	
Shoulder width ft 0.5	Access points	s <i>mi</i> 2/mi	
Lane Width ft 12.0 Segment Length mi 3.5			
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.5	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.966	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	288 199		
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed		
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h	
Many and of complete O	Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFFS-f <sub>LS</sub> -f <sub>A</sub> ) 5 Average travel speed, ATS <sub>4</sub> =FFS-0.00776(v <sub>d ATS</sub> +		
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) 1.2 mi/h			
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	90.1 %	
Percent Time-Spent-Following	,,		
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	282	194	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	28.8		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	27.9		
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 45.3		
V <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures	1		
Level of service, LOS (Exhibit 15-3)	C 0.17		
Volume to capacity ratio, v/c	0.17		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	90.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	280.4
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, S <sub>f</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.77
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 north of Hay Rd SB	
Analysis Time Period Exist + Project AM	Analysis Year	Caltrans 2018	
Project Description: Recology Hay Rd Landfill			
Input Data			
Shoulder width			
Lane width tt			
Lane width		nighway 📃 Class II	
Shoulder width tt	highway 🗌	Class III highway	
	/ Terrain	Level Rolling	
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fav No-passing z	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 177veh/h	Show North Arrow % Trucks and	•	
Opposing direction vol., V <sub>o</sub> 258veh/h	% Recreation Access points	nal vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi	
Shoulder width ft 0.5 Lane Width ft 12.0		2/11	
Segment Length mi 3.5			
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.4	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.966	0.973	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00 1.00		
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	199 288		
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed		
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h	
Maan around of commula <sup>3</sup>	Adj. for lane and shoulder width, <sup>2</sup>	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7)   4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	-S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/h	
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	LO A	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS		
Percent Time-Spent-Following	Percent nee now speed, PFFS	90.2 %	
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	194	282	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	22.6		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	27.9		
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} +$	+ 34.0		
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures			
Level of service, LOS (Exhibit 15-3)	С		
Volume to capacity ratio, v/c	0.12		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	90.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	192.4
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.58
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is of downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information	Site Information	
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 north of Hay Rd NB Caltrans
Analysis Time Period Exist plus Project PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width		
Lane width		nighway 🔲 Class II
Lane width	_	
Shoulder width ft		Class III highway
Segment length, L <sub>t</sub> mi	Terrain Grade Length Peak-hour fau No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 270veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., Vo244veh/hShoulder width ft0.5Lane Width ft12.0Segment Length mi3.5	% Recreation Access points	nal vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi
Segment Length mi 3.5 Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,ATS} * f_{HV,ATS}$ )	302 273	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS 55.0 m	
Management of a much 3	Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	=S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/h
Adj. for no-passing zones, f np,ATS (Exhibit 15-15)1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	20 / 1
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	88.8 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T$ -1)+ $P_R(E_R$ -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	296	267
Base percent time-spent-following <sup>4</sup> , $BPTSF_d(\%)=100(1-e^{av}d^b)$	32.4	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	29.2	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 47.8	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		0
Level of service, LOS (Exhibit 15-3)	D 0.12	
Volume to capacity ratio, v/c	0.18	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	88.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	293.5
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.80
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information	Site Information	
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 north of Hay Rd SB Caltrans
Analysis Time Period Exist plus Project PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width ft		
Lane width tt	Class I I	nighway 🔲 Class II
Lane widthtt	highway	Class III highway
t Shoulder widthtt	Terrain	Level Rolling
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fa No-passing z	n mi Up/down ctor, PHF <i>0.92</i>
Analysis direction vol., V <sub>d</sub> 244veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 270veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft 0.5	Access points	s <i>mi</i> 2/mi
Lane Width ft 12.0 Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973 0.973	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	273	302
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFFS- $f_{IS}$ - $f_A$ ) 50.	
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15)1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	20 / (
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	88.8 %
Percent Time-Spent-Following	r crocht nee new speed, i i i o	00.0 /0
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	267	296
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	30.3	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	29.2	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 44.1	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures	1	_
Level of service, LOS (Exhibit 15-3)	D	
Volume to capacity ratio, v/c	0.16	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	88.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h	265.2
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.75
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the downgrade segments are treated as level terrain.</li> </ol>	base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>For the analysis direction only</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Hay Rd NB Caltrans	
Analysis Time Period Exist + Project AM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill			
Input Data			
Shoulder width ft		nighway 📃 Class II	
Lane width			
Shoulder width ft	highway Terrain	Class III highway	
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour far No-passing z	ctor, PHF 0.92	
Analysis direction vol., V <sub>d</sub> 250veh/h	Show North Arrow % Trucks and		
Opposing direction vol., V <sub>o</sub> 144veh/h Shoulder width ft 0.5	% Recreation Access points	nal vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi	
Lane Width ft 12.0 Segment Length mi 8.5			
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.7	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.953	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	279 164		
Free-Flow Speed from Field Measurement		ee-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0 m		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 m		
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	=S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/h	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.9 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 46.0 mi/h	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	91.5 %	
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>a.PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	274	158	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	28.1		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	32.1		
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 48.5		
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures	1		
Level of service, LOS (Exhibit 15-3)	C		
Volume to capacity ratio, v/c	0.16		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1620
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	271.7
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.76
Bicycle level of service (Exhibit 15-4)	F
Notes	
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information	Site Information		
Analyst JF	Highway / Direction of Travel	SR 113	
Agency or Company Date Performed 10/8/18	From/To Jurisdiction	south of Hay Rd SB Caltrans	
Analysis Time Period Exist + Project AM	Analysis Year	2018	
Project Description: Recology Hay Rd Landfill			
Input Data	r		
Shoulder width ft			
Lane widthtt	Class I I	nighway 🔲 Class II	
Lane width tt		Class III highway	
Letter Shoulder widthft	Terrain	Level Rolling	
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour fav No-passing z	n mi Up/down ctor, PHF <i>0.92</i>	
Analysis direction vol., V <sub>d</sub> 144veh/h	Show North Arrow % Trucks and	Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V <sub>o</sub> 250veh/h		al vehicles, P <sub>R</sub> 0%	
Shoulder width ft 0.5 Lane Width ft 12.0	Access points	s <i>mi 2/</i> mi	
Segment Length mi 8.5			
Average Travel Speed	-		
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.7	1.4	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.953	0.973	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	164 279		
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed		
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 m		
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	-S-f <sub>IS</sub> -f <sub>Δ</sub> ) 50.3 mi/h	
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS-0.00776(v <sub>d ATS</sub> +		
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	90.8 %	
Percent Time-Spent-Following	reicent liee now speed, FFF3	90.0 /6	
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	158	274	
Base percent time-spent-following <sup>4</sup> , $BPTSF_{d}(\%)=100(1-e^{av_{d}}^{b})$	19.2		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	32.1		
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 30.9		
v <sub>o,PTSF</sub> )			
	vel of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, v/c	С		
	0.10		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	90.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	156.5
Effective width, Wv (Eq. 15-29) ft	16.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.98
Bicycle level of service (Exhibit 15-4)	E
Notes	•
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one downgrade segments are treated as level terrain.	of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>For the analysis direction only</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
eneral Information Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Hay Rd NB Caltrans
Analysis Time Period Exist plus Project PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder widthfttttt		nighway 📃 Class II
Lane widthtt		• •
t Shoulder widthtt	Terrain	Class III highway
Segment length, L <sub>t</sub> mi	Grade Length Peak-hour far No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 226veh/h	Show North Arrow % Trucks and	
Opposing direction vol., V <sub>o</sub> 268veh/h	% Recreation Access points	al vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi
Shoulder width ft0.5Lane Width ft12.0Segment Length mi8.5		2/111
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.966	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	254 299	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS 55.0 m	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>2</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 <i>mi/h</i>
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFFS- $f_{1S}$ - $f_{\Delta}$ ) 50.3	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 44.8 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	89.2 %
Percent Time-Spent-Following	Analysia Direction (d)	Opposing Direction (c)
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0 0.993	1.0 0.993
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.00	1.00
Grade adjustment factor <sup>1</sup> , $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i$ = $V_i$ (PHF* $f_{HV,PTSF}$ * $f_{g,PTSF}$ )	247	293
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )		
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)	28.6 35.8	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		
	45.0	
v <sub>o,PTSF</sub> ) Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		
Volume to capacity ratio, v/c	(	0.15
	+	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	245.7
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.71
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	SR 113 south of Hay Rd SB Caltrans
Analysis Time Period Exist plus Project PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		nighway 🗌 Class II
Lane width		<b>o</b>
Shoulder width ft		Class III highway
Segment length, L <sub>t</sub> mi	Terrain Grade Length Peak-hour fa No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 268veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 226veh/h Shoulder width ft 0.5 Lane Width ft 12.0 Segment Length mi 8.5	% Recreation Access point	nal vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.5
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.966
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00 1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	299 254	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	-S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 44.8 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	89.1 %
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (a)
Decompose con equivalente for trucko E (Euclidit 45.40 co 45.40)	Analysis Direction (d) 1.1	Opposing Direction (o) 1.1
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)		
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0 0.993	1.0 0.993
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.00	1.00
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17) Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	293	247
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )		247
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)	37.3	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+$		
$V_{o,PTSF}$ (V <sub>o,PTSF</sub> )	50.7	
Level of Service and Other Performance Measures	<u>I</u>	
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, <i>v/c</i>	(	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	291.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.79
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	Hay Rd west of SR 113 EB Solano County
Analysis Time Period Exist + Project AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width ft		nighway 🗌 Class II
Lane width		<b>o</b> ,
Shoulder width ft	highway 🛄	Class III highway
Segment length, L <sub>t</sub> mi	Show North Arrow % Trucko apo	ctor, PHF 0.92 one 20%
Analysis direction vol., V <sub>d</sub> 81veh/h	Show North Arrow % Trucks and	I Buses , P <sub>T</sub> 7 %
Opposing direction vol., Vo65veh/hShoulder width ft1.0Lane Width ft12.0Segment Length mi0.7	% Recreation Access points	al vehicles, P <sub>R</sub> 0% s <i>mi</i> 1/mi
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00 1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	94	75
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 49.0 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	96.9 %
Percent Time-Spent-Following	An churcie Dine stiene (d)	Ormanian Dimention (a)
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	89	71
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	10.5	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	30.0	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 27.2	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		C
Volume to capacity ratio, v/c	0.05	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	88.0
Effective width, Wv (Eq. 15-29) ft	20.74
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	3.82
Bicycle level of service (Exhibit 15-4)	D
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the downgrade segments are treated as level terrain.	base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10</li> </ol>	

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General Information	Site Information	
Analyst JF	Highway / Direction of Travel	Hay Rd
Adaiyst Jr Agency or Company	From/To	west of SR 113 WB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period Exist AM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data		
T Shoulder width tt		
Lane width		
Lane width	Class I	nighway 📃 Class II
Shoulder width tt	highway	Class III highway
	Terrain	Level Rolling
Segment length, L	Grade Length	-
Segment lengui, L	Peak-hour fa	ctor, PHF 0.92
	Show North Arrow % Trucks and	
Analysis direction vol., V <sub>d</sub> 65veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V 81veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $1.0$	Access points	Υ <b>R</b>
Lane Width ft 12.0	point	
Segment Length mi 0.7		
Average Travel Speed		•
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	75	94
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0	
	Adj. for lane and shoulder width,	<sup>4</sup> f. (Exhibit 15-7) <i>4.2 mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8)	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	FS-f <sub>1 S</sub> -f <sub>A</sub> ) 50.5 mi/h
		20 / 1
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	49.0 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	96.9 %
Percent Time-Spent-Following	· · · · · · · · · · · · · · · · · · ·	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	71	89
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	8.5	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	30.0	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF}+$		21.8
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures	• • • • • • • • • • • • • • • • • • •	
Level of service, LOS (Exhibit 15-3)		С
Volume to capacity ratio, v/c	(	0.04

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	70.7
Effective width, Wv (Eq. 15-29) ft	21.77
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	3.49
Bicycle level of service (Exhibit 15-4)	С
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information Site Information		
Analyst JF Agency or Company Date Performed 10/8/18	Highway / Direction of Travel From/To Jurisdiction	Hay Rd west of SR 113 EB Solano County
Analysis Time Period Exist plus Project PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill Input Data		
Shoulder width         ft           Lane width         tt           Lane width         ft           Shoulder width         ft	Class I highway	Class III highway
Segment length, L <sub>t</sub> mi	Show North Arrow % Trucks and	ctor, PHF 0.92 one 20%
Analysis direction vol., V <sub>d</sub> 75veh/h         Opposing direction vol., V <sub>o</sub> 33veh/h         Shoulder width ft       1.0         Lane Width ft       12.0         Segment Length mi       0.7		al vehicles, P <sub>R</sub> 0%
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00 1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	87 38	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>2</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.3	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/h
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS-0.00776(v <sub>d,ATS</sub> + 49	
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	97.6 %
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	82	36
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	9.7	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	28.2	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	+ 29.3	
V <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures	1	<u>^</u>
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, v/c	C 0.05	
	0.05	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	97.6
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	81.5
Effective width, Wv (Eq. 15-29) ft	21.13
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	3.70
Bicycle level of service (Exhibit 15-4)	D
Notes	
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the b downgrade segments are treated as level terrain.	base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>For the analysis coefficients a and b for Equation 15-10</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET		
General Information Site Information		
Analyst JF	Highway / Direction of Travel	Hay Rd
Agency or Company Date Performed 10/8/18	From/To Jurisdiction	west of SR 113 WB Solano County
Analysis Time Period Exist plus Project PM	Analysis Year	2018
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width ft		
Lane width	✓ Class L	nighway 🔲 Class II
Lane width Ht.		Class III highway
t Shoulder widthtt		
•Segment length, L <sub>t</sub> mi	Terrain Grade Length Peak-hour fav No-passing z	ctor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 33veh/h	Show North Arrow % Trucks and	Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 75veh/h		al vehicles, P <sub>R</sub> 0%
Shoulder width ft 1.0 Lane Width ft 12.0	Access points	s <i>mi 1</i> /mi
Segment Length mi 0.7		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	2.6	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.1	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.899	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	0.78 1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	51 87	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS 55.0	
	Adj. for lane and shoulder width, <sup>4</sup>	f <sub>IS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	
Total demand flow rate, both directions, $v$	Free-flow speed, FFS (FSS=BFF	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )		20 / 1
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	3-0.00776(v <sub>d,ATS</sub> + 49.2 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	97.4 %
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks E (Evhibit 15.18 or 15.10)	1.0	1.1
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19) Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	0.993
Grade adjustment factor <sup>1</sup> , $f_{q,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , $v_{i}(\text{pc/h}) v_{i} = V_{i}/(\text{PHF*f}_{\text{HV,PTSF}} * f_{g,\text{PTSF}})$	36	82
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	4.5	
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)	28.2	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+$	+	
V <sub>o,PTSF</sub> )	1	3.1
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
Volume to capacity ratio, v/c	C	0.03

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1192
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	97.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	35.9
Effective width, Wv (Eq. 15-29) ft	23.85
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.67
Bicycle level of service (Exhibit 15-4)	С
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of th downgrade segments are treated as level terrain.</li> </ol>	e base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only	

4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information		Site Information	
Analyst	JF	Highway / Direction of Travel	Midway Rd
Agency or Company	51	From/To	west of Porter Rd EB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	AM	Analysis Year	Cumulative
Project Description: Recology Hay Ro	Landfill		
Input Data	2.4	1	
	1 Shoulder width tt		
	Lane width		
	<u>*</u>	Class I I	highway 📃 Class II
	Lane widthtt	highway 🗌	Class III highway
	Shoulder width ft	Terrain	Level Rolling
• Commentations		Grade Length	
Segment lengt	h, L <sub>t</sub> mi	Peak-hour fa	ctor, PHF 0.92
		No-passing z	one 22%
Analysis direction vol., V <sub>d</sub> 245	veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7%
ų	veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 385 Shoulder width ft 3.0	v01//11	Access points	
Lane Width ft 12.0			//110
Segment Length mi 2.0			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	T (Exhibit 15-11 or 15-12)	1.4	1.3
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,A</sub> -	$_{TS}$ =1/(1+P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.973	0.979
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhi	bit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )		274	427
Free-Flow Speed fr	om Field Measurement	Estimated Fr	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	20
Total demand flow rate, both directions	V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
		Free-flow speed, FFS (FSS=BFI	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v	,		LO A
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exh	ibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 45.5 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	87.3 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.0
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1	/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exh	ibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PF	IF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	268	418
Base percent time-spent-following <sup>4</sup> , BF	PTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	32.3	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exh	ibit 15-21)	3	33.2
Percent time-spent-following, PTSF <sub>d</sub> (%	)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	4	45.3
v <sub>o,PTSF</sub> )			
Level of Service and Other Performa	nce Measures		
Level of service, LOS (Exhibit 15-3)			С
Volume to capacity ratio, v/c			

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1548
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	87.3
Bicycle Level of Service	
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	266.3
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.40
Bicycle level of service (Exhibit 15-4)	E
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the downgrade segments are treated as level terrain.	base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>For the analysis direction only</li> </ol>	

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General Information		Site Information	
Analyst	JF	Highway / Direction of Travel	Midway Rd
Agency or Company	57	From/To	west of Porter Rd WB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd	Landfill		
Input Data	2.	1	
	1 Shoulder width tt		
	Lane width		
	<u> </u>	Class I I	highway 📃 Class II
	Lane width tt Shoulder width tt	highway 🗌	Class III highway
	Shoulder widthft	Terrain	Level Rolling
e Commont Lower		Grade Length	
Segment lengt	h, L <sub>t</sub> mi	Peak-hour fa	ctor, PHF 0.92
		No-passing z	one 22%
Analysis direction vol., V <sub>d</sub> 385	/eh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7%
<b>u</b>	/eh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 245 Shoulder width ft 3.0		Access points	
Lane Width ft 12.0			//////
Segment Length mi 2.0			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	T (Exhibit 15-11 or 15-12)	1.3	1.4
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,AT</sub>	$F_{S}=1/(1+P_{T}(E_{T}-1)+P_{R}(E_{R}-1))$	0.979	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)		1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PH	emand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )		274
Free-Flow Speed free	om Field Measurement	Estimated Fr	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
			<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	20
Total demand flow rate, both directions	V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
		Free-flow speed, FFS (FSS=BFI	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> /			LO A
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhi	bit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(V <sub>d,ATS</sub> + 45.4 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	87.0 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	T(Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1	/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhi		1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PH	F*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	418	268
Base percent time-spent-following <sup>4</sup> , BP	TSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub>b</sup> )	42.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exh	bit 15-21)	3	33.2
Percent time-spent-following, PTSF <sub>d</sub> (%	)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	é	52.2
v <sub>o,PTSF</sub> )			
Level of Service and Other Performa	nce Measures	2	
			С
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, <i>v/c</i>			

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	87.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	418.5
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.63
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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	Midway Dd
	Midway Rd west of Porter Rd EB
Jurisdiction	Solano County
Analysis Year	Cumulative
•	
Class I	highway 📃 Class II
highway	Class III highway
	-
No-passing :	
Show North Arrow % Trucks an	d Buses , P <sub>T</sub> 7 %
% Recreatio	nal vehicles, P <sub>D</sub> 0%
	΄ <b>Γ</b>
Access point	<i>G mi 1/</i> 1111
2	
Analysis Direction (d)	Opposing Direction (o)
11	1.3
	1.0
	0.979
	1.00
635	450
Estimated Fi	ee-Flow Speed
Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
Adi for lane and shoulder width	<sup>4</sup> f <sub>L c</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhit	bit 15-8) 0.3 mi/h
Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/l
Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(v <sub>d,ATS</sub> +
Ve ATE) - fer ATE	42.6 mi/l
Percent free flow speed, PFFS	81.7 %
Analysis Direction (d)	Opposing Direction (o)
1.0	1.0
1.0	1.0
1.000	1.000
1.00	1.00
630	440
	57.6
24.9	
	72.3
	D
	Analysis Year Class I highway Terrain Grade Lengt Peak-hour fa No-passing 2 % Trucks an % Recreatio Access point Analysis Direction (d) 1.1 1.0 0.993 1.00 635 Estimated Fr Base free-flow speed <sup>4</sup> , BFFS Adj. for lane and shoulder width, Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhit Free-flow speed, FFS (FSS=BF Average travel speed, PFFS Analysis Direction (d) 1.0 1.00 1.00

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	81.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	630.4
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.84
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00,as level terrain is o downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15.14 if some trucks operate at crawl speeds on a	specific dowparado

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General Information		Site Information	
Analyst	JF	Highway / Direction of Travel	Midway Rd
Agency or Company	51	From/To	west of Porter Rd WB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd	Landfill		
Input Data		T	
	Shoulder widthft	_	_
	Lane width It	Class I	highway 📃 Class II
	Lane widthtt	highway	Class III highway
	Shoulder width ft		
-		Terrain	Level Rolling
Segment length	, L <sub>t</sub> mi	Grade Lengtl	
	ા	No-passing z	zone 22%
Analysis direction vol., V., 405v	ab/b	Show North Arrow % Trucks and	
, a	en/m		•
Opposing direction vol., V <sub>o</sub> 580v	eh/h		nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0		Access point	s <i>mi 1</i> /mi
Lane Width ft 12.0 Segment Length mi 2.0			
Segment Length mi 2.0 Average Travel Speed			
Average Travel Speed		Analysis Direction (d)	Opposing Direction (a)
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E-	<sub>r</sub> (Exhibit 15-11 or 15-12)	1.3	1.1
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,AT</sub>	<sub>S</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.979	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9)		1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF	* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	450	635
Free-Flow Speed fro	m Field Measurement	Estimated Fr	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Total demand flow rate, both directions,	Y.	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
		Free-flow speed, FFS (FSS=BF	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> /	t <sub>HV,ATS</sub> )		20 //
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhit	oit 15-15) 0.7 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 43.0 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	43.0 111
		Percent free flow speed, PFFS	82.5 %
Percent Time-Spent-Following		•	
		Analysis Direction (d)	Opposing Direction (o)
Dassander car oquivalanta for trucke	(Exhibit 15 18 or 15 10)	1.0	1.0
Passenger-car equivalents for trucks, E-		1.0	1.0
Passenger-car equivalents for RVs, $E_R$		1.000	1.000
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/		1.00	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhit			
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ /(PH	-	440	630
Base percent time-spent-following <sup>4</sup> , BP		49.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhil		2	24.9
	=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> /v <sub>d,PTSF</sub> +		59.2
v <sub>o,PTSF</sub> )			
Level of Service and Other Performar	nce Measures		
_evel of service, LOS (Exhibit 15-3)			D
Volume to capacity ratio, v/c			

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1688
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	82.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	440.2
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.66
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.	

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	NAL TWO-LANE HIGHWA		
General Information		Site Information	Mishana Del
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	Midway Rd west of SR 113 EB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	AM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Ro	l Landfill		
Input Data			
	* Charlet and the		
	Shoulder width It	_	_
-	Lane width It	Class I h	nighway 📃 Class II
	Lane width It	highway	Class III highway
	Shoulder width ft		
•		Grade Length	-
Segment lengt	h, L <sub>t</sub> mi	Peak-hour fac	
25 <b>F</b>		No-passing z	
Analysis direction vol., V <sub>d</sub> 241	veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
ŭ			•
11 <b>0</b> 7 0	veh/h	Access points	Υ <b>R</b>
Shoulder width ft 3.0 Lane Width ft 12.0		Access points	<i>Z</i> /111
Segment Length mi 2.0			
Average Travel Speed		2	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,A</sub>	<sub>TS</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.973	0.973
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhi	bit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PH	Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i / (PHF* f_{g,ATS}* f_{HV,ATS})$		259
	om Field Measurement	Estimated Fre	e-Flow Speed
•		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 mi/h
Total demand flow rate, both directions	V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.5 mi/h	
		Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 51.9 mi/i
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i>			20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exh	ibit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	6-0.00776(v <sub>d,ATS</sub> + 46.5 mi/l
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	89.7 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>F</sub>	(Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1	/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exh	ibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(PF	IF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	264	254
Base percent time-spent-following <sup>4</sup> , BF		28.7	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exh	ibit 15-21)	31.0	
Percent time-spent-following, PTSF <sub>d</sub> (%	b)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +		4.5
v <sub>o,PTSF</sub> )		7	<u>.</u>
Level of Service and Other Performa	nce Measures		
Level of service, LOS (Exhibit 15-3)			С
Volume to capacity ratio, <i>v/c</i>		0.16	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	262.0
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.40
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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General Information		Site Information	
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To Jurisdiction	Midway Rd west of SR 113 WB Solano County
Analysis Time Period	AM	Analysis Year	Cumulative
Project Description: Recology Hay	Rd Landfill		
Input Data		1	
	1 Shoulder width tt		
si	Lane width		
	Lane width tt	_	nighway 📃 Class II
	Shoulder width tt	highway 🗌 Class III highway	
		/ Terrain	Level Rolling
Segment ler	ngth, L <sub>t</sub> mi	Grade Length Peak-hour fac No-passing zo	ctor, PHF 0.92
, v u	20veh/h	Show North Arrow % Trucks and	
11 <b>0</b> / 0	25veh/h 0	% Recreational vehicles, P <sub>R</sub> 0% Access points <i>mi</i> 2/mi	
Segment Length mi 2.0			
Average Travel Speed		· · · · · · · · · · · · · · · · · · ·	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.5
Passenger-car equivalents for RVs, I		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>		0.966	0.966
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Ex		1.00	1.00
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (F	PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	248	253
Free-Flow Speed	from Field Measurement	Estimated Fre	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Total demand flow rate, both directio		Free-flow speed, FFS (FSS=BFF	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776	,		20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (E	xhibit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	3-0.00776(v <sub>d,ATS</sub> + 46.7 mi/
Percent Time-Spent-Following		Percent free flow speed, PFFS	90.0 %
ereent rime-opent-ronowing		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, I	E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (E	xhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(	PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	241	246
Base percent time-spent-following <sup>4</sup> ,	BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	26.8	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (E	xhibit 15-21)	31.3	
	(%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	42.3	
/ <sub>o,PTSF</sub> )	manaa Maasuras		
Level of Service and Other Perform	nance Measures		<u> </u>
evel of service, LOS (Exhibit 15-3)		C 0.15	

1642
1688
90.0
239.1
15.00
4.79
5.35
E
of the base conditions. For the purpose of grade adjustment, specific

For the analysis direction only and for v>200 veh/h.
 For the analysis direction only
 Exhibit 15-20 provides coefficients a and b for Equation 15-10.
 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information		Site Information	
Analyst Agency or Company Date Performed	JF 4/13/2018	Highway / Direction of Travel From/To	Midway Rd west of SR 113 EB Solano County
Analysis Time Period	РМ	Analysis Year	Cumulative
Project Description: Recology Hay Re	d Landfill		
Input Data			
	1 Shoulder width tt		
s <del></del>	Lane width It		ighway 🗌 Class II
	Lane width tt	_	
	Shoulder width ft	highway 🛄	Class III highway
		/ Terrain	Level Rolling
Segment leng	th, L <sub>t</sub> mi	Grade Length Peak-hour fac No-passing zo	tor, PHF 0.92
Analysis direction vol., V <sub>d</sub> 175	īveh/h	Show North Arrow % Trucks and	Buses , P <sub>T</sub> 7 %
11 0 7 0	0veh/h		al vehicles, P <sub>R</sub> 0%
Shoulder width ft 3.0		Access points	s <i>mi</i> 2/mi
Lane Width ft 12.0 Segment Length mi 2.0			
Average Travel Speed			
-		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.5
Passenger-car equivalents for RVs, E <sub>F</sub>		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,A</sub>		0.966	0.966
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exh		1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PF	IF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	197	225
Free-Flow Speed f	rom Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/i
2		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 2.6 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	
Total demand flow rate, both directions		Free-flow speed, FFS (FSS=BFF	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v	∥ f <sub>HV,ATS</sub> )		
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ext	nibit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	6-0.00776(v <sub>d,ATS</sub> + 47.3 mi/
Percent Time-Spent-Following		Percent free flow speed, PFFS	91.2 %
ercent rime-opent-ronowing		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>τ</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>F</sub>		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exh		1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(Pl	HF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	192	219
Base percent time-spent-following <sup>4</sup> , Bl	PTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	2	1.6
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exl	nibit 15-21)	31.0	
	6)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	36.1	
V <sub>o,PTSF</sub> )			
Level of Service and Other Performs	ance Measures		0
Level of service, LOS (Exhibit 15-3)		C 0.12	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	190.2
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.23
Bicycle level of service (Exhibit 15-4)	E
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of downgrade segments are treated as level terrain.	of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F.	

For the analysis direction only and for v>200 veh/h.
 For the analysis direction only
 Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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Constal Information	Site Information	
General Information Analvst JF	Site Information Highway / Direction of Travel	Midway Dd
Analyst JF Agency or Company	From/To	Midway Rd west of SR 113 WB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width ft		
Lane width		
	Class I h	nighway 📃 Class II
	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
e Comment for which is a minimum of the second seco	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing ze	
Analysis direction vol., V <sub>d</sub> 200veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 175veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $3.0$	Access points	΄ R
Lane Width ft $12.0$		_,
Segment Length mi 2.0		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.5
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.966	0.966
Grade adjustment factor <sup>1</sup> ,  f <sub>g.ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	225	197
Free-Flow Speed from Field Measurement	Estimated Fre	e-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width, <sup>4</sup>	f. (Exhibit 15-7) 2.6 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>Δ</sub> ) 51.9 mi/l
	Average travel speed, ATS <sub>d</sub> =FFS	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.3 mi/h		47.3 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	91.2 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T$ -1)+ $P_R(E_R$ -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	219	192
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	23.3	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	3	1.0
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	3	9.8
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)	l	С
Volume to capacity ratio, v/c	0	.13

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	217.4
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.30
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for $v_2 > 200 \text{ yeb/h}$	

For the analysis direction only and for v>200 veh/h.
 For the analysis direction only
 Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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General Information	Site Information	
	Site Information Highway / Direction of Travel	SR 113
Analyst JF Agency or Company	From/To	south of Midway Rd NB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	1	
1 Shoulder width tt		
Lane width		
	Class I	highway 📃 Class II
	highway 🗌	Class III highway
Shoulder width It	Terrain	✓ Level Rolling
e Comment for which is a minimum of the second seco	Grade Lengt	
Segment length, L <sub>t</sub> mi	Peak-hour fa	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 235veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 330veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access point	΄ R
Lane Width ft $12.0$		_,
Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.3
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.979
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	263	366
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Le</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/l
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.1 mi/h	Average travel speed, ATS <sub>d</sub> =FF	3-0.00770(v <sub>d,ATS</sub> 44.3 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	88.0 %
Percent Time-Spent-Following		<b>.</b>
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	257	361
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )		29.8
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	27.8	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		41.4
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c		0.15

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	88.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	255.4
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.73
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h.	

For the analysis direction only
 For the analysis direction only
 Exhibit 15-20 provides coefficients a and b for Equation 15-10.
 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Constal Information	Site Information	
General Information	Site Information	00.442
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 south of Midway Rd SB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width		_
	Class I	highway 📃 Class II
Lane widthtt	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
a Sagmant Iangth I. mi	Grade Lengt	
Segment length, Lt mi	Peak-hour fa	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 330veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 235veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access point	΄ R
Lane Width ft 12.0		
Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	2.2	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.920	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g.ATS</sub> (Exhibit 15-9)	0.89	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	438	263
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Le</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, v	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/l
	Average travel speed, ATS <sub>d</sub> =FFs	S-0.00776(v +
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h		43.7 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
Paraant Tima Chant Fallowing	Percent free flow speed, PFFS	86.8 %
Percent Time-Spent-Following	Applyoic Direction (d)	Opposing Direction (c)
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	0.96	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	372	257
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub>b</sup> )	;	37.3
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	27.5	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		53.6
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c	(	0.26

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1336
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1664
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	358.7
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.90
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

For the analysis direction only
 For the analysis direction only
 For the analysis direction only
 Exhibit 15-20 provides coefficients a and b for Equation 15-10.
 Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information	Site Information	
	Site Information Highway / Direction of Travel	SR 113
Analyst JF Agency or Company	From/To	south of Midway Rd NB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	1	
1 Shoulder width tt		
Lane width		
	Class I	highway 📃 Class II
	highway 🗌	Class III highway
J Shoulder width It	Terrain	Level Rolling
A Comment for which a minimum	Grade Lengt	
Segment length, L <sub>t</sub> mi	Peak-hour fa	ictor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 325veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 335veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access point	΄ <b>Γ</b>
Lane Width ft $12.0$		_,
Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.3
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.979	0.979
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	361	372
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Le</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/l
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.1 mi/h	Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(V <sub>d,ATS</sub> + 43.5 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	86.5 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	356	367
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )		39.3
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	27.4	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		52.8
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
_evel of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c		0.21

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	353.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.89
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

For the analysis direction only
 For the analysis direction only
 For the analysis direction only
 Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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General Information	Site Information	
	Site Information Highway / Direction of Travel	SR 113
Analyst JF Agency or Company	From/To	south of Midway Rd SB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	1	
1 Shoulder width tt		
Lane width		
	Class I	highway 📃 Class II
	highway 🗌	Class III highway
J Shoulder width It	Terrain	✓ Level Rolling
e Communit Locarda 1 mi	Grade Lengt	
Segment length, L <sub>t</sub> mi	Peak-hour fa	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 335veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 325veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access point	΄ R
Lane Width ft 12.0		_,
Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.3
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.979	0.979
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	372	361
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
	Adj. for lane and shoulder width,	<sup>4</sup> fug (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/l
	Average travel speed, ATS <sub>d</sub> =FF	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.1 mi/h		43.5 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	86.4 %
Percent Time-Spent-Following	<b>I</b>	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	367	356
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )		39.2
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		27.4
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF}+$		53.1
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
_evel of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c		0.22

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	364.1
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.91
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h.	

4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information	Site Information	
	Site Information Highway / Direction of Travel	SR 113
Analyst JF Agency or Company	From/To	north of Hay Rd NB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	1	
1 Shoulder width tt		
Lane width		
	Class I h	nighway 📃 Class II
	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
e Comment for which is a minimum of the second seco	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 445veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 285veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access points	Υ R
Lane Width ft $12.0$		_,
Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	491	318
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width, <sup>4</sup>	f د.(Exhibit 15-7) <i>4.2 mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>-</sup> S-f <sub>I S</sub> -f <sub>A</sub> ) 50.3 mi/l
	Average travel speed, ATS <sub>d</sub> =FFS	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h		42.9 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	85.2 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	484	312
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	4	6.2
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	22.1	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	59.6	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures	·	
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c		.29

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	85.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	483.7
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.05
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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Constal Information	Site Information	
General Information	Site Information	00 440
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 north of Hay Rd SB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width		
	Class I h	nighway 📃 Class II
Lane widtht Shoulder width tt	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
A Sagment langth L mi	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing zo	
Analysis direction vol., V <sub>d</sub> 285veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 445veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access points	΄ R
Lane Width ft $12.0$		_,
Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.2
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.973	0.986
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	318	491
Free-Flow Speed from Field Measurement	Estimated Fre	e-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width, <sup>4</sup>	f. (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>Δ</sub> ) 50.3 mi/l
	Average travel speed, ATS <sub>d</sub> =FFS	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.9 mi/h		43.1 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	85.8 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.0
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.993	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	312	484
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	37.9	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	22.1	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	46.6	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c	0	.19

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	85.8
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	309.8
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.82
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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Constal Information	Site Information	
General Information	Site Information	00 440
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 north of Hay Rd NB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	T	
T Shoulder width tt		
Lane width tt	Class I h	nighway 📃 Class II
Lane width tt	highway	Class III highway
Shoulder_widthft	Terrain	Level Rolling
-	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	
5 <b>.</b> 11	No-passing z	one 12%
Analysis direction vol., V <sub>d</sub> 460veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
3	% Recreation	al vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 435veh/h	Access points	΄ R
Shoulder width ft 0.5 Lane Width ft 12.0		Z/111
Segment Length mi 3.5		
Average Travel Speed	-	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.2
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.986
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	507	480
Free-Flow Speed from Field Measurement	Estimated Fre	e-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	•	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
	Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/i
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )		
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.9 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 41.7 mi/
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	83.0 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	1.000	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v</i> <sub>/</sub> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	500	473
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	51.1	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	23.4	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	63.1	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
_evel of service, LOS (Exhibit 15-3)		D
/olume to capacity ratio, v/c	0.30	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	83.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	500.0
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.07
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00,as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=$ 1,700 pc/h, terminate analysisthe LOS is F.	
<ol><li>For the analysis direction only and for v&gt;200 veh/h.</li></ol>	

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Conoral Information	Site Information	SHEET
General Information	Site Information	00 440
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 north of Hay Rd SB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width		
	Class I h	ighway 📃 Class II
Lane width	highway	Class III highway
T Shoulder widthft	Terrain	Level Rolling
e Commission de la commis	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing ze	one 12%
Analysis direction vol., V <sub>d</sub> 435veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
3	% Recreation	al vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 460veh/h Shoulder width ft 0.5	Access points	΄ R
Lane Width ft 12.0	, 100000 pointe	· · · · · · · · · · · · · · · · · · ·
Segment Length mi 3.5		
Average Travel Speed	•	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.2
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.986
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	480	507
Free-Flow Speed from Field Measurement	Estimated Fre	e-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
		fue (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	-S-f <sub>1, S</sub> -f <sub>A</sub> ) 50.3 mi/ł
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.8 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	-0.00776(V <sub>d,ATS</sub> + 41.8 mi/ł
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	83.1 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	473	500
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	49.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	23.4	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF}+$	60.4	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c		.28

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	83.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	472.8
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.04
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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General Information	Site Information	
	Site Information Highway / Direction of Travel	SR 113
Analyst JF Agency or Company	From/To	south of Hay Rd NB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width ft		
Lane width		
	Class I h	nighway 📃 Class II
	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
e Comment for which is a minimum of the second seco	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 450veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 255veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access points	Υ R
Lane Width ft $12.0$		_,
Segment Length mi 8.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	496	285
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	=S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/l
	Average travel speed, ATS <sub>d</sub> =FFS	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h		43.1 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	85.6 %
Percent Time-Spent-Following	•	1
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	489	279
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{aV_d}^b$ )	46.3	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	26.2	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+$	6	53.0
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
		0.29

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	85.6
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	489.1
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.06
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information		Site Information	
Analyst	JF		SR 113
Agency or Company		From/To	south of Hay Rd SB
Date Performed Analysis Time Period	4/13/2018 AM		Caltrans Cumulative
Project Description: Recology Hay Ro			Cumulative
Input Data	Landmi		
1	1		
	Shoulder width ft		
· · · · ·	Lane width It	✓ Class I h	ighway 📃 Class II
	Lane width ft		
	Shoulder width ft	nignway 🛄	Class III highway
		/ Terrain	Level Rolling
Segment lengt	հ, Լլmi	Grade Length	
		Peak-hour fac No-passing zo	tor, PHF 0.92 one 18%
		Show North Arrow % Trucks and	
Analysis direction vol., V <sub>d</sub> 255	veh/h		I
11 0 7 0	veh/h		al vehicles, P <sub>R</sub> 0%
Shoulder width ft 0.5		Access points	<i>mi</i> 2/mi
Lane Width ft 12.0 Segment Length mi 8.5			
Average Travel Speed			
Average maver opeen		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	(Exhibit 15, 11 or 15, 12)	1.4	1.2
Passenger-car equivalents for RVs, E <sub>R</sub>		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,A</sub> -		0.973	0.986
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhi		1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PH	F* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	285	496
Free-Flow Speed fr	om Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
<b>^</b>		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	20
Total demand flow rate, both directions	, <i>V</i>		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v	(f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	'S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exh	ibit 15-15) 0.9 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	-0.00776(v <sub>d.ATS</sub> +
	,	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	43.4 mi/
		Percent free flow speed, PFFS	86.2 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	- (Exhibit 15-18 or 15-19)	1.1	1.0
Passenger-car equivalents for RVs, E <sub>R</sub>		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1		0.993	1.000
Grade adjustment factor <sup>1</sup> , f <sub>q.PTSF</sub> (Exh		1.00	1.00
Directional flow rate <sup>2</sup> , $v_i(\text{pc/h}) v_i = V_i/(\text{PF})$		279	489
Base percent time-spent-following <sup>4</sup> , BF		3	4.7
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exh		26.2	
• • •			
	)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +	4	4.2
v <sub>o,PTSF</sub> ) Level of Service and Other Performa	nco Moasuros		
Level of Service and Other Performa	IILE MIEdouleo		
_evel of service, LOS (Exhibit 15-3)			D

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	277.2
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.77
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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Constal Information	Site Information	
General Information	Site Information	00 440
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 south of Hay Rd NB
Date Performed 4/13/2018	Jurisdiction	Caltrans
Analysis Time Period PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width		
	Class I h	nighway 📃 Class II
Lane widthtt	highway	Class III highway
I Shoulder width It	Terrain	Level Rolling
a Sammant Ianath I. mi	Grade Length	
Segment length, Lt mi	Peak-hour fac	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 405veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 475veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access points	ŕĸ
Lane Width ft $12.0$		_,
Segment Length mi 8.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.2
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.979	0.986
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	450	524
Free-Flow Speed from Field Measurement	Estimated Fre	e-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
	Adj. for lane and shoulder width, <sup>4</sup>	f. (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/l
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.8 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	-0.00776(V <sub>d,ATS</sub> + 41.9 mi/l
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	83.4 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	440	516
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	47.2	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	27.0	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	59.6	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c		.26

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	83.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	440.2
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.00
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of downgrade segments are treated as level terrain.</li> </ol>	of the base conditions. For the purpose of grade adjustment, specific
2. If v <sub>i</sub> (v <sub>d</sub> or v <sub>o</sub> ) >=1,700 pc/h, terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h.	

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General Information		Site Information	
Analyst	JF		SR 113
Agency or Company		From/To	south of Hay Rd SB
Date Performed Analysis Time Period	4/13/2018 PM	-	Caltrans Cumulative
Project Description: Recology Hay F			Cumulative
Input Data			
1			
	\$ Shoulder width ft		
	Lane widthtt	✓ Class I h	ighway 🔲 Class II
	Lane width tt	_	
	Shoulder width tt	highway 🛄	Class III highway
		Terrain	Level Rolling
Segment len	gth, L,mi	Grade Length	
	5 <sup>m</sup> 1	Peak-hour fac	
		Show North Arrow % Trucks and	
Analysis direction vol., V <sub>d</sub> 47	'5veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 40	5veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft 0.	5	Access points	s <i>mi 2</i> /mi
Lane Width ft 12.	0		
Segment Length mi 8.5			
Average Travel Speed			Our coir a Direction (c)
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.3
Passenger-car equivalents for RVs, E	R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,</sub>	ATS=1/(1+P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	0.986	0.979
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex	hibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (P	HF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	524	450
Free-Flow Speed	from Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
			fue (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width, <sup>4</sup>	
Total demand flow rate, both directior	IS, V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(		Free-flow speed, FFS (FSS=BFF	-S-f <sub>IS</sub> -f <sub>A</sub> ) 50.3 mi/
	,		20 / 1
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	hibit 15-15) 1.0 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	-0.00776(v <sub>d,ATS</sub> + 41.8 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	83.0 %
Percent Time-Spent-Following		· · · · · · · · · ·	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E	R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex		1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(F		516	440
Base percent time-spent-following <sup>4</sup> , E	BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	51.1	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	rhibit 15-21)	27.0	
Percent time-spent-following, PTSF <sub>d</sub>	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	65.7	
/ <sub>o,PTSF</sub> )			
Level of Service and Other Perform	nance Measures		
_evel of service, LOS (Exhibit 15-3)		D	
-, ()))			

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	83.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, $v_{ m OL}$ (Eq. 15-24) veh/h	516.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, S $_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.08
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o)$ >=1,700 pc/h, terminate analysisthe LOS is F.	
<ol><li>For the analysis direction only and for v&gt;200 veh/h.</li></ol>	

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Constal Information	Site Information	
General Information Analvst JF	<i>Site Information</i> Highway / Direction of Travel	Hay Pd
Analyst JF Agency or Company	From/To	Hay Rd west of SR 113 EB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
nput Data		
Shoulder widtht		
Lane width		
Lane width tt		ighway 📃 Class II
	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
Segment length, L <sub>i</sub> mi	Grade Length	mi Up/down
Segment lengur, L	V / Peak-hour fac	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 45veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 80veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $1.0$	Access points	΄ Γ.
Lane Width ft 12.0		
Segment Length mi 0.7		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	52	92
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
	Adj. for lane and shoulder width, <sup>4</sup>	fue (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>5</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/ł
,	Average travel speed, ATS <sub>d</sub> =FFS	20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h		49.2 mi/f
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	07.0.04
Paraant Tima Chant Fallowing	Percent free flow speed, PFFS	97.3 %
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
1	1.0	1.0
Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19)	0.993	0.993
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T$ -1)+ $P_R(E_R$ -1) )	1.00	1.00
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)		
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	49	88
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	6.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	29.6	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + $	16.6	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)	C	
/olume to capacity ratio, <i>v/c</i>	0	.03

1600
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97.3
48.9
23.08
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e of the base conditions. For the purpose of grade adjustment, specific

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	Y SEGMENT WORK	
General Information Analyst JF	Site Information	Hay Pd
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 WB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period AM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data	-	
• • • • • • • • • • • • • • • • • • •		
Shoulder width ft	_	_
Lane width	Class I h	nighway 📃 Class II
Lane widtht	highway	Class III highway
Shoulder width ft		
	Terrain Grade Length	level
Segment length, L <sub>t</sub> mi	Peak-hour fac	
50 E	No-passing z	
Analysis direction vol., V <sub>d</sub> 80veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
-		I
Opposing direction vol., V <sub>o</sub> 45veh/h	Access points	΄ Γ
Shoulder width ft 1.0 Lane Width ft 12.0	Access points	5 1111 //1111
Segment Length mi 0.7		
Average Travel Speed		
•	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
rassenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 of 15-12)	1.9	1.5
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	92 52	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
	Adj. for lane and shoulder width, <sup>4</sup>	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, v	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	it 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFFS- $f_{LS}$ - $f_{A}$ ) 50.5	
,	Average travel speed, ATS <sub>d</sub> =FFS	$S_{-0,00776/y}$ +
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h		49.2 mi/ł
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	97.3 %
Percent Time-Spent-Following	•	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>a.PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , $v_i(\text{pc/h}) v_i = V_i/(\text{PHF*f}_{HV,\text{PTSF}} * f_{g,\text{PTSF}})$	88	49
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )	10.3	
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)	29.6	
Percent time-spent-following, PTSF <sub>d</sub> (%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +		
√ <sub>0,PTSF</sub> )	2	29.3
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
· · · · · · · · · · · · · · · · · · ·	1	

1600
1688
97.3
87.0
20.80
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3.80
D
conditions. For the purpose of grade adjustment, specific

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Constal Information	Site Information	
General Information	Site Information	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 EB
Date Performed 4/13/2018	Jurisdiction	Solano County
Analysis Time Period PM	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width ft		
Lane width		
	Class I h	ighway 📃 Class II
Lane widthtt	highway	Class III highway
Shoulder width It	Terrain	Level Rolling
a Semanticant I mi	Grade Length	mi Up/down
Segment length, L <sub>t</sub> mi	V / Peak-hour fac	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 120veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 25veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Shoulder width ft $1.0$	Access points	΄ Γ.
Lane Width ft 12.0		.,
Segment Length mi 0.7		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.8	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.947	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	138 29	
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
	Adj. for lane and shoulder width, <sup>4</sup>	fue (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>-</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/ł
	Average travel speed, ATS <sub>d</sub> =FFS	S=0.00776(y + t)
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h		49.0 mi/ł
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	97.0 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	131	27
Base percent time-spent-following <sup>4</sup> , $BPTSF_d(\%)=100(1-e^{av_d^b})$	14.9	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	26.3	
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	36.7	
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures	1	
Level of service, LOS (Exhibit 15-3)		С
Volume to capacity ratio, v/c	0	.08

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	97.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	130.4
Effective width, Wv (Eq. 15-29) ft	18.20
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.51
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for y>200 yeh/h.	

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET			
General Information Site Information			
Analyst JF Agency or Company Date Performed 4/13/2018 Analysis Time Period PM	Highway / Direction of Travel From/To Jurisdiction Analysis Year	Hay Rd west of SR 113 WB Solano County Cumulative	
Project Description: Recology Hay Rd Landfill		Cumulative	
Input Data			
Analysis direction vol., V <sub>d</sub> 25veh/h	highway highway highway highway structures highway structures highway	ctor, PHF 0.92 one 20% I Buses , P <sub>T</sub> 7 %	
Opposing direction vol., V120veh/hShoulder width ft1.0Lane Width ft12.0Segment Length mi0.7	% Recreation Access points	al vehicles, P <sub>R</sub> 0% s <i>mi</i> 1/mi	
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	2.6	1.8	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.1	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.899	0.947	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	0.78	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	39 138		
Free-Flow Speed from Field Measurement	Estimated Free-Flow Speed		
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width, <sup>4</sup>	20	
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.3		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BFF	LO A	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.6 mi/h	Average travel speed, ATS <sub>d</sub> =FFS v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	48.6 m/n	
Percent Time-Spent-Following	Percent free flow speed, PFFS	96.1 %	
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ $P_T(E_T$ -1)+ $P_R(E_R$ -1) )	1.000	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	27	131	
Base percent time-spent-following <sup>4</sup> , $BPTSF_d(\%)=100(1-e^{av_d}^b)$	3.4		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	26.3		
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	7.9		
V <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures	1		
Level of service, LOS (Exhibit 15-3) Volume to capacity ratio, <i>v/c</i>		C .02	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1228
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1695
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.1
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	27.2
Effective width, Wv (Eq. 15-29) ft	24.38
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.40
Bicycle level of service (Exhibit 15-4)	В
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> </ol>	

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	NAL TWO-LANE HIGHWA	-	
General Information		Site Information	Mishanan Del
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	Midway Rd west of Porter Rd EB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	АМ	Analysis Year	Cumulative + Project
Project Description: Recology Hay R	d Landfill		
Input Data			
+	1 Shoulder width tt		
-			_
-	Lane width ft	Class I I	highway 📃 Class II
	Lane width It	highway	Class III highway
	Shoulder_widthftft		Level Rolling
•		Grade Length	-
Segment leng	ith, L <sub>t</sub> mi	Peak-hour fa	
		No-passing z	
Analysis direction vol., V <sub>d</sub> 26	1veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
-			nal vehicles, P <sub>R</sub> 0%
5 , 0	7veh/h	Access points	Υ ΓL
Shoulder width ft 3.0 Lane Width ft 12.0		Access points	5 1/111
Segment Length mi 2.0			
Average Travel Speed		=	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.3
Passenger-car equivalents for RVs, E		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,/</sub>	<sub>.TS</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.973	0.979
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9)		1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )		292	441
	rom Field Measurement	Estimated Fro	ee-Flow Speed
· · · · · · · · · · · · · · · · · · ·		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Total demand flow rate, both direction	s V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.3 mi/h	
		Free-flow speed, FFS (FSS=BFI	FS-f <sub>10</sub> -f <sub>1</sub> ) 52.2 mi/i
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(			LO A
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	nibit 15-15) 1.1 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 45.3 mi/i
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	86.9 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.0
Passenger-car equivalents for RVs, E	<sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex	nibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(P	HF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	286	432
Base percent time-spent-following <sup>4</sup> , B	$PTSF_{d}(\%) = 100(1 - e^{av_{d}}^{b})$	34.6	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	32.2	
Percent time-spent-following, PTSF <sub>d</sub> (	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +		47.4
v <sub>o,PTSF</sub> )			
Level of Service and Other Perform	ance Measures		
Level of service, LOS (Exhibit 15-3)			С
Volume to capacity ratio, v/c		0.17	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	283.7
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.44
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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DIRECTIONAL TWO-LANE HIGHWA	2	
General Information	Site Information	Mishara Dat
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Midway Rd west of Porter Rd WB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period AM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data		
+		
Shoulder width It	_	_
Lane width It	Class I	highway 📃 Class II
Lane width It	highway 🗌 Class III highway	
t		
• • •	Grade Leng	-
Segment length, L <sub>t</sub> mi	Peak-hour fa	
	No-passing	
Analysis direction vol., V <sub>d</sub> 397veh/h	Show North Arrow % Trucks an	nd Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 261veh/h Shoulder width ft 3.0	% Recreational vehicles, P <sub>R</sub> 0% Access points <i>mi</i> 1/mi	
Shoulder width ft 3.0 Lane Width ft 12.0		
Segment Length mi 2.0		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.979	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub> /</i> (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	441	292
Free-Flow Speed from Field Measurement	Estimated F	ree-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width	. <sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.3 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 52.2 mi/h
	Average travel speed, ATS <sub>d</sub> =FF	20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.3 mi/h		45.1 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	86.5 %
Percent Time-Spent-Following	I	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	432	286
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>avd<sup>b</sup></sup> )	42.0	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	32.2	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d + f_{np,PTSF} * (v_{d,PTSF} / v_{d,PTSF} + $		61.4
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1439
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	431.5
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.65
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the downgrade segments are treated as level terrain.</li> </ol>	e base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15 20 provides coefficients a and b for Equation 15 10.	

5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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	NAL TWO-LANE HIGHWA			
General Information	IF.	Site Information	Midway De'	
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	Midway Rd west of Porter Rd EB	
Date Performed	10/8/18	Jurisdiction	Solano County	
Analysis Time Period	PM	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay Ro	l Landfill			
Input Data		•		
	1 Shoulder width tt			
			_	
-	Lane width ft	Class I	highway 📃 Class II	
	Lane width It	highway	Class III highway	
	Shoulder_widthft		Level Rolling	
•		Grade Lengt	-	
Segment leng	th, L <sub>t</sub> mi	Peak-hour fa		
		No-passing z	zone 22%	
Analysis direction vol., V <sub>d</sub> 580	Veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7%	
G	woh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%	
Opposing direction vol., V <sub>o</sub> 417 Shoulder width ft 3.0	veh/h	Access point	΄ Γ	
Lane Width ft 3.0			Access points mi //mi	
Segment Length mi 2.0				
Average Travel Speed				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, I	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.1	1.2	
Passenger-car equivalents for RVs, E <sub>F</sub>	<sub>3</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV,A</sub>	<sub>TS</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.986	
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9) 1.00		1.00	1.00	
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )		635	460	
	om Field Measurement	Estimated Fr	ee-Flow Speed	
·		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł	
		•		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>	
Total demand flow rate, both directions		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.3 mi/h	
		Free-flow speed, FFS (FSS=BF	FS-f <sub>1.0</sub> -f <sub>4</sub> ) 52.2 mi/i	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i>	,		L0 A	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exh	nibit 15-15) 1.1 mi/h	Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(v <sub>d,ATS</sub> + 42.6 mi/l	
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>		
		Percent free flow speed, PFFS	81.6 %	
Percent Time-Spent-Following				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, I	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Passenger-car equivalents for RVs, E <sub>F</sub>	(Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	1.000	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exh	ibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(Pl	HF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	630	453	
Base percent time-spent-following <sup>4</sup> , BI		58.4		
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ext	nibit 15-21)	24.9		
Percent time-spent-following, PTSF <sub>d</sub> (%	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> /v <sub>d,PTSF</sub> +		72.9	
v <sub>o,PTSF</sub> )			1 <i>L</i> . J	
Level of Service and Other Performa	ance Measures			
Level of service, LOS (Exhibit 15-3)			D	
Volume to capacity ratio, v/c		0.37		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	81.6
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	630.4
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.84
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one of downgrade segments are treated as level terrain.</li> </ol>	of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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DIRECTIONAL TWO-LANE HIG			
General Information	Site Information	Midway Dd	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Midway Rd west of Porter Rd WB	
Date Performed 10/8/18	Jurisdiction	Solano County	
Analysis Time Period PM	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay Rd Landfill			
Input Data	2.5. I		
T Shoulder width			
	<u>. ft</u>		
Lane width		highway 📃 Class II	
Lane width	tt highway	Class III highway	
Shoulder width			
•	Terrain     Grade Lengt	-	
Segment length, L <sub>t</sub> mi	Peak-hour fa		
	No-passing:		
Analysis direction vol., V <sub>d</sub> 417veh/h	Show North Arrow % Trucks an	id Buses , P <sub>T</sub> 7 %	
ŭ	% Recreation	nal vehicles, P <sub>R</sub> 0%	
Opposing direction vol., V <sub>o</sub> 580veh/h Shoulder width ft 3.0	Access poin	Υ <b>R</b>	
Shoulder width ft 3.0 Lane Width ft 12.0	Access point	<i>G mi 1/111</i>	
Segment Length mi 2.0			
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9) 1.00		1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	460	635	
Free-Flow Speed from Field Measurement	Estimated F	ree-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l	
Mean anod of comple <sup>3</sup>	Adj. for lane and shoulder width	, <sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhil	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.3 <i>mi/h</i>	
Total demand flow rate, both directions, $v$	Free-flow speed, FFS (FSS=BF		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV,ATS</sub> )		20 //	
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.7 m	<i>ii/h</i> Average travel speed, ATS <sub>d</sub> =FF	'S-0.00776(v <sub>d,ATS</sub> + 42.9 mi/l	
10,710	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	42.9 111/1	
	Percent free flow speed, PFFS	82.4 %	
Percent Time-Spent-Following	· · · · · · · · · · · · · · · · · · ·		
· · ·	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	1.000	
Grade adjustment factor <sup>1</sup> , f <sub>q,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , $v_j(\text{pc/h}) v_j = V_j/(\text{PHF*f}_{\text{HV,PTSF}} * f_{g,\text{PTSF}})$	453	630	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )		49.8	
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhibit 15-21)		24.9	
Percent time-spent-following, PTSF <sub>d</sub> (%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,</sub>	PTSF *	60.2	
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures			
Level of service, LOS (Exhibit 15-3)		D	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1688
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	82.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	453.3
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.67
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

b. EXNIDIT 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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General Information		Site Information	
Analyst	JF		Midway Rd
Agency or Company	57	From/To	west of SR 113 EB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	AM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd	Landfill		
Input Data	2.	1	
	1 Shoulder width tt		
	Lane width		
-	<u> </u>	Class I h	ighway 📃 Class II
	Lane width tt Shoulder width tt	highway	Class III highway
	Lange Shoulder widthft	Terrain	Level Rolling
• Commont loss at		Grade Length	
Segment lengt	h, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
		No-passing zo	one 13%
Analysis direction vol., V <sub>d</sub> 241	/eh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
-	/eh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 232 Shoulder width ft 3.0		Access points	
Lane Width ft 12.0		Access points mi 2/mi	
Segment Length mi 2.0			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	T (Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,AT</sub>	$F_{S}=1/(1+P_{T}(E_{T}-1)+P_{R}(E_{R}-1))$	0.973	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhil	pit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> = <i>V<sub>i</sub></i> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )		269	259
Free-Flow Speed free	om Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
		Adj. for lane and shoulder width, <sup>4</sup>	f. (Exhibit 15-7) 2.6 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>			20
Total demand flow rate, both directions	V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> /		Free-flow speed, FFS (FSS=BFF	-S-f <sub>LS</sub> -f <sub>A</sub> ) 51.9 mi/
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhi		Average travel speed, ATS <sub>d</sub> =FFS	20 //
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	40.5 110
		Percent free flow speed, PFFS	89.7 %
Percent Time-Spent-Following		•	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E	T(Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub>	(Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1	/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhi	bit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(PH	F*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	264	254
Base percent time-spent-following <sup>4</sup> , BP	TSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	2	8.7
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exh	bit 15-21)	31.0	
Percent time-spent-following, PTSF <sub>d</sub> (%	)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	4	4.5
v <sub>o,PTSF</sub> )			
Level of Service and Other Performa	nce Measures		
_evel of service, LOS (Exhibit 15-3)			С
Volume to capacity ratio, v/c			

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	262.0
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.40
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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	NAL TWO-LANE HIGHWA		
General Information		Site Information	Midway Dd
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	Midway Rd west of SR 113 WB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	АМ	Analysis Year	Cumulative plus Project
Project Description: Recology Hay R	d Landfill		
Input Data		•	
	1 Shoulder width tt		
-			_
-	Lane width ft	Class I I	highway 📃 Class II
	Lane width It	highway	Class III highway
	Shoulder_widthftft		Level Rolling
•		Grade Length	-
Segment leng	ith, L <sub>t</sub> mi	Peak-hour fa	
		No-passing z	
Analysis direction vol., V <sub>d</sub> 23	2veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
		% Recreation	nal vehicles, P <sub>R</sub> 0%
	1veh/h	Access points	΄ R
Shoulder width ft 3.0 Lane Width ft 12.0		Access points	2/11II
Segment Length mi 2.0			
Average Travel Speed		•	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.4
Passenger-car equivalents for RVs, E	R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,/</sub>	<sub>TS</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.973	0.973
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9)		1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )		259	269
	rom Field Measurement	Estimated Fr	ee-Flow Speed
· · · · · · · · · · · · · · · · · · ·		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 mi/h
Total demand flow rate, both direction	s V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
		Free-flow speed, FFS (FSS=BFI	FS-f <sub>Lo</sub> -f <sub>A</sub> ) 51.9 mi/l
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(			20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	nibit 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 46.5 mi/l
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	89.7 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E	<sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex	nibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(P	HF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	254	264
Base percent time-spent-following <sup>4</sup> , B		28.8	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	31.0	
Percent time-spent-following, PTSF <sub>d</sub> (	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +		14.0
v <sub>o,PTSF</sub> )			
Level of Service and Other Perform	ance Measures		
Level of service, LOS (Exhibit 15-3)			С
Volume to capacity ratio, v/c		0.15	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	89.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	252.2
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.38
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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0	NAL TWO-LANE HIGHWA		
General Information		Site Information	Midway Dd
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	Midway Rd west of SR 113 EB
Date Performed	10/8/18	Jurisdiction	Solano County
Analysis Time Period	РМ	Analysis Year	Cumulative plus Project
Project Description: Recology Hay R	d Landfill		
Input Data		•	
	1 Shoulder width tt		
-			_
-	Lane width ft	Class I h	ighway 📃 Class II
	Lane width It	highway	Class III highway
	Shoulder_widthftft		
•		Grade Length	-
Segment leng	th, L <sub>t</sub> mi	Peak-hour fac	
		No-passing zo	one 13%
Analysis direction vol., V <sub>d</sub> 175	5veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
u u	2veh/h	% Recreation	al vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 212 Shoulder width ft 3.0		Access points	Υ <b>R</b>
Lane Width ft 12.0		, 100000 pointe	<b>2</b> /110
Segment Length mi 2.0			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.5	1.5
Passenger-car equivalents for RVs, E	<sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$		0.966	0.966
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exh	de adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9) 1.00		1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (Pł	mand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$ ) 197		239
Free-Flow Speed f	rom Field Measurement	Estimated Fre	e-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width, <sup>4</sup>	
Total demand flow rate, both direction	s. <i>V</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(		Free-flow speed, FFS (FSS=BFF	-S-f <sub>1,S</sub> -f <sub>A</sub> ) 51.9 mi/l
		Average travel speed, ATS <sub>d</sub> =FFS	20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exi	libit 15-15) 1.5 min		47.2 mi/l
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
Deveent Times Creat Fellowing		Percent free flow speed, PFFS	91.0 %
Percent Time-Spent-Following		Analysis Direction (d)	Opposing Direction (c)
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	1	1.1	1.1
Passenger-car equivalents for RVs, E		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex		1.00	1.00
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i$ =V <sub>i</sub> /(P		192	232
Base percent time-spent-following <sup>4</sup> , B	PTSF <sub>d</sub> (%)=100(1-e <sup>avd<sup>b</sup></sup> )	2	1.3
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	3	0.4
Percent time-spent-following, PTSF <sub>d</sub> (	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	3	5.1
v <sub>o,PTSF</sub> )			
Level of Service and Other Perform	ance Measures		
Level of service, LOS (Exhibit 15-3)			С
Volume to capacity ratio, <i>v/c</i>		0.12	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	190.2
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.23
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	≥ of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10</li> </ol>	

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	AL TWO-LANE HIGHWA			
General Information		Site Information	Midway Dd	
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	Midway Rd west of SR 113 WB	
Date Performed	10/8/18	Jurisdiction	Solano County	
	PM	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay Rd L	andfill			
Input Data		•		
	Shoulder width ft			
			_	
	Lane width ft	Class I I	highway 📃 Class II	
	Lane width It	highway	Class III highway	
+*	_Shoulder_widthft			
•		Grade Length	-	
Segment length,	L <sub>1</sub> mi	Peak-hour fa		
		No-passing z		
Analysis direction vol., V <sub>d</sub> 212ve	h/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %	
G	F /F	% Recreation	nal vehicles, P <sub>R</sub> 0%	
Opposing direction vol., V <sub>o</sub> 175ve	1711		Υ R	
Shoulder width ft 3.0 Lane Width ft 12.0		Access points <i>mi</i> 2/mi		
Segment Length mi 2.0				
Average Travel Speed				
· · ·		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub>	(Exhibit 15-11 or 15-12)	1.5	1.5	
Passenger-car equivalents for RVs, E <sub>R</sub> (I		1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$		0.966	0.966	
Grade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9) 1.00		1.00		
Demand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i$ = $V_i$ / (PHF* $f_{q,ATS}$ * $f_{HV,ATS}$ )		239	197	
Free-Flow Speed from		Estimated Fr	ee-Flow Speed	
		Base free-flow speed <sup>4</sup> , BFFS	. 55.0 mi/ł	
Maan anal of comple <sup>3</sup> C		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 2.6 <i>mi/h</i>	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demond flow rate, both directions of		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Total demand flow rate, both directions, w		Free-flow speed, FFS (FSS=BFI		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>I</sub>	HV,ATS)		20 //	
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibi	t 15-15) 1.3 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> +	
np,, (10		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	47.2 mi/ł	
		Percent free flow speed, PFFS	91.0 %	
Percent Time-Spent-Following		•		
· · · · · · · · · · · · · · · · · · ·		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub>	(Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E <sub>R</sub> (I		1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (		0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibi		1.00	1.00	
Directional flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i/(PHF)$		232	192	
Base percent time-spent-following <sup>4</sup> , BPT		2	24.5	
Adj. for no-passing zone, f <sub>np.PTSF</sub> (Exhib	-	30.4		
Percent time-spent-following, PTSF <sub>d</sub> (%)=				
v <sub>o,PTSF</sub> )	a mpirior virior virior	4	41.1	
Level of Service and Other Performance	ce Measures			
			С	
evel of service 1 ()S (Exhibit 15-3)	_evel of service, LOS (Exhibit 15-3) /olume to capacity ratio, v/c		0.14	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1642
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	91.0
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	230.4
Effective width, Wv (Eq. 15-29) ft	15.00
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.33
Bicycle level of service (Exhibit 15-4)	E
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the downgrade segments are treated as level terrain.</li> </ol>	e base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>For the analysis direction only</li> </ol>	

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	DNAL TWO-LANE HIGHWA	2		
General Information		Site Information	00.440	
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	SR 113 south of Midway Rd NB	
Date Performed	10/8/18	Jurisdiction	Caltrans	
Analysis Time Period	AM	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay F	d Landfill			
Input Data				
	Shoulder width ft			
-	Lane widthtt	✓ Class I	nighway 🔲 Class II	
	Lane width tt			
	Shoulder width ft	highway 🗌 Class III highway		
C		Terrain	🗹 Level 📃 Rolling	
Segment len	gth, L <sub>l</sub> mi	Grade Length		
4	•	Peak-hour fai No-passing z		
		Classifier and the second		
Analysis direction vol., V <sub>d</sub> 24	'&veh/h	Show North Arrow % Trucks and	Buses, P <sub>T</sub> 7%	
Opposing direction vol., V <sub>o</sub> 34	l&veh/h		nal vehicles, P <sub>R</sub> 0%	
Shoulder width ft 0.		Access points <i>mi</i> 2/mi		
Lane Width ft 12. Segment Length mi 3.5				
Average Travel Speed				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	F <sub></sub> (Exhibit 15-11 or 15-12)	1.4	1.3	
Passenger-car equivalents for RVs, E		1.0	1.0	
		0.973	0.979	
Heavy-vehicle adjustment factor, $f_{HV,ATS} = 1/(1 + P_T(E_T - 1) + P_R(E_R - 1))$ 0.973Grade adjustment factor <sup>1</sup> , $f_{q,ATS}$ (Exhibit 15-9)1.00		1.00		
	emand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$ ) 277		386	
	from Field Measurement		ee-Flow Speed	
Tree-Tlow Speed			•	
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/	
Maan anaad of complete		Adj. for lane and shoulder width, <sup>2</sup>	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub> Total demand flow rate, both direction		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.5 mi/h		
Total demand flow rate, both direction		Free-flow speed, FFS (FSS=BFI		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776				
Adj. for no-passing zones, f <sub>np,ATS</sub> (E>	(hibit 15-15) 1.1 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 44.0 mi/	
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>		
		Percent free flow speed, PFFS	87.5 %	
Percent Time-Spent-Following		1	1	
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs, E	R (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex		1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(F		271	381	
Base percent time-spent-following <sup>4</sup> , E	BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	3	31.6	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	khibit 15-21)	2	26.9	
Percent time-spent-following, $PTSF_{d}$	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	4	12.8	
v <sub>o,PTSF</sub> )				
Level of Service and Other Perforn	nance Measures			
Level of service, LOS (Exhibit 15-3)			D	
Volume to capacity ratio, v/c		0.16		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	87.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	269.6
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.75
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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0	ONAL TWO-LANE HIGHWA	-	
General Information		Site Information	SD 440
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	SR 113 south of Midway Rd SB
Date Performed	10/8/18	Jurisdiction	Caltrans
Analysis Time Period	AM	Analysis Year	Cumulative plus Project
Project Description: <i>Recology Hay R</i>	d Landfill		
Input Data			
	Shoulder width It		
	Lane width tt	Class I	
	Lane width tt		nighway 📃 Class II
	Shoulder width ft	highway 🗌 Class III highway	
		Terrain	🗹 Level 📃 Rolling
Segment leng	gth, L <sub>l</sub> mi	Grade Length	
		Peak-hour fai No-passing z	
Analysis direction vol. V 24	8veh/h	Show North Arrow % Trucks and	
<b>,</b> , , , , , , , , , , , , , , , , , ,			
	8veh/h		nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 0.8 Lane Width ft 12.		Access points	s <i>mi</i> 2/mi
Segment Length mi 3.5			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.4
Passenger-car equivalents for RVs, E	R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$		0.979	0.973
rade adjustment factor <sup>1</sup> , f <sub>g,ATS</sub> (Exhibit 15-9) 1.00		1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (P	HF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	f <sub>HV,ATS</sub> ) 386	
Free-Flow Speed	from Field Measurement	Estimated Fre	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
		Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>			
Total demand flow rate, both direction	IS, V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.5 $mi/h$	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(	v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/i
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	,	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 44.0 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	87.4 %
Percent Time-Spent-Following		I	· · ··
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E	r <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex		1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(P	°HF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	381	271
Base percent time-spent-following <sup>4</sup> , E	BPTSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub>b</sup> )	3	39.1
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	26.9	
Percent time-spent-following, PTSF <sub>d</sub> (	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +		54.8
v <sub>o,PTSF</sub> )			
Level of Service and Other Perform	ance Measures		
Level of service, LOS (Exhibit 15-3)			D
		0.23	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	87.4
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	378.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.93
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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Or manual lasta "		Y SEGMENT WORK	_	
General Information		Site Information	00.440	
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	SR 113 south of Midway Rd NB	
Date Performed	10/8/18	Jurisdiction	Caltrans	
Analysis Time Period	PM Bel Lawsfill	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay	Rd Landfill			
Input Data	1			
	Shoulder width ft			
-	Lane widthtt	Class I h	nighway 🔲 Class II	
	Lane width tt			
	Shoulder width ft	highway 🗌 Class III highway		
		/ Terrain	✓ Level Rolling	
Segment ler	igth, L <sub>t</sub> mi	Grade Length		
		Peak-hour fac No-passing zo		
	20	Show North Arrow % Trucks and		
Analysis direction vol., V <sub>d</sub> 3	39veh/h			
11 0 7 0	36veh/h		al vehicles, P <sub>R</sub> 0%	
Shoulder width ft 0 Lane Width ft 12	.5	Access points <i>mi</i> 2/mi		
Segment Length mi 3.				
Average Travel Speed				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.3	
Passenger-car equivalents for RVs,		1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub>	<sub>ATS</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.979	0.979	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex	khibit 15-9)	1.00 1.00		
emand flow rate <sup>2</sup> , $v_i$ (pc/h) $v_i = V_i$ / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$ ) 376		373		
	from Field Measurement	Estimated Fre	e-Flow Speed	
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l	
		Adj. for lane and shoulder width, <sup>4</sup>		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>				
Total demand flow rate, both directio	ns, v	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibit 15-8) 0.5 <i>mi/h</i>		
Free-flow speed, FFS=S <sub>FM</sub> +0.00776		Free-flow speed, FFS (FSS=BFF	<sup>-</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/i	
Adj. for no-passing zones, f <sub>np,ATS</sub> (E		Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 43.4 mi/	
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>		
		Percent free flow speed, PFFS	86.2 %	
Percent Time-Spent-Following		1		
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1	
Passenger-car equivalents for RVs,	E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub>	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (E		1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> =V <sub>i</sub> /(	PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	371	368	
Base percent time-spent-following <sup>4</sup> ,	BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	4	0.4	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (E	xhibit 15-21)	27.3		
Percent time-spent-following, PTSF <sub>d</sub>	(%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	5	4.1	
v <sub>o,PTSF</sub> )				
Level of Service and Other Perfor	nance Measures			
Level of service, LOS (Exhibit 15-3)			D	
Volume to capacity ratio, v/c		0	.22	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	368.5
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.91
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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Or a result for from the		Y SEGMENT WORK	
General Information		Site Information	25.442
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	SR 113 south of Midway Rd SB
Date Performed	10/8/18	Jurisdiction	Caltrans
Analysis Time Period	PM Bel Lawsfill	Analysis Year	Cumulative plus Project
Project Description: <i>Recology Hay I</i>	Rd Landfill		
Input Data	1		
	Shoulder width ft		
	Lane widthtt	Class I h	nighway 🔲 Class II
	Lane width tt		
	Shoulder width ft	highway 🗌 Class III highway	
		/ Terrain	✓ Level Rolling
Segment len	ıgth, L <sub>t</sub> mi	Grade Length	
		Peak-hour fac No-passing z	
Analysis direction vol., V <sub>d</sub> 3	36veh/h	Show North Arrow % Trucks and	
-			•
11 0 70	39veh/h		al vehicles, P <sub>R</sub> 0% s <i>mi</i> 2/mi
Shoulder width ft 0. Lane Width ft 12	.5 .0	Access points	2/11II
Segment Length mi 3.5			
Average Travel Speed			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks	, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.3
Passenger-car equivalents for RVs, I	E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )		0.979	0.979
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex	khibit 15-9)	1.00 1.00	
Demand flow rate <sup>2</sup> , v <sub>j</sub> (pc/h) v <sub>j</sub> =V <sub>j</sub> / (F	$v_{i} = V_{i} / (PHF^{*} f_{g,ATS}^{*} f_{HV,ATS}) $ $373$		376
Free-Flow Speed	from Field Measurement	Estimated Fre	ee-Flow Speed
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/
		Adj. for lane and shoulder width, <sup>4</sup>	f. c(Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>			
Total demand flow rate, both directio	ns, v	, , , , , , , , , , , , , , , , , , ,	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776	(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	<sup>-</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/i
Adj. for no-passing zones, f <sub>np,ATS</sub> (E		Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 43.4 mi/
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
Deveent Time One of C. "		Percent free flow speed, PFFS	86.2 %
Percent Time-Spent-Following		Analysis Direction (d)	Opposing Direction (o)
_		Analysis Direction (d)	
Passenger-car equivalents for trucks	•	1.1	1.1
Passenger-car equivalents for RVs, I		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub>		0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (E		1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(l		368	371
Base percent time-spent-following <sup>4</sup> , I	BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>D</sup> )	4	0.0
Adj. for no-passing zone, f <sub>np,PTSF</sub> (E	xhibit 15-21)	2	7.3
Percent time-spent-following, PTSF <sub>d</sub>	(%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *( $v_{d,PTSF} / v_{d,PTSF}$ +	5	3.6
v <sub>o,PTSF</sub> )			
Level of Service and Other Perform	nance Measures		
Level of service, LOS (Exhibit 15-3)			D
Volume to capacity ratio, <i>v/c</i>		0.22	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	365.2
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.91
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is of downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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Constal Information		SHEET
General Information	Site Information	00.442
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 north of Hay Rd NB
Date Performed 10/8/18	Jurisdiction	Caltrans
Analysis Time Period AM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width tt		
Lane width tt		
	Class I h	nighway 📃 Class II
Lane width tt	highway	Class III highway
f Shoulder widthft	Terrain	Level Rolling
e Company logante de mi	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing z	one 12%
Analysis direction vol., V <sub>d</sub> 458veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 303veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 0.5	Access points	΄ R
Lane Width ft 12.0	Access points mi 2/mi	
Segment Length mi 3.5		
Average Travel Speed	-	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00 1.00	
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	505 338	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł
	Adj. for lane and shoulder width, <sup>4</sup>	<sup>1</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	=S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/h
		20 / 1
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.1 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	5-0.00776(V <sub>d,ATS</sub> + 42.6 mi/h
	v <sub>o.ATS</sub> ) - f <sub>np.ATS</sub>	
	Percent free flow speed, PFFS	84.7 %
Percent Time-Spent-Following		-
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , $v_{f}(pc/h) v_{i} = V_{i}/(PHF^{*}f_{HV,PTSF}^{*}f_{g,PTSF})$	498	332
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	4	17.9
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	2	22.0
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} +$	6	61.1
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c	0.30	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	84.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	497.8
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.07
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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	ONAL TWO-LANE HIGHWA	2		
General Information		Site Information	00.440	
Analyst Agency or Company	JF	0,	SR 113 north of Hay Rd SB	
Date Performed	10/8/18		Caltrans	
Analysis Time Period	AM	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay R	2d Landfill			
Input Data				
	Shoulder width ft		_	
-	Lane width ft	✓ Class I h	ighway 📃 Class II	
	Lane width It	highway	Class III highway	
	Shoulder_widthft			
-		Grade Length	-	
Segment leng	gth, L <sub>t</sub> mi	Peak-hour fac		
22.1		No-passing zo		
Analysis direction vol., V <sub>d</sub> 30	3veh/h	Show North Arrow % Trucks and	Buses, P <sub>T</sub> 7%	
4			·	
11 <b>0</b> 7 0	8veh/h -	Access points	' K	
Shoulder width ft 0.8 Lane Width ft 12.		Access points	2/11II	
Segment Length mi 3.5				
Average Travel Speed		•		
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	F_ (Exhibit 15-11 or 15-12)	1.4	1.2	
		1.0	1.0	
Passenger-car equivalents for RVs, E				
Heavy-vehicle adjustment factor, f <sub>HV,</sub>		0.973	0.986	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exi		1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (P		338 505		
Free-Flow Speed	from Field Measurement	Estimated Fre	e-Flow Speed	
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l	
		Adj. for lane and shoulder width, <sup>4</sup>	fue (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>				
Total demand flow rate, both direction	IS, V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(		Free-flow speed, FFS (FSS=BFF	<sup>:</sup> S-f <sub>LS</sub> -f <sub>A</sub> ) 50.3 mi/i	
Adj. for no-passing zones, f <sub>np.ATS</sub> (Ex	,	Average travel speed, ATS <sub>d</sub> =FFS	EG //	
·· <b>·</b> ···-		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>		
		Percent free flow speed, PFFS	85.3 %	
Percent Time-Spent-Following				
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.0	
Passenger-car equivalents for RVs, E	<sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	1.000	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex	hibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(P	HF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	332	498	
Base percent time-spent-following <sup>4</sup> , E		3	8.9	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	22.0		
Percent time-spent-following, PTSF <sub>d</sub>	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> /v <sub>d,PTSF</sub> +		7.7	
v <sub>o,PTSF</sub> )		4		
Level of Service and Other Perform	ance Measures			
Level of service, LOS (Exhibit 15-3)			D	
		0.20		

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	85.3
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	329.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.86
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.	

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Conoral Information	Site Information	SHEET
General Information Analvst JF	Highway / Direction of Travel	SR 113
Analyst JF Agency or Company	From/To	north of Hay Rd NB
Date Performed 10/8/18	Jurisdiction	Caltrans
Analysis Time Period PM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data	1	
Shoulder width tt		
Lane width		
	Class I I	highway 📃 Class II
	highway	Class III highway
t Shoulder widthtt	Terrain	✓ Level Rolling
• Seament length, L, mi	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fa	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 474veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7%
Opposing direction vol., V 436veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $0.5$	Access points	Υ R
Lane Width ft 12.0		_,
Segment Length mi 3.5		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.2
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.986
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	523 481	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Le</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, v	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFI	FS-f <sub>LS</sub> -f <sub>A</sub> )
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.9 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(V, ATS +
Adj. 101 110-passing 20103, Inp,ATS (Exhibit 10-13)		<sup>41.6</sup> <i>mi/h</i>
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	82.7 %
Percent Time-Spent-Following	Percent free flow speed, PFFS	82.1 %
rercent nine-spent-ronowing	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	515	474
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	51.8	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	2	22.9
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$	e	53.7
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)	D	
Volume to capacity ratio, v/c	0.31	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	82.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	515.2
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.08
Bicycle level of service (Exhibit 15-4)	F
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one downgrade segments are treated as level terrain.	of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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	AY SEGMENT WORK		
General Information	Site Information	00.440	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 north of Hay Rd SB	
Date Performed 10/8/18	Jurisdiction	Caltrans	
Analysis Time Period PM	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay Rd Landfill			
Input Data	•		
T Shoulder width ft			
		_	
Lane width tt	Class I	highway 📃 Class II	
Lane width	highway	Class III highway	
ftft	Terrain	Level Rolling	
• • •	Grade Lengt	-	
Segment length, L <sub>t</sub> mi	Peak-hour fa		
	No-passing z	tone 12%	
Analysis direction vol., V <sub>d</sub> 436veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7%	
4	% Recreation	nal vehicles, P <sub>R</sub> 0%	
Opposing direction vol., V <sub>o</sub> 474veh/h Shoulder width ft 0.5	Access point		
Lane Width ft 12.0	//00000 point	- ···· <b>/</b> /////	
Segment Length mi 3.5			
Average Travel Speed			
	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.2	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.986	0.986	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	481 523		
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed	
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h	
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20	
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>IS</sub> -f <sub>A</sub> ) 50.3 mi/h	
	Average travel speed, ATS <sub>d</sub> =FFS	20 / 1	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.8 mi/h		41.7 mi/h	
	V <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>		
Paraant Time Spont Following	Percent free flow speed, PFFS	82.9 %	
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	1.000	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00	
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>I</sub> =V <sub>I</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	474	515	
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub>b</sup> )	4	49.7	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	2	22.9	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+$	e e	50.7	
v <sub>o,PTSF</sub> )			
Level of Service and Other Performance Measures			
Level of service, LOS (Exhibit 15-3)		D	
		-	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	82.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	473.9
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.04
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.	

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Conserved Information		SHEET
General Information	Site Information	00.442
Analyst JF Agency or Company	Highway / Direction of Travel From/To	SR 113 south of Hay Rd NB
Date Performed 10/8/18	Jurisdiction	Caltrans
Analysis Time Period AM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width tt		
Lane width		
· · · · · · · · · · · · · · · · · · ·	✓ Class I ł	nighway 📃 Class II
Lane width tt	highway	Class III highway
fft ftftft ft fft fft fft fft fft fft fft	Terrain	Level Rolling
e Commont I and	Grade Length	
Segment length, L <sub>t</sub> mi	Peak-hour fac	ctor, PHF 0.92
	No-passing z	one 18%
Analysis direction vol., V <sub>d</sub> 452veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7%
4	% Recreation	nal vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 257veh/h Shoulder width ft 0.5	Access points	΄ R
Lane Width ft 12.0		<b>L</b> /1111
Segment Length mi 8.5		
Average Travel Speed	-	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.4
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.986	0.973
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00 1.00	
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	498 287	
Free-Flow Speed from Field Measurement	Estimated Fre	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/r
	Adj. for lane and shoulder width, <sup>4</sup>	<sup>1</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.5 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BFF	=S-f <sub>LS</sub> -f <sub>Δ</sub> ) 50.3 mi/h
		20 / 1
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 1.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	43.0 mi/h
	v <sub>o.ATS</sub> ) - f <sub>np.ATS</sub>	
	Percent free flow speed, PFFS	85.6 %
Percent Time-Spent-Following		-
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	491	281
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av</sup> d <sup>b</sup> )	4	16.4
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	2	26.1
Percent time-spent-following, $PTSF_{d}(\%)=BPTSF_{d}+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF}+$	6	53.0
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		D
Volume to capacity ratio, v/c	0.29	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1654
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	85.6
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	491.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.06
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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	DNAL TWO-LANE HIGHWA	2		
General Information		Site Information	25.442	
Analyst Agency or Company	JF	Highway / Direction of Travel From/To	SR 113 south of Hay Rd SB	
Date Performed	10/8/18	Jurisdiction	Caltrans	
Analysis Time Period	AM	Analysis Year	Cumulative plus Project	
Project Description: Recology Hay R	Rd Landfill			
Input Data				
+				
	Shoulder width ft	_	_	
-	Lane width It	Class I h	nighway 📃 Class II	
	Lane width It	highway	Class III highway	
	Shoulder_widthft			
-		Grade Length	-	
Segment len	gth, L <sub>t</sub> mi	Peak-hour fac		
		No-passing z		
Analysis direction vol., V <sub>d</sub> 25	i7veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %	
G	- <u>Arch</u>	% Recreation	al vehicles, P <sub>R</sub> 0%	
11 <b>0</b> 7 0	i2veh/h	Access points	Υ <b>R</b>	
Shoulder width ft 0.3 Lane Width ft 12.			ζ,,,,,, ζ,,,,,,, ζ,,,,,,,,,,,,,,,,,,,,	
Segment Length mi 8.5				
Average Travel Speed		-		
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.4	1.2	
Passenger-car equivalents for RVs, E	<sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV.</sub>	<sub>ATS</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.973	0.986	
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex	hibit 15-9)	1.00	1.00	
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (P	HF* f <sub>a.ATS</sub> * f <sub>HV.ATS</sub> )	287 498		
	from Field Measurement	Estimated Fre	e-Flow Speed	
		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/ł	
		•		
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width, <sup>4</sup>		
Total demand flow rate, both direction	IS. <i>V</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(		Free-flow speed, FFS (FSS=BFF	-S-f <sub>1,S</sub> -f <sub>A</sub> ) 50.3 mi/l	
		Average travel speed, ATS <sub>d</sub> =FFS	LO A	
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	(11b)(15-15) 0.9 (11/11		43.3 mi/l	
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>		
		Percent free flow speed, PFFS	86.2 %	
Percent Time-Spent-Following		Applycia Direction (-1)	Opposing Direction (-)	
		Analysis Direction (d)	Opposing Direction (o)	
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.0	
Passenger-car equivalents for RVs, E	R (Exhibit 15-18 or 15-19)	1.0	1.0	
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	1.000	
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex		1.00	1.00	
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(F		281	491	
Base percent time-spent-following <sup>4</sup> , E	3PTSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub>b</sup> )	3	94.9	
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	chibit 15-21)	2	6.1	
Percent time-spent-following, $PTSF_{d}($	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> $(v_{d,PTSF} / v_{d,PTSF} +$	4	4.4	
v <sub>o,PTSF</sub> )				
Level of Service and Other Perform	nance Measures	•		
Level of service, LOS (Exhibit 15-3)			D	
Volume to capacity ratio, v/c			.17	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	86.2
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	279.3
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	5.77
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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	ONAL TWO-LANE HIGHWA		
General Information	15	Site Information	00 442
Analyst Agency or Company	JF	5,	SR 113 south of Hay Rd NB
Date Performed	10/8/18	Jurisdiction	Caltrans
Analysis Time Period	PM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay F	Rd Landfill		
Input Data			
	1 Shoulder width tt		
-			_
	Lane width ft	✓ Class I h	nighway 📃 Class II
	Lane width It	highway	Class III highway
	Shoulder_widthft		
•		Grade Length	-
Segment len	gth, L <sub>t</sub> mi	Peak-hour fac	
		No-passing zo	
Analysis direction vol., V <sub>d</sub> 40	5veh/h	Show North Arrow % Trucks and	l Buses , P <sub>T</sub> 7 %
-		% Recreation	al vehicles, P <sub>R</sub> 0%
11 0 / 0	'9veh/h	Access points	Υ <b>R</b>
Shoulder width ft 0. Lane Width ft 12.		Access points	ζ/11
Segment Length mi 8.5			
Average Travel Speed		=	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.3	1.2
Passenger-car equivalents for RVs, E		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV.</sub>		0.979	0.986
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex	hibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (P	HF* f <sub>g ATS</sub> * f <sub>HV ATS</sub> )	450 528	
	from Field Measurement	Estimated Fre	e-Flow Speed
			55.0 mi/l
		Base free-flow speed <sup>4</sup> , BFFS	
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both direction		Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
		Free-flow speed, FFS (FSS=BFF	
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(	√ f <sub>HV,ATS</sub> )		LO A
Adj. for no-passing zones, f <sub>np.ATS</sub> (Ex	hibit 15-15) 0.8 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	G-0.00776(v <sub>d,ATS</sub> + 41.9 mi/l
		V <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	83.3 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E	R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> -	=1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	1.000	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex	hibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(F	PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	440	521
Base percent time-spent-following <sup>4</sup> , E		4	8.2
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	2	6.9
Percent time-spent-following, PTSF d	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> /v <sub>d,PTSF</sub> +		0.5
v <sub>o,PTSF</sub> )		0	
Level of Service and Other Perform	nance Measures		
Level of service, LOS (Exhibit 15-3)			D
		0.26	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1676
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	83.3
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	440.2
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.00
Bicycle level of service (Exhibit 15-4)	F
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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	ONAL TWO-LANE HIGHWA	2	
General Information		Site Information	00 440
Analyst Agency or Company	JF	0,	SR 113 south of Hay Rd SB
Date Performed	10/8/18	Jurisdiction	Caltrans
Analysis Time Period	PM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay R	2d Landfill		
Input Data			
	Shoulder width ft		
-			
	Lane width ft	Class I h	ighway 📃 Class II
<del></del>	Lane width It	highway	Class III highway
	Shoulder_widthft _		
•		Grade Length	-
Segment len	gth, L <sub>t</sub> mi	Peak-hour fac	
		No-passing zo	
Analysis direction vol., V <sub>d</sub> 47	9veh/h	Show North Arrow % Trucks and	Buses , P <sub>T</sub> 7 %
ŭ		% Recreation	al vehicles, P <sub>R</sub> 0%
	5veh/h	Access points	' R
Shoulder width ft 0.3 Lane Width ft 12.		Access points	Δ/11
Segment Length mi 8.5			
Average Travel Speed		-	
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.2	1.3
Passenger-car equivalents for RVs, E		1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,</sub>	<sub>ATS</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.986	0.979
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Ex	nibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub></i> / (P	HF* f <sub>a.ATS</sub> * f <sub>HV.ATS</sub> )	528 450	
	from Field Measurement	Estimated Fre	e-Flow Speed
•		Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/l
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		Adj. for lane and shoulder width, <sup>4</sup>	f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both direction	IS V	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhibi	t 15-8) 0.5 mi/h
		Free-flow speed, FFS (FSS=BFF	S-f <sub>Lo</sub> -f <sub>A</sub> ) 50.3 mi/l
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(	,		
Adj. for no-passing zones, f <sub>np,ATS</sub> (Ex	hibit 15-15) 1.0 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	-0.00776(v <sub>d,ATS</sub> + 41.7 mi/l
		v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
		Percent free flow speed, PFFS	82.9 %
Percent Time-Spent-Following			
		Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks,	E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E	R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =	=1/(1+P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1))	1.000	1.000
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Ex	hibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub></i> =V <sub>i</sub> /(F	PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	521	440
Base percent time-spent-following <sup>4</sup> , E		5	1.4
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Ex	hibit 15-21)	2	6.9
Percent time-spent-following, PTSF <sub>d</sub>	%)=BPTSF <sub>d</sub> +f <sub>np,PTSF</sub> *(v <sub>d,PTSF</sub> / v <sub>d,PTSF</sub> +		6.0
v <sub>o,PTSF</sub> )		o	
Level of Service and Other Perform	ance Measures		
Level of service, LOS (Exhibit 15-3)			D
		0.31	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1664
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1700
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	82.9
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	520.7
Effective width, Wv (Eq. 15-29) ft	12.50
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	6.09
Bicycle level of service (Exhibit 15-4)	F
Notes	•
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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DIRECTIONAL TWO-LANE HIGHWA		
General Information	Site Information	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 EB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period AM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill	•	
Input Data		
L		
📜 Shoulder width ft		
🖞 Lane width ft	✓ Class I	highway 🔲 Class II
Lane width tt		
Shoulder width tt	highway 🛄	Class III highway
	Terrain	🗹 Level 📃 Rolling
Segment length, L <sub>l</sub> mi	Grade Lengt	-
	Peak-hour fa	
	No-passing z	
Analysis direction vol., V <sub>d</sub> 60veh/h	Show North Arrow % Trucks an	d Buses , P <sub>T</sub> 7%
	% Recreation	nal vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 101veh/h	Access point	
Shoulder width ft 1.0 Lane Width ft 12.0	Access point	3 mii 1/1111
Segment Length mi 0.7		
Average Travel Speed	1	
······································	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}$ =1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ )	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v<sub>i</sub>=V<sub>i</sub> /</i> (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	69 117	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>LS</sub> (Exhibit 15-7) 4.2 mi/h
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , $f_{A}$ (Exhibit	oit 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BF	20 //
Adj. for no-passing zones, f <sub>np.ATS</sub> (Exhibit 15-15) 0.4 mi/h	Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(v <sub>d.ATS</sub> +
, i o i ip,Aro (	v	48.7 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub> Percent free flow speed, PFFS	96.3 %
Parcent Time Spont Following	reicent nee now speed, r r r S	30.3 /8
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (a)
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Desenger car equivalents for D//s E (Evhibit 15.19 or 15.10)	1.0	1.0
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)		
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	66	111
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1-e <sup>av<sub>d</sub> <sup>b</sup>)</sup>		7.9
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		29.9
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+$		19.0
v <sub>o,PTSF</sub> )		
0, 101,	-	
Level of Service and Other Performance Measures Level of service, LOS (Exhibit 15-3)		С

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.3
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	65.2
Effective width, Wv (Eq. 15-29) ft	22.10
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	3.37
Bicycle level of service (Exhibit 15-4)	С
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is one downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.	

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DIRECTIONAL TWO-LANE HIGHWA	а.	
General Information	Site Information	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 WB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period AM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data	•	
L Shoulder width ft		
		_
Lane width	Class I	highway 📃 Class II
Lane width tt	highway	Class III highway
tt		
• • •	Grade Lengt	-
Segment length, L <sub>t</sub> mi	Peak-hour fa	
24 G	No-passing z	
Analysis direction vol., V <sub>d</sub> 101veh/h	Show North Arrow % Trucks an	d Buses , P <sub>T</sub> 7%
-		nal vehicles, P <sub>R</sub> 0%
Opposing direction vol., V <sub>o</sub> 60veh/h	Access point	
Shoulder width ft 1.0 Lane Width ft 12.0	Access point	
Segment Length mi 0.7		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV,ATS</sub> =1/ (1+ P <sub>7</sub> (E <sub>7</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.941	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	117 69	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Le</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, <i>v</i>	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776(v/ f <sub>HV,ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/h
	Average travel speed, ATS <sub>d</sub> =FF	20 //
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.2 mi/h		3-0.00770(v <sub>d,ATS</sub> + 48.9 mi/h
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	96.7 %
Percent Time-Spent-Following	Analysis D' (1) (1)	
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>/</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	111	66
Base percent time-spent-following <sup>4</sup> , BPTSF <sub>d</sub> (%)=100(1- $e^{av_d}^b$ )		12.8
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		29.9
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d + f_{np,PTSF} * (v_{d,PTSF} / v_{d,PTSF} + $		31.6
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
	0.07	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	109.8
Effective width, Wv (Eq. 15-29) ft	19.43
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.19
Bicycle level of service (Exhibit 15-4)	D
Notes	
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is or downgrade segments are treated as level terrain.	ne of the base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10.</li> </ol>	

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	Y SEGMENT WORK	
General Information	Site Information	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 EB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period PM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data		
Shoulder width tt		
Lane width		
	Class I	highway 📃 Class II
Lane width tt	highway	Class III highway
	Terrain	✓ Level Rolling
<ul> <li>Seament length, L, mi</li> </ul>	Grade Lengtl	-
Segment length, L <sub>t</sub> mi	Peak-hour fa	ctor, PHF 0.92
	No-passing z	
Analysis direction vol., V <sub>d</sub> 138veh/h	Show North Arrow % Trucks and	d Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 26veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft $1.0$	Access point	
Lane Width ft 12.0		.,
Segment Length mi 0.7		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.7	1.9
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}$ =1/ (1+ $P_T(E_T$ -1)+ $P_R(E_R$ -1) )	0.953	0.941
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	157 30	
Free-Flow Speed from Field Measurement	Estimated Fr	ee-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Le</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		20
Total demand flow rate, both directions, v	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	it 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) 0.2 mi/h	Average travel speed, ATS <sub>d</sub> =FFS	S-0.00776(v <sub>d,ATS</sub> + 48.9 mi/ł
	v <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	
	Percent free flow speed, PFFS	96.7 %
Percent Time-Spent-Following		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}$ =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	151	28
Base percent time-spent-following <sup>4</sup> , $BPTSF_d(\%)=100(1-e^{av_d^b})$	:	16.9
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)	2	25.9
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF} / v_{d,PTSF} + v_{d,PTSF})$		38.7
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
Volume to capacity ratio, v/c		0.09

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1600
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	96.7
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	150.0
Effective width, Wv (Eq. 15-29) ft	17.03
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.79
Bicycle level of service (Exhibit 15-4)	E
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the downgrade segments are treated as level terrain.	base conditions. For the purpose of grade adjustment, specific
<ol> <li>If v<sub>i</sub>(v<sub>d</sub> or v<sub>o</sub>) &gt;=1,700 pc/h, terminate analysisthe LOS is F.</li> <li>For the analysis direction only and for v&gt;200 veh/h.</li> <li>For the analysis direction only</li> <li>Exhibit 15-20 provides coefficients a and b for Equation 15-10</li> </ol>	

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	AY SEGMENT WORK	
General Information	Site Information	
Analyst JF Agency or Company	Highway / Direction of Travel From/To	Hay Rd west of SR 113 WB
Date Performed 10/8/18	Jurisdiction	Solano County
Analysis Time Period PM	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data	-	
Shoulder width		
Lane width		
	Class I	highway 📃 Class II
Lane width It	highway 🗌	Class III highway
fft_ft	Terrain	Level Rolling
e Communation material	Grade Lengt	-
Segment length, L <sub>t</sub> mi	Peak-hour fa	
	No-passing :	zone 20%
Analysis direction vol., V <sub>d</sub> 26veh/h	Show North Arrow % Trucks an	id Buses , P <sub>T</sub> 7 %
Opposing direction vol., V <sub>o</sub> 138veh/h	% Recreation	nal vehicles, P <sub>R</sub> 0%
Shoulder width ft 1.0	Access point	
Lane Width ft 12.0		
Segment Length mi 0.7		
Average Travel Speed		
	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-11 or 15-12)	1.9	1.7
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.941	0.953
Grade adjustment factor <sup>1</sup> ,  f <sub>g,ATS</sub> (Exhibit 15-9)	1.00	1.00
Demand flow rate <sup>2</sup> , <i>v<sub>i</sub></i> (pc/h) <i>v</i> <sub>i</sub> = <i>V</i> <sub>i</sub> / (PHF* f <sub>g,ATS</sub> * f <sub>HV,ATS</sub> )	30 157	
Free-Flow Speed from Field Measurement	Estimated Fi	ree-Flow Speed
	Base free-flow speed <sup>4</sup> , BFFS	55.0 mi/h
	Adj. for lane and shoulder width,	<sup>4</sup> f <sub>Lo</sub> (Exhibit 15-7) 4.2 mi/h
Mean speed of sample <sup>3</sup> , S <sub>FM</sub>		
Total demand flow rate, both directions, $v$	Adj. for access points <sup>4</sup> , f <sub>A</sub> (Exhib	oit 15-8) 0.3 mi/h
Free-flow speed, FFS=S <sub>FM</sub> +0.00776( <i>v</i> / f <sub>HV.ATS</sub> )	Free-flow speed, FFS (FSS=BF	FS-f <sub>LS</sub> -f <sub>A</sub> ) 50.5 mi/h
	Average travel speed, ATS <sub>d</sub> =FF	S-0.00776(V + + +
Adj. for no-passing zones, f <sub>np,ATS</sub> (Exhibit 15-15) 0.8 mi/h		48.3 mi/r
	V <sub>o,ATS</sub> ) - f <sub>np,ATS</sub>	05.5.%
Parcent Time Spont Following	Percent free flow speed, PFFS	95.5 %
Percent Time-Spent-Following	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E <sub>T</sub> (Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E <sub>R</sub> (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, f <sub>HV</sub> =1/ (1+ P <sub>T</sub> (E <sub>T</sub> -1)+P <sub>R</sub> (E <sub>R</sub> -1) )	0.993	0.993
Grade adjustment factor <sup>1</sup> , f <sub>g,PTSF</sub> (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate <sup>2</sup> , v <sub>i</sub> (pc/h) v <sub>i</sub> =V <sub>i</sub> /(PHF*f <sub>HV,PTSF</sub> * f <sub>g,PTSF</sub> )	28	151
Base percent time-spent-following <sup>4</sup> , $BPTSF_{d}(\%)=100(1-e^{av_{d}^{b}})$		3.5
Adj. for no-passing zone, f <sub>np,PTSF</sub> (Exhibit 15-21)		25.9
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF})$	+	7.6
v <sub>o,PTSF</sub> )		
Level of Service and Other Performance Measures		
Level of service, LOS (Exhibit 15-3)		С
Volume to capacity ratio, <i>v/c</i>	0.02	

Capacity, C <sub>d,ATS</sub> (Equation 15-12) veh/h	1620
Capacity, C <sub>d,PTSF</sub> (Equation 15-13) veh/h	1688
Percent Free-Flow Speed PFFS <sub>d</sub> (Equation 15-11 - Class III only)	95.5
Bicycle Level of Service	
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	28.3
Effective width, Wv (Eq. 15-29) ft	24.31
Effective speed factor, $S_t$ (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	2.43
Bicycle level of service (Exhibit 15-4)	В
Notes	
<ol> <li>Note that the adjustment factor for level terrain is 1.00, as level terrain is on downgrade segments are treated as level terrain.</li> </ol>	e of the base conditions. For the purpose of grade adjustment, specific
2. If $v_i(v_d \text{ or } v_o) >=1,700 \text{ pc/h}$ , terminate analysisthe LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.	

5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET WITH PASSING LANE WORKSHEET			
General Information	Site Information		
Analyst JF Agency or Company Date Performed 4/13/2018 Analysis Time Period PM - MITIG8 - ADD PASSING LANE	Highway of Travel     Midway Rd       From/To     west of Porter Rd EB       Jurisdiction     Solano County		
Project Description: Recology Hay Rd Landfill			
Input Data			
Class I highway Class II highway Class III	highway		
Opposing direction			
Analysis direction			
Lu He L <sub>pl</sub>			
J L,	Show North Arrow		
Shoulder width (ft)	3.0		
Lane Width (ft) Segment Length (mi)	2.0		
	2.0		
Total length of analysis segment, L <sub>t</sub> Length of two-lane highway upstream of the passing lane, L <sub>u</sub>	0.5		
Length of passing lane including tapers , $L_{pl}$	0.3		
Average travel speed, ATS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)	42.6		
Percent time-spent-following, PTSF <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)	72.3		
Level of service <sup>1</sup> , LOS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)	D		
Average Travel Speed			
Length of the downstream highway segment within the effective length of passing lane for average travel speed, $L_{de}$ (Exhibit 15-23)	1.70		
Length of two-lane highway downstream of effective length of the passing lane for avg travel speed, $L_d L_d = L_t - (L_u + L_{pl} + L_{de})$	-0.50		
Adj. factor for the effect of passing lane on average speed, ${\rm f}_{\rm pl}$ (Exhibit 15-28)	1.11		
Average travel speed including passing lane <sup>2</sup> , $ATS_{pl} = (ATS_{d} * L_{t}) /$	15 '		
$(L_{u}+L_{d}+(L_{pl}/f_{pl})+(2L_{de}/(1+f_{pl,ATS}))))$	45.1		
Percent free flow speed including passing lane, $PFFS_{pl} = (ATS_{pl} / FFS)$	86.4		
Percent Time-Spent-Following			
Length of the downstream highway segment within the effective length of passing lane for percent time-spent-following, L <sub>de</sub> (Exhibit 15-23)	6.26		
Length of two-lane highway downstream of effective length of the passing lane for percent-time-following,	-5.06		
$\begin{split} & L_d = L_t - (L_u + L_{pl} + L_{de}) \\ & \text{Adj. factor for the effect of passing lane on percent time-spent-following,} \\ & f_{pl, PTSF}(\text{Exhibit 15-26}) \end{split}$	0.61		
рци и от х —	<u> </u>		

Percent time-spent-following including passing lane <sup>3</sup> , PTSF <sub>pl</sub> (%)	52.8	
$PTSF_{pl} = PTSF_{d}[L_{u} + L_{d} + f_{pl, PTSF} + ((1 + f_{pl, PTSF})/2)L_{de}]/L_{t}$		
Level of Service and Other Performance Measures <sup>4</sup>		
Level of service including passing lane LOS <sub>pl</sub> (Exhibit 15-3)	С	
Peak 15-min total travel time, TT <sub>15</sub> (veh-h) TT <sub>15</sub> = VMT <sub>15</sub> /ATS <sub>pl</sub>	7.0	
Bicycle Level of Service		
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	630.4	
Effective width, W $_{\rm v}$ (Eq. 15-29) ft	15.00	
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79	
Bicycle level of service score, BLOS (Eq. 15-31)	5.84	
Bicycle level of service (Exhibit 15-4)	F	
Notes		

1. If LOS<sub>d</sub>=F, passing lane analysis cannot be performed.

2. If L<sub>d</sub> <0, use alternative Equation 15-18.

3. If L<sub>d</sub><0, use alternative Equation 15-16.

4. v/c, VMT<sub>15</sub> and VMT<sub>60</sub> are calculated on Directional Two-Lane Highway Segment Worksheet.

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General Information	Site Information	
Analyst JF Agency or Company Date Performed 10/8/18	Highway of Travel From/To Jurisdiction	Midway Rd west of Porter Rd WB Solano County
Analysis Time Period PM - MITIG8	Analysis Year	Cumulative
Project Description: Recology Hay Rd Landfill		
nput Data		
Class I highway Class II highway Class II	II highway	
Opposing direction	-	
	=	
Analysis direction		~~~
Lu He Lpl Lde Ld	$\mathbf{H}$	$\rightarrow$
Г Ц	Show Nort	h Arrow
Shoulder width (ft)		3.0
Lane Width (ft)		12.0
Segment Length (mi)		2.0
Total length of analysis segment, L <sub>t</sub>		2.0
Length of two-lane highway upstream of the passing lane, $\boldsymbol{L}_{u}$		0.5
Length of passing lane including tapers , L <sub>pl</sub>		0.3
Average travel speed, ATS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)		43.0
Percent time-spent-following, PTSF <sub>d</sub> (from Directional Two-Lane Highway		59.2
Segment Worksheet) Level of service <sup>1</sup> , LOS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)		D
Average Travel Speed		
Length of the downstream highway segment within the effective length of passing lane for average travel speed, L <sub>de</sub> (Exhibit 15-23)		1.70
Length of two-lane highway downstream of effective length of the passing ane for avg travel speed, $L_d L_d = L_t - (L_u + L_{pl} + L_{de})$		-0.50
Adj. factor for the effect of passing lane on average speed, f <sub>pl</sub> (Exhibit 15- 28)		1.10
Average travel speed including passing lane <sup>2</sup> , $ATS_{pl} = (ATS_{d} * L_{t}) /$		45.3
$(L_u + L_d + (L_p)/f_{pl}) + (2L_{de}/(1 + f_{pl,ATS}))))$	1	4J.J
Percent free flow speed including passing lane, $PFFS_{pl} = (ATS_{pl} / FFS)$		86.9
Percent Time-Spent-Following		
Length of the downstream highway segment within the effective length of passing lane for percent time-spent-following, L <sub>de</sub> (Exhibit 15-23)		7.78
Length of two-lane highway downstream of effective length of the passing ane for percent-time-following,		-6.58
$L_d = L_t - (L_u + L_{pl} + L_{de})$ Adj. factor for the effect of passing lane on percent time-spent-following,		
$p_{P,PTSF}$ (Exhibit 15-26)		0.61

Percent time-spent-following including passing lane <sup>3</sup> , PTSF <sub>pl</sub> (%)	43.0	
$PTSF_{pl} = PTSF_{d}[L_{u} + L_{d} + f_{pl, PTSF} + ((1 + f_{pl, PTSF})/2)L_{de}]/L_{t}$		
Level of Service and Other Performance Measures <sup>4</sup>		
Level of service including passing lane LOS <sub>pl</sub> (Exhibit 15-3)	С	
Peak 15-min total travel time, TT <sub>15</sub> (veh-h) TT <sub>15</sub> = VMT <sub>15</sub> /ATS <sub>pl</sub>	4.9	
Bicycle Level of Service		
Directional demand flow rate in outside lane, <i>v<sub>OL</sub></i> (Eq. 15-24) veh/h	440.2	
Effective width, $W_v$ (Eq. 15-29) ft	15.00	
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79	
Bicycle level of service score, BLOS (Eq. 15-31)	5.66	
Bicycle level of service (Exhibit 15-4)	F	
Notes		

1. If LOS<sub>d</sub>=F, passing lane analysis cannot be performed.

2. If L<sub>d</sub> <0, use alternative Equation 15-18.

3. If L<sub>d</sub><0, use alternative Equation 15-16.

4. v/c, VMT<sub>15</sub> and VMT<sub>60</sub> are calculated on Directional Two-Lane Highway Segment Worksheet.

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WORK	SHEET	
General Information	Site Information	
Analyst JF Agency or Company Date Performed 4/13/2018	Highway of Travel From/To Jurisdiction	Midway Rd west of Porter Rd EB Solano County
Analysis Time Period PM - MITIG8	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill		
Input Data		
Class I highway Class II highway Class III	highway	
Opposing direction		
Lu He Lpi Lde Ld		$\rightarrow$
j Li	Show Nort	h Arrow
Shoulder width (ft)		3.0
Lane Width (ft)		12.0
Segment Length (mi)		2.0
Total length of analysis segment, L <sub>t</sub>		2.0
Length of two-lane highway upstream of the passing lane, $\boldsymbol{L}_{u}$		0.5
Length of passing lane including tapers , L <sub>pl</sub>		0.3
Average travel speed, ATS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)		42.6
Percent time-spent-following, PTSF <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)		72.9
Level of service <sup>1</sup> , LOS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)		D
Average Travel Speed		
Length of the downstream highway segment within the effective length of passing lane for average travel speed, L <sub>de</sub> (Exhibit 15-23)		1.70
Length of two-lane highway downstream of effective length of the passing lane for avg travel speed, $L_d L_d = L_t - (L_u + L_{pl} + L_{de})$		-0.50
Adj. factor for the effect of passing lane on average speed, f <sub>pl</sub> (Exhibit 15- 28)		1.11
Average travel speed including passing lane <sup>2</sup> , $ATS_{pl} = (ATS_{d} * L_{t}) / $		45.0
$(L_{u}+L_{d}+(L_{pl}/f_{pl})+(2L_{de}/(1+f_{pl,ATS}))))$		
Percent free flow speed including passing lane, PFFS <sub>pl</sub> = (ATS <sub>pl</sub> / FFS)		86.3
Percent Time-Spent-Following		
Length of the downstream highway segment within the effective length of passing lane for percent time-spent-following, L <sub>de</sub> (Exhibit 15-23)		6.26
Length of two-lane highway downstream of effective length of the passing		
lane for percent-time-following,		-5.06
$L_{d} = L_{t} - (L_{u} + L_{pl} + L_{de})$		
Adj. factor for the effect of passing lane on percent time-spent-following,		0.61
f <sub>pl,<i>PTSF</i>(Exhibit 15-26)</sub>		

Percent time-spent-following including passing lane <sup>3</sup> , PTSF <sub>pl</sub> (%)	53.2	
$PTSF_{pl} = PTSF_{d}[L_{u}+L_{d}+f_{pl,PTSF}L_{pl}+((1+f_{pl,PTSF})/2)L_{de}]/L_{t}$		
Level of Service and Other Performance Measures <sup>4</sup>		
Level of service including passing lane LOS <sub>pl</sub> (Exhibit 15-3)	С	
Peak 15-min total travel time, TT <sub>15</sub> (veh-h) TT <sub>15</sub> = VMT <sub>15</sub> /ATS <sub>pl</sub>	7.0	
Bicycle Level of Service		
Directional demand flow rate in outside lane, <i>v</i> <sub>OL</sub> (Eq. 15-24) veh/h	630.4	
Effective width, $W_v$ (Eq. 15-29) ft	15.00	
Effective speed factor, S <sub>t</sub> (Eq. 15-30)	4.79	
Bicycle level of service score, BLOS (Eq. 15-31)	5.84	
Bicycle level of service (Exhibit 15-4)	F	
Notes		

Notes

1. If  $LOS_d = F$ , passing lane analysis cannot be performed.

2. If L<sub>d</sub> <0, use alternative Equation 15-18.

3. If L<sub>d</sub><0, use alternative Equation 15-16.

4. v/c, VMT<sub>15</sub> and VMT<sub>60</sub> are calculated on Directional Two-Lane Highway Segment Worksheet.

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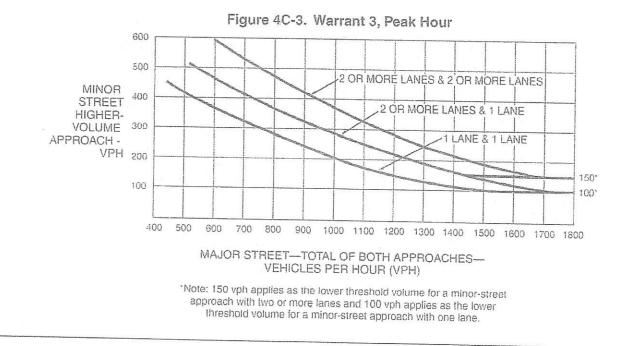
General Information	Site Information	
Analyst JF	Highway of Travel	Midway Rd
Agency or Company Date Performed 10/8/18	From/To Jurisdiction	west of Porter Rd WB Solano County
Analysis Time Period PM - MITIG8	Analysis Year	Cumulative plus Project
Project Description: Recology Hay Rd Landfill	-	
Input Data		
🗹 Class I highway 📃 Class II highway 🗌 Class II	l highway	
	T	
Opposing direction		
Analysis direction	7	
	1 1	
		1
<mark>∉ sł∢ sł∢ sł∢ t</mark> a	<b>*</b> (†	$\neg$
	*	/
L Li	Show flort	h Arrow
Shoulder width (ft)		3.0
Lane Width (ft)		12.0
Segment Length (mi)		2.0
Total length of analysis segment, L <sub>t</sub>		2.0
Length of two-lane highway upstream of the passing lane, $\boldsymbol{L}_{u}$		0.5
Length of passing lane including tapers , L <sub>pl</sub>		0.3
Average travel speed, ATS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)		42.9
Percent time-spent-following, PTSF <sub>d</sub> (from Directional Two-Lane Highway		60.2
Segment Worksheet)		60.2
Level of service <sup>1</sup> , LOS <sub>d</sub> (from Directional Two-Lane Highway Segment Worksheet)		D
Average Travel Speed		
Length of the downstream highway segment within the effective length of		1.70
passing lane for average travel speed, L <sub>de</sub> (Exhibit 15-23)		1./0
Length of two-lane highway downstream of effective length of the passing ane for avg travel speed, $L_d L_d=L_t-(L_u+L_{pl}+L_{de})$		-0.50
Adj. factor for the effect of passing lane on average speed, $f_{pl}$ (Exhibit 15-	1	
28)		1.10
Average travel speed including passing lane <sup>2</sup> , $ATS_{pl} = (ATS_{d} * L_{t}) / $		45.2
$(L_{u}+L_{d}+(L_{pl}/f_{pl})+(2L_{de}/(1+f_{pl,ATS}))))$		73.2
Percent free flow speed including passing lane, $PFFS_{pl} = (ATS_{pl} / FFS)$		86.7
Percent Time-Spent-Following		
ength of the downstream highway segment within the effective length of		7.69
passing lane for percent time-spent-following, L <sub>de</sub> (Exhibit 15-23)		7.68
_ength of two-lane highway downstream of effective length of the passing		
ane for percent-time-following,		-6.48
$L_{d} = L_{t} - (L_{u} + L_{pl} + L_{de})$		
Adj. factor for the effect of passing lane on percent time-spent-following,		
pl,PTSF(Exhibit 15-26)		0.61

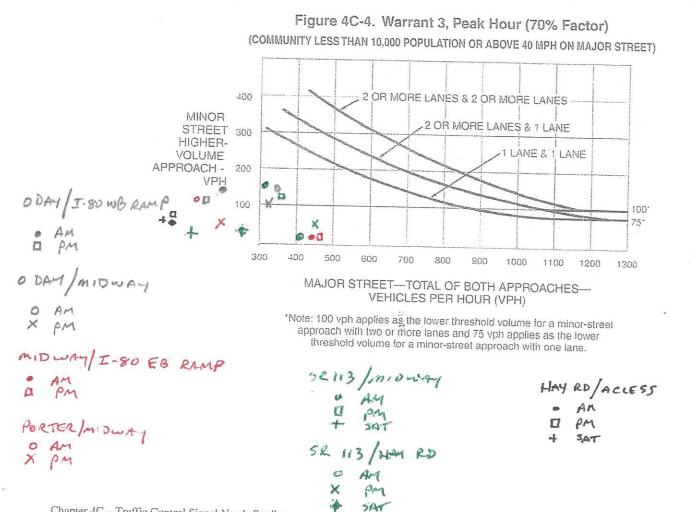
Percent time-spent-following including passing lane <sup>3</sup> , PTSF <sub>pl</sub> (%) PTSF <sub>pl</sub> = PTSF <sub>d</sub> [ L <sub>u</sub> +L <sub>d</sub> +f <sub>pl,PTSF</sub> L <sub>pl</sub> +((1+f <sub>pl,PTSF</sub> )/2)L <sub>de</sub> ]/L <sub>t</sub>	43.7	
Level of Service and Other Performance Measures <sup>4</sup>		
Level of service including passing lane LOS <sub>pl</sub> (Exhibit 15-3)	С	
Peak 15-min total travel time, TT <sub>15</sub> (veh-h) TT <sub>15</sub> = VMT <sub>15</sub> /ATS <sub>pl</sub>	5.0	
Bicycle Level of Service		
Directional demand flow rate in outside lane, v <sub>OL</sub> (Eq. 15-24) veh/h	453.3	
Effective width, $W_v$ (Eq. 15-29) ft	15.00	
Effective speed factor, $S_t$ (Eq. 15-30)	4.79	
Bicycle level of service score, BLOS (Eq. 15-31)	5.67	
Bicycle level of service (Exhibit 15-4)	F	
Notes		
1. If LOS <sub>d</sub> =F, passing lane analysis cannot be performed.		
2. If L <sub>d</sub> <0, use alternative Equation 15-18.		
3. If L <sub>d</sub> <0, use alternative Equation 15-16.		
4. v/c, $VMT_{15}$ and $VMT_{60}$ are calculated on Directional Two-Lane Highway Segment	Norksheet.	

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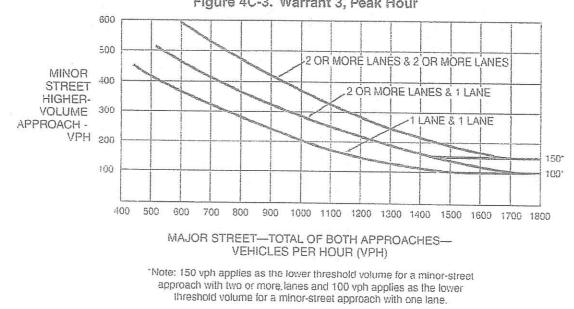


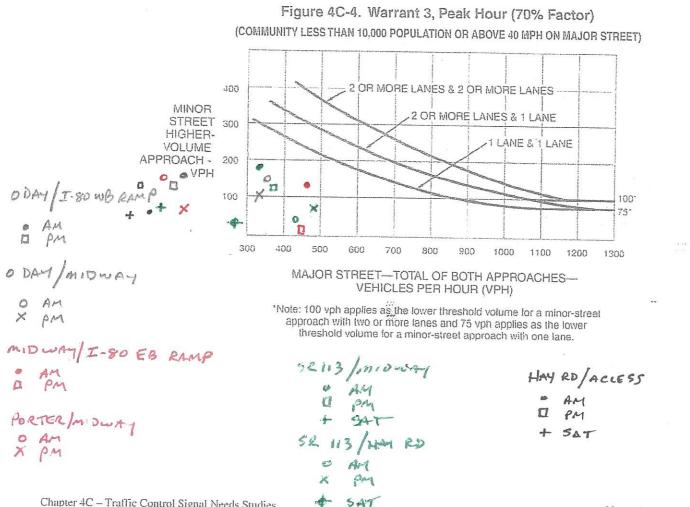
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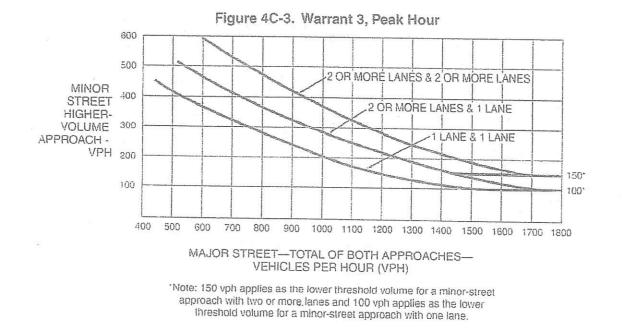


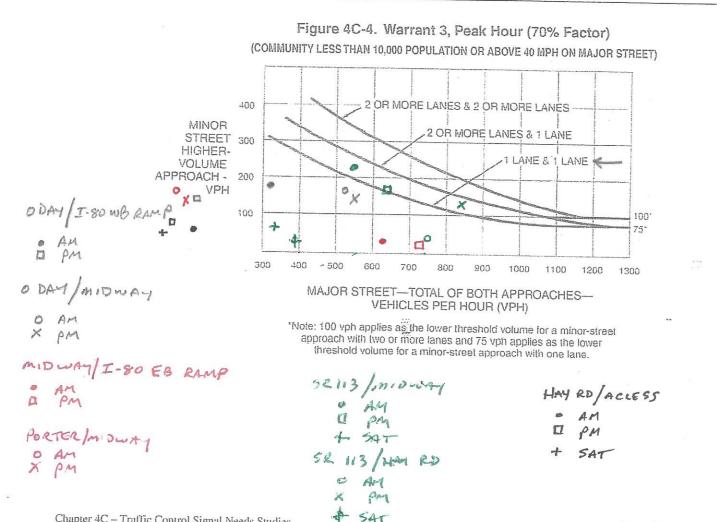


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California MUTCD 2014 Edition (FHWA's MUTCD 2009 Edition, including Revisions 1 & 2, as amended for use in California)

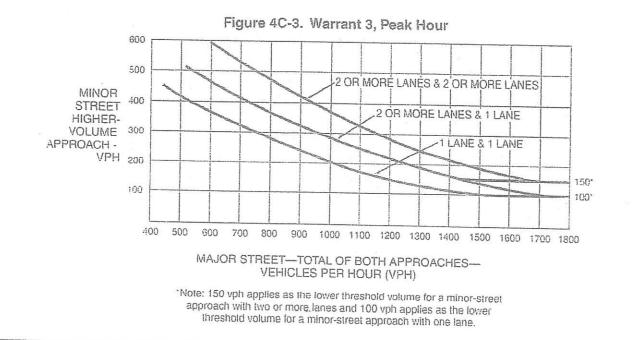


Figure 4C-4. Warrant 3, Peak Hour (70% Factor) (COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET) 2 OR MORE LANES & 2 OR MORE LANES 400 MINOR 2 OR MORE LANES & 1 LANE STREET 300 HIGHER-LANE & 1 LANE < VOLUME APPROACH -200 -B DX VPH 0 ODAY/I-SOWBRAMP" × X 100 100 + 75-C ¢ 0 PM 300 400 500 600 700 800 900 1000 1100 1200 1300 O DAY/MIDWAY MAJOR STREET-TOTAL OF BOTH APPROACHES-VEHICLES PER HOUR (VPH) AM Note: 100 vph applies as the lower threshold volume for a minor-street × pm approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane. MIDWAY/I-80 EB RAMP 52113 /midway AM PM HAY RD/ACLESS AM (A AM 0 pin I PM PORTER/MDWAY + SAT O AM 5R 113/11- RD X PM Ar1 Pag

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