Bluebird Solar Farm Traffic Impact Study

Prepared for BayWa r.e. Solar Projects LLC

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INTRODUCTION

This traffic impact study has been completed for a proposed development in Harrison County, Kentucky, near the Cities of Leesburg and Cynthiana. The majority of the development will be located within the east side of Leesburg Pike (US 62), the west side of Russell Cave Road (KY 353) and the Northside of Silas Pike. An additional piece of development is located east of Russell Cave Road and along the north side of Townsend Valley Road. The vicinity map (Map 1) displays the location of the proposed development and study area.

The proposed development is a new solar farm to be built on existing farm/ agricultural land. A solar farm can be defined as an area of land in which a large number of solar panels are constructed with the intent of generating electricity using solar energy. This traffic impact study analyzes four roadways in the area that will be impacted by entrances to the solar farm or the trips generated by the development. These roadways include the following:

- Leesburg Pike (US 62)
- Russell Cave Road (KY 353)
- Silas Pike
- Allen Pike

In the vicinity of the proposed development, the surrounding area consist of farmland and single family housing.



Allen Pike near the Proposed Substation/Switchyard Entrance



Map 1. Vicinity Map

EXISTING CONDITIONS

Regional and Local Access

The proposed development can be accessed directly from KY 353 and Allen Pike. US 62 and KY 353 will provide regional access to the proposed development. A brief description of the surrounding roadways follows:

Leesburg Pike (US 62) – Leesburg Pike provides regional access to the project site and generally runs in a north-south direction in the study area. Lane widths measure approximately 12 feet. In the vicinity of the project site, this road consists of a single thru lane in each direction with a two foot paved shoulder. In the vicinity of the project the posted speed limit is 55 mph.



Leesburg Pike (US62)

Russell Cave Road (KY 353) – Russell Cave Road provides local and regional access to the project site and generally runs in a north-south direction in the study area. Lane widths measure approximately 11 feet. In the vicinity of the project site, this road consists of a single thru lane in each direction with a two foot paved shoulder. In the vicinity of the project the posted speed limit is 55 mph.



Russell Cave Road (KY 353)

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Silas Pike – Silas Pike will not provide direct access to the site but may be impacted by the traffic generated by the site. The roadway measures approximately 17 feet wide without any striping. In the vicinity of the project site, this road runs in an east-west direction. The current speed limit along this roadway is unposted; per Kentucky law the speed limit defaults to 55 mph although the average speed was 27.4 mph during the days that data was collected.



Silas Pike

Allen Pike – Allen Pike will provide direct access to the site. The roadway measures approximately 12 feet wide without any striping. The current speed limit along this roadway is unposted; per Kentucky law the speed limit defaults to 55 mph although the average speed was 29.1 mph during the days that data was collected.



Allen Pike

LEVEL OF SERVICE AND DELAY

Level of Service (LOS) was used as the measure of effectiveness for each roadway. According to the Highway Capacity Manual, the level of service is defined in terms of average travel speed, percent time spent following and percent of free-flow speed for two lane highways (See Table 1). The average travel speed (ATS) reflects mobility on a two-way highway. The percent time spent following (PTSF) represents the maneuverability on the highway along with comfort and convenience of travel. The percent free-flow speed (PFFS) represents the ability of the vehicle to travel at or near the posted speed limit. A Level of Service C is desirable, and D is acceptable in an urban setting.

	CLASS	I HIGHWAYS	CLASS II HIGHWAYS	CLASS III HIGHWAYS		
LOS	AVG TRAVEL SPEED (MPH)	PERCENT TIME SPENT FOLLOWING (%)	PERCENT TIME SPENT FOLLOWING (%)	PERCENT FREE- FLOW SPEED (%)		
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		
E	≤40	>80	>85	≤66.7		
F		Demand ex	ceeds capacity			

Table 1. Two-Lane Highway Level of Service

Base Traffic Volumes (existing condition)

Manual traffic counts were taken using traffic tubes for four consecutive days (Thursday through Sunday) along the four roadways listed below. The traffic tubes were placed in sections of the roadways that will be affected by trips generated for the proposed development. The specific dates for the tube counts varied due to inclement weather during the counting time. All traffic volumes can be found in the Appendix.

- US 62 (Leesburg Pike)
- KY 353 (Russell Cave Road)
- Silas Pike
- Allen Pike

Background Traffic Volumes

The estimated completion date for the proposed development is by the end of 2023. Based on Kentucky Transportation Cabinet (KYTC) count stations along Leesburg Pike (049529) and Russell Cave Road (049500), the average annual daily traffic (AADT) has been decreasing over the past ten years along Russell Cave Road but has been increasing along Leesburg Pike. The KYTC traffic counts show that Leesburg Pike has been increasing by approximately three percent over the past ten years. KYTC did not have historical traffic data for Silas Road or Allen Pike.

Based on this data, this analysis assumes that the traffic along Russell Cave Road remains flat over the next ten years, that Leesburg Pike volumes increase by three percent over the next ten years, and that the local roads increase by half a percent over the next ten years. The KYTC count station data for stations 049529 and 049500 can be found in the Appendix.

METHODOLOGY

Level of Service, average speed, and travel time were measures of effectiveness analyzed using the highway capacity software (HCS7).

Trips were generated for the proposed development and then distributed to the roadway system based on the existing traffic patterns and engineering judgment. For the analysis, the study uses traffic volumes from the current year as background volumes grown to the completion year, 2023. The design year for this project was determined to be 2033, ten years after the completion year for the project. Based on KYTC traffic counts, traffic along Leesburg Pike has increased over the past ten years, but traffic along Russell Cave Road has remained flat. Historic traffic volumes were not available for Silas Pike or Allen Pike; therefore, traffic along Russell Cave Road was not increased for the design year (2033), but Leesburg Pike traffic was increased by three percent and the local roads were increased by a half percent to determine the background traffic for the design year. The assigned volumes from the proposed development and the background traffic volumes combined to produce the total proposed traffic volumes for existing and build out conditions. HCS7 was used to analyze the roadway network for existing and proposed conditions in both the current year and build out year (2033). The existing background volumes, level-of-service, and travel times can be found in the Appendix along with 2021 existing traffic (Fig 1), 2023 background traffic (Fig 1A), 2023 build (Fig 3), 2033 background (Fig 4), and 2033 build (Fig 5) traffic volumes.

TRIP GENERATION AND PROJECTED TRAFFIC VOLUMES

Solar Farms are not included in the *Trip Generation*, 10th Edition, a nationally recognized resource of trip generation rates published by the Institute of Transportation Engineers. Therefore, trip estimates were based on information provided by the client and engineering judgement.

SITE TRIP GENERATION

The proposed site will consist of a solar farm. A solar farm is an area of many solar panels constructed to generate electricity using solar energy. The proposed solar farm will require construction equipment and workers to travel to and from the site throughout the construction phases. The client provided information for each of the different construction phases, the one that generated the most trips was 19 vehicles. This accounted for the construction items necessary for that phase of the project. In order to account for trips into and out of the site by the employees this study assumes 30 vehicles (15 in each direction) are generated on each roadway during each peak hour. It is expected that this would be a conservative number of trips generated during the construction process and very conservative compared to the trips generated by the site after the construction and the roadways adjacent to the proposed site.



Map 2. Site Map

LEVEL OF SERVICE AND DELAY ANALYSIS

All roadway traffic volumes, average vehicle speeds, and level of service information can be found in the Appendix. With background traffic expected to increase as mentioned earlier, the 2033 base traffic volume information will be the focus upon comparisons between the projected background traffic and the proposed traffic volumes (full build out). The 2033 No-Build volumes would exist on the roadway system in the absence of the proposed development and the 2033 Build Volumes, are the volumes with the proposed development included.

The No-Build Scenario analysis assumes that no proposed improvements to the roadway system have been implemented. This would be the case assuming the proposed development was not built.

INTERSECTION ANALYSIS

2023 No Build Analysis

The HCS analysis reveals that all roadways operate with a level of service (LOS) "B" or better for both peak hours of the day. Travel times are between one and two minutes per mile of roadway and the average speed is at or above the speed limit of the road.

2023 Build Analysis

The HCS analysis shows that the build conditions are similar to the 2023 no build. All roadways continue to operate at a LOS "B" or better during both peak hours. The roadways continue to allow vehicles to travel near or above the speed limit and travel times remain within one or two minutes per mile travelled.

2033 No Build Analysis

The HCS analysis reveals that all roadways operate with a level of service (LOS) "C" or better for both peak hours of the day. Travel times are between one and two minutes per mile of roadway and the average speed is at or above the speed limit of the road. With the exception of Leesburg Pike that degrades to a LOS "C" all other roadways continue to operate at the same LOS as the existing conditions.

2033 Build Analysis

The HCS analysis shows that the build conditions are similar to the 2033 no build conditions. All roadways continue to operate at the same LOS as the no build conditions during both hours. The roadways continue to allow vehicles to travel at or above the speed limit and travel times remain within one or two minutes per mile travelled.

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2023 NO BUILD										
AM PEAK	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS					
LEESBURG PIKE	57.3	42.7	1.05	2.4	В					
RUSSEL CAVE RD	58.5	21.5	1.03	0.4	А					
SILAS RD	55.9	8.3	1.07	0	А					
ALLEN PIKE	55	4.6	1.09	0	А					
ΡΜ ΡΕΑΚ	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS					
LEESBURG PIKE	57	48.1	1.05	3.4	В					
RUSSEL CAVE RD	58.4	22.3	1.03	0.4	А					
SILAS RD	55.9	8.1	1.07	0	А					
ALLEN PIKE	55	4.9	1.09	0	А					
	•									

		2023 BUILD			
AM PEAK	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS
LEESBURG PIKE	57.3	44	1.05	2.6	В
RUSSEL CAVE RD	58.1	24.1	1.03	0.5	A
SILAS RD	55.9	13	1.07	0.1	A
ALLEN PIKE	55	11.5	1.09	0.1	A
РМ РЕАК	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS
LEESBURG PIKE	57	49.2	1.05	3.6	В
RUSSEL CAVE RD	58.1	24.8	1.03	0.6	A
SILAS RD	55.9	13	1.07	0.1	A
ALLEN PIKE	55	11.1	1.09	0.1	А

 Table 3. 2023 Build Summary

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2033 NO BUILD										
AM PEAK	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS					
LEESBURG PIKE	56.9	50.2	1.05	3.9	В					
RUSSEL CAVE RD	58.5	21.5	1.03	0.4	А					
SILAS RD	55.9	8.3	1.07	0	А					
ALLEN PIKE	55	4.6	1.09	0	А					
ΡΜ ΡΕΑΚ	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS					
LEESBURG PIKE	56.7	56	1.06	5.4	С					
RUSSEL CAVE RD	58.4	22.3	1.03	0.4	А					
SILAS RD	55.9	8.5	1.07	0	А					
ALLEN PIKE	55	4.9	1.09	0	А					
	-									

Table 4. 2033 No Build Summary

		2033 BUILD	1		
AM PEAK	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS
LEESBURG PIKE	56.9	51.2	1.05	4.1	С
RUSSEL CAVE RD	58.1	24.1	1.03	0.5	А
SILAS RD	55.9	13.3	1.07	0.1	А
ALLEN PIKE	55	11.5	1.09	0.1	А
PM PEAK	Average Speed mph	Percent Followers %	Travel Time to Travel 1 mile, min	Followers Density Foll/min/In	Vehicle LOS
PM PEAK LEESBURG PIKE	Average Speed mph 56.6	Percent Followers % 56.8	Travel Time to Travel 1 mile, min 1.06	Followers Density Foll/min/In 5.6	Vehicle LOS C
PM PEAK LEESBURG PIKE RUSSEL CAVE RD	Average Speed mph 56.6 58.1	Percent Followers % 56.8 24.8	Travel Time to Travel 1 <u>mile, min</u> 106	Followers Density Foll/min/In 5.6 0.6	Vehicle LOS C A
PM PEAK LEESBURG PIKE RUSSEL CAVE RD SILAS RD	Average Speed mph 56.6 58.1 55.9	Percent Followers % 56.8 24.8 13.3	Travel Time to Travel 1 mile, min 1.06 1.03 1.07	Followers Density Foll/min/In 5.6 0.6 0.1	Vehicle LOS C A A
PM PEAK LEESBURG PIKE RUSSEL CAVE RD SILAS RD ALLEN PIKE	Average Speed mph 56.6 58.1 55.9 55	Percent Followers % 56.8 24.8 13.3 11.1	Travel Time to Travel 1 mile, min 106 103 107 109	Followers Density Foll/min/In 5.6 0.6 0.1 0.1	Vehicle LOS C A A A

 Table 5. 2033 Build Summary

ADDITIONAL STUDY ITEMS

<u>Turn Lane Analysis</u>

Based on the volumes of the roadways none of the five analyzed roads warrant a left or right turn lane for vehicles entering the proposed development. The roadway volumes, entering trips, truck volumes, and speed limits were entered into the Kentucky Transportation Cabinet's "*Warrant Calcs Interactive*" spreadsheet to determine if any turn lanes are warranted along US 62, KY 353, Allen Pike, or Silas Road. The interactive spreadsheet determined that none of the roadways warrant a turn lane based on low background volumes and low turning volumes.

Sight Distance Analysis

The intersection of US 62 at Allen Pike and all proposed entrances to the development were compared to the AASHTO/KYTC standards for intersection sight distance. The analysis was performed using information gathered during site visits supplemented by LIDAR data. This analysis expected that the greatest number of trips generated by the development will occur during the construction phase; therefore, the sight distance calculations were performed assuming a truck will be entering the roadway from a proposed entrance. Based on the analysis the vehicles entering US 62 from Allen Pike and the proposed entrances along KY 353 and Allen Pike all meet the required sight distance standards. US 62, KY 353 and Allen Pike were compared with 55 mph requirements for intersection sight distance. Some clearing may be required within right of way to eliminate any obstructions caused by grass, shrubs, or trees at any of the proposed entrances. Figure 6 in the Appendix shows the existing sight distance provided at the proposed entrances to the development and at the intersection of US 62 at Allen Pike for vehicles entering US 62.

REQUIRED SIGHT DISTANCE									
ROADWAY	RIGHT TURNING INTERSECTION SIGHT DSITANCE	LEFT TURNING INTERSECTION SIGHT DSITANCE							
KY 353	690 FT	770 FT							
US 62	690 FT	770 FT							
ALLEN PIKE	690 FT	770 FT							

Table 6.	Sight Distance	Requirements
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CONCLUSIONS AND RECOMMENDATIONS

When comparing the no build analysis to the build analysis it was determined that the roadways in the study area will continue to operate at a LOS similar to existing conditions. The analysis determined that existing and proposed conditions operated with a LOS "C" or better for all roadways in the study area and the average speed for all roadways are near or above the speed limit for all roadways. The turn lane analysis determined that no additional turn lanes are warranted for any roadways based on the traffic volumes on the road. The sight distance analysis determined that traffic entering US 62 at Allen Pike and the proposed entrances to KY 353 and Allen Pike meet all sight distance requirements. Some clearing along right of way may be required at these entrances to ensure proper sight distance is provided.

Based on the analyses performed, no changes to the roadway network are recommended within the study area in order for traffic conditions to operate within acceptable conditions.

APPENDIX



FIGURE 1 2021 EXISTING COUNTS (AM) PM



FIGURE 1A 2023 EXISTING COUNTS (AM) PM



FIGURE 2 TRIPS GENERATED (AM) PM



FIGURE 3 2023 BUILD VOLUMES (AM) PM



FIGURE 4 2033 NO BUILD VOLUMES (AM) PM



FIGURE 5 2033 BUILD VOLUMES (AM) PM



FIGURE 6 PROPOSED ENTRANCES AND SIGHT DISTANCE Bluebird Solar Project

Harrison County, KY Location 1:

Location 2:

Latitude: 0.000000 0.000000



File Name: Start Date: End Date:

Leesburg Pike Volumes 3/25/2021 3/28/2021

Longitude:	0	000000												-		
3/22/2021	3/22/	2021	3/23/	2021	3/24	/2021	3/25/	2021	3/26/	2021	Weekday	Average	3/27/	2021	3/28/2	2021
Time	Southwes	Northeast														
	t, Lane 1	, Lane 2														
12:00 AM	*	*	*	*	*	*	20	7	48	4	34	6	36	25	22	16
1:00	*	*	*	*	*	*	41	7	20	3	30	5	25	16	35	8
2:00	*	*	*	*	*	*	152	6	56	5	104	6	44	7	15	11
3:00	*	*	*	*	*	*	36	18	21	8	28	13	15	12	9	9
4:00	*	*	*	*	*	*	28	72	24	38	26	55	15	30	10	7
5:00	*	*	*	*	*	*	35	271	28	131	32	201	10	44	5	30
6:00	*	*	*	*	*	*	77	187	85	109	81	148	30	59	8	41
7:00	*	*	*	*	*	*	186	182	167	144	176	163	39	61	25	19
8:00	*	*	*	*	*	*	125	141	139	136	132	138	74	87	36	35
9:00	*	*	*	*	*	*	125	108	137	93	131	100	105	117	59	97
10:00	*	*	*	*	*	*	174	79	137	77	156	78	121	144	101	85
11:00	*	*	*	*	*	*	146	57	153	63	150	60	144	112	133	66
12:00 PM	*	*	*	*	*	*	199	95	178	64	188	80	159	91	184	70
1:00	*	*	*	*	*	*	173	93	193	82	183	88	196	67	189	78
2:00	*	*	*	*	*	*	267	65	240	64	254	64	200	53	186	57
3:00	*	*	*	*	*	*	370	75	338	79	354	77	215	128	180	57
4:00	*	*	*	*	*	*	283	94	324	191	304	142	227	187	199	74
5:00	*	*	*	*	*	*	315	64	340	176	328	120	194	123	169	105
6:00	*	*	*	*	*	*	205	53	238	60	222	56	169	52	177	93
7:00	*	*	*	*	*	*	157	40	200	68	178	54	180	45	114	61
8:00	*	*	*	*	*	*	121	50	152	66	136	58	151	52	88	51
9:00	*	*	*	*	*	*	106	40	122	81	114	60	126	40	66	51
10:00	*	*	*	*	*	*	104	24	109	56	106	40	84	27	42	35
11:00	*	*	*	*	*	*	80	13	60	30	70	22	51	14	24	18
Day	()	()		0	53	66	53	37	53	51	42	:03	325	50
AM Peak							12:00 PM	5:00	12:00 PM	7:00	12:00 PM	5:00	12:00 PM	10:00	12:00 PM	9:00
Volume	0	0	0	0	0	0	199	271	178	144	188	201	159	144	184	97
Total	0	0	0	0	0	0	3525	1841	3509	1828	3517	1834	2610	1593	2076	1174
PM Peak							3:00	12:00 PM	5:00	4:00	3:00	4:00	4:00	4:00	4:00	5:00
Volume	0	0	0	0	0	0	370	95	340	191	354	142	227	187	199	105
Comb	()	()		0	53	66	53	37	53	51	42	03	32	50
Total																

ADT N/A

Bluebird Solar Project Harrison County, KY

Location 1:

Location 2: Latitude: 0.000000 Longitude: 0.000000

Combined Lanes

Peak Analysis Classes Excluded From Peaks: None

Date		AM Peak	Hour Volume	Hi Int	ghest erval Time	Highe Interv Volur	est val ne F	Peak Hour Sactor		Pm Peak	Hour Volume	High Inter Ti	iest val ime	Highest Interval Volume	Peak Hour Factor	
3/23/2021		No Volume			1 11110	, orai		actor	No V	olume			inc	, oranic	1 40001	
3/24/2021		No Volume							No V	olume						
3/25/2021		7:10 AM	375	7:39	9 AM	1	06	0.88	2:4	56 PM	467	3:121	PM	134	0.87	
3/26/2021		7:05 AM	324	7:39	9 AM		93	0.87	4:2	24 PM	596	4:45 1	PM	167	0.89	
3/27/2021		10:50 AM	271	11:20	5 AM		76	0.89	3:5	52 PM	424	4:14]	PM	124	0.85	
3/28/2021		10:53 AM	215	10:53	3 AM		67	0.80	4:5	55 PM	292	5:261	PM	87	0.84	
3/29/2021		No Volume							No V	olume						
Classificatio	on Statistic	cs														
Unclassed	Motorcy	clesCars & Trailers	2 Axle Lo	ngBuses	2 T	Axle 6 `ire	3 Axle Single	4 5	Axle	<5 Axl Double	5 Axle Double	>6 A Dou	Axl ble	<6 Axl Multi	6 Axle Multi	>6 Axl Multi
360	224	15774	1109	94	1	52	115	9)	166	150	3	010	0	0	0
2.0%	1.2%	86.9%	6.1%	0.5%	0	.8%	0.6%	0	.0%	0.9%	0.8%	0.0%	ó	0.0%	0.0%	0.0%
AADT																
Date	Lane		Volume	Х	User	х	Daily	=	AD	x	Season	=	AADT			
3/25/2021	Chann	el 1, A to B	3,525		1.00		1.00		3,525	5	1.00		3,525			
3/25/2021	Chann	el 2, B to A	1,841		1.00		1.00		1,841	l	1.00		1,841			
3/25/2021	Day T	otal	5,366						5,366	5			5,366			
3/26/2021	Chann	el 1, A to B	3,509		1.00		1.00		3,509)	1.00		3,509			
3/26/2021	Chann	el 2, B to A	1,828		1.00		1.00		1,828	3	1.00		1,828			
3/26/2021	Day T	otal	5,337		1.00		1.00		5,33	/	1.00		5,337			
3/27/2021	Chann Cl	12 D	2,610		1.00		1.00		2,610)	1.00		2,610			
3/2//2021	Chann Day T	el 2, B to A	1,593		1.00		1.00		1,593	5 ,	1.00		1,593			
3/2//2021	Day I Chann	olal A to P	4,205		1.00		1.00		4,203) {	1.00		4,203	-		
3/28/2021	Chann	e^{1} , A to B	2,070		1.00		1.00		2,070) 1	1.00		2,070			
3/28/2021	Day T	otal	3 250		1.00		1.00		3 25()	1.00		3 250			
Total	Duy I	0.001	18156						18150	5			18156			
Average			4539						4539)			4539	1		

Palmer

File Name:

Start Date: End Date:

Leesburg Pike Volumes 3/23/2021 3/29/2021

Historical Tra	ffic Volume Summar	У			
Station Detail	S:	-		Newest Co	unt:
Sta ID:	049529	Begin MP:	0	AADT:	7061
Sta Type:	Classification	Begin Desc:	BOURBON COUNTY LINE	Year:	2019
Мар:	<u>Maplt</u>	End Mp:	5.60	% Single:	7.9860
District:	6	End Desc:	KY 353 (RUSSELL CAVE ROAD)	% Combo:	2.5620
County:	Harrison	Impact Year:		K Factor:	10.90
Route:	049-US-0062 -000	Year Added:		D Factor:	56
Route Desc:	US-62 W			· ·	

Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year - year of significant change to traffic pattern within station segment

AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway

% Single – single unit truck volume as a percentage of the AADT

% Combo - combination truck volume as a percentage of the AADT

K Factor – peak hour volume as a percentage of the AADT

D Factor - percentage of peak hour volume flowing in the peak direction



Bluebird Solar Project

Harrison County, KY

Location 1:

Location 2: Latitude: Longitude:



File Name: Start Date: End Date:

Russel Cave Volumes 3/25/2021 3/28/2021

Latitude: Longitude:	0 0	.000000 .000000					E N G	INE	ERING			Enc	I Date:	3/	28/2021	
3/22/2021	3/22/2	2021	3/23/	2021	3/24/	2021	3/25/2	2021	3/26/2	021	Weekday	Average	3/27/2	2021	3/28/2	021
Time	South, Lane 1	North, Lane 2	South, Lane 1	North, Lane 2	South, Lane 1	North, Lane 2	South, Lane 1	North, Lane 2	South, Lane 1	North, Lane 2	South, Lane 1	North, Lane 2	South, Lane 1	North, Lane 2	South, Lane 1	North, Lane 2
12:00 AM	*	*	*	*	*	*	3	5	2	12	2	8	4	14	7	7
1:00	*	*	*	*	*	*	1	1	0	2	0	2	3	6	4	6
2:00	*	*	*	*	*	*	2	6	2	1	2	4	3	3	1	10
3:00	*	*	*	*	*	*	2	2	2	0	2	1	1	1	0	2
4:00	*	*	*	*	*	*	6	4	5	2	6	3	3	4	1	3
5:00	*	*	*	*	*	*	20	3	19	1	20	2	3	2	5	7
6:00	*	*	*	*	*	*	65	13	56	12	60	12	17	5	7	2
7:00	*	*	*	*	*	*	79	21	75	24	77	22	26	6	9	2
8:00	*	*	*	*	*	*	63	31	38	32	50	32	34	18	11	6
9:00	*	*	*	*	*	*	29	31	28	30	28	30	37	21	18	9
10:00	*	*	*	*	*	*	32	30	50	36	41	33	41	31	20	15
11:00	*	*	*	*	*	*	27	33	39	30	33	32	47	37	35	33
12:00 PM	*	*	*	*	*	*	34	33	57	26	46	30	45	36	37	23
1:00	*	*	*	*	*	*	32	42	39	45	36	44	49	30	55	40
2:00	*	*	*	*	*	*	30	40	30	51	30	46	37	48	39	37
3:00	*	*	*	*	*	*	32	52	42	61	37	56	34	45	22	27
4:00	*	*	*	*	*	*	38	65	47	75	42	70	43	49	26	44
5:00	*	*	*	*	*	*	40	91	53	87	46	89	27	51	36	36
6:00	*	*	*	*	*	*	29	33	46	40	38	36	46	35	23	29
7:00	*	*	*	*	*	*	14	26	33	33	24	30	28	42	17	20
8:00	*	*	*	*	*	*	13	24	18	29	16	26	16	28	15	22
9:00	*	*	*	*	*	*	4	13	16	33	10	23	11	25	30	11
10:00	*	*	*	*	*	*	7	11	16	21	12	16	7	14	9	6
11:00	*	*	*	*	*	*	2	10	8	14	5	12	10	12	2	7
Day	0)))	122	24	141	8	132	22	113	35	83	3
AM Peak							7:00	11:00	7:00	10:00	7:00	10:00	11:00	11:00	12:00 PM	11:00
Volume	0	0	0	0	0	0	79	33	75	36	77	33	47	37	37	33
Total	0	0	0	0	0	0	604	620	721	697	663	659	572	563	429	404
PM Peak							5:00	5:00	12:00 PM	5:00	12:00 PM	5:00	1:00	5:00	1:00	4:00
Volume	0	0	0	0	0	0	40	91	57	87	46	89	49	51	55	44
Comb	0		()	C)	122	24	141	8	132	22	113	35	83	3
Total																

ADT N/A Bluebird Solar Project Harrison County, KY

Location 1:

Location 2: Latitude: 0.000000 Longitude: 0.000000

Combined Lanes

Peak Analysis

Classes Excluded From Peaks: None

Date		AM Peak	Hour Volume		Highes Interva	t H I In	lighest iterval	t i	Peak Hour		Pm Peak	V	Hour /olume	Highe Interv	est al	Highest Interval	Peak Hour	
					Tim	e V	olume	e Fa	actor					Tin	ne	Volume	Factor	
3/23/2021		No Volume								N	o Volume							
3/24/2021	-	No Volume								N	o Volume							
3/25/2021		7:24 AM	116		7:24 AN	1	40)	0.73		4:54 PM		137	5:05 P	М	41	0.84	
3/26/2021		7:09 AM	107		7:20 AN	1	40)	0.67		4:32 PM		151	5:09 P	М	50	0.76	
3/27/2021		10:27 AM	95		11:06 AN	1	30)	0.79		3:54 PM		96	4:19 P	М	29	0.83	
3/28/2021		10:59 AM	70		11:31 AN	1	25	5	0.70		12:56 PM		99	1:02 P	М	30	0.83	
3/29/2021		No Volume								N	o Volume							
Classificati	on Statistic:	5																
Unclassed	Motorcyc	elesCars &	2 Axle I	ong	Buses	2 Axl	e 6	3 Axle		4 Axle	<5 A	xl	5 Axle	>6 A:	xl	<6 Axl	6 Axle	>6 Axl
	v	Trailers		8		Tire		Single		Single	Dou	ble	Double	Doub	le	Multi	Multi	Multi
15	34	4043	460	(6	14		12		1	24		1	0		0	0	0
0.3%	0.7%	87.7%	10.0%	(0.1%	0.3%		0.3%		0.0%	0.5%	Ď	0.0%	0.0%		0.0%	0.0%	0.0%
Date	Lane		Volume	x	User	x	Dai	lv =	=	ADT	x	Sea	ison =		т			
3/25/2021	South	Lane 1	604	Α	1 00	A	1 ($\frac{1}{10}$		604	Α	1		60	4			
3/25/2021	North.	Lane 2	620		1.00		1.0	00		620		1	.00	62	0			
3/25/2021	Dav To	otal	1.224							1.224				1.22	4			
3/26/2021	South,	Lane 1	721		1.00		1.0)0		721		1	00.1	72	1			
3/26/2021	North,	Lane 2	697		1.00		1.0	00		697		1	1.00	69	7			
3/26/2021	Day To	otal	1,418							1,418				1,41	8			
3/27/2021	South,	Lane 1	572		1.00		1.0	00		572		1	1.00	57	2			
3/27/2021	North,	Lane 2	563		1.00		1.0	00		563		1	1.00	56	3			
3/27/2021	Day To	otal	1,135							1,135				1,13	5			
3/28/2021	South,	Lane 1	429		1.00		1.0	00		429		1	1.00	42	9			
3/28/2021	North,	Lane 2	404		1.00		1.()0		404		1	1.00	40	4			
3/28/2021	Day To	otal	833							833				83	3			
Total			4610							4610				461	0			
Average			1153							1153				115	3			



File Name:

Start Date: End Date: Russel Cave Volumes 3/23/2021 3/29/2021

Historical Tra	ffic Volume Summar	у			
Station Detail	S:			Newest Co	unt:
Sta ID:	049500	Begin MP:	0	AADT:	1316
Sta Type:	Classification	Begin Desc:	BOURBON COUNTY LINE	Year:	2018
Мар:	<u>Maplt</u>	End Mp:	2.3310	% Single:	6.1860
District:	6	End Desc:	US 62	% Combo:	1.1260
County:	Harrison	Impact Year:		K Factor:	11.60
Route:	049-KY-0353 -000	Year Added:		D Factor:	74
Route Desc:	KY-353		•		

Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year - year of significant change to traffic pattern within station segment

AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway

% Single – single unit truck volume as a percentage of the AADT

% Combo - combination truck volume as a percentage of the AADT

K Factor - peak hour volume as a percentage of the AADT

D Factor - percentage of peak hour volume flowing in the peak direction



Bluebird Sola Harrison Cou Location 1: Location 2: Latitude:	r Project nty, KY S	Silar Rd 38.277579								G		File Sta En	e Name: nt Date: d Date:	S 1 1	ilas Road V /7/2021 /10/2021	′olumes
1/4/2021		2021	1/5/	2021	1/6/	2021	1/7/	0021	1/0/	0021	Wookdoy	Average	1/0/	2021	1/10/	2021
1/4/2021 Time e	Cauthhau	ZUZ I	Couthbau	2UZI Narthhan	Couthbau	2021		2021	1/0/2	2021	Cauthhau	Average	1/9/2 Couthbou	2021	Coutbhou	ZUZ I
Time	Southbou	northbou	Southbou	nd None	Southbou	nd None	southbou	nd None	Southbou	nd None	Southbou	nd None	Southbou	nd None	Southbou	nd None
	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified	Specified
12.00 AM	*	*	*	*	*	*	specified *	*	2	3	2	3		1		0
1.00	*	*	*	*	*	*	1	1	3	1	2	1	1	1		0
2.00	*	*	*	*	*	*		0		3	1	2	1	, 0		3
2.00	*	*	*	*	*	*		0		1		2	1	1		2
4.00	*	*	*	*	*	*		1		1		1	1	1		2
5:00	*	*	*	*	*	*		3		2	1	2		1		0
6:00	*	*	*	*	*	*		3	6	2	5	2		0		0
7.00	*	*	*	*	*	*	4	1		1	6	1		2		1
8:00	*	*	*	*	*	*		6	1	5		6	1	1		1
0.00	*	*	*	*	*	*		12	5	0	6	10	6	2		1
10:00	*	*	*	*	*	*		7	6	3	5	10	5	2	12	3
10.00	*	*	*	*	*	*	4	7	0	4	3	0	10	4	12	J 4
12:00 DM	*	*	*	*	*	*	10	5	4	10	2	0	10	7	10	4
12.00 FIV	*	*	*	*	*	*		1	5	10	0	10	9	16		10
2:00	*	*	*	*	*	*	0	9	9	10	10	10	12	10	4	10
2.00	*	*	*	*	*	*	14	3	9 7	9	12	0	5	10	0	10
3:00	*	*		*	*	*	8			11	8	11	8	/	07	12
4.00	+	*		*		*	0	7	15	11	10	9	10	9		0
5:00	*	*		*	*	*	15	10		8		8	10	11	14	11
6:00		*		*		*	10	12	6	10	8	11	4	10		6
7:00	+	*		*		*		3	0	5	4	4	1	4	07	12
8:00		*		*		*	5	0	9	4	/	2	4	1		3
9:00		*		*		*		3		5	3	4	4	5		0
10:00	*	*		*	*	*	4	1	4	2	4	2		1		3
 		0		<u>.</u>		<u>,</u>		3		14		<u>Z</u>	2	10		0
Day	(0	,)	1	J	2 12:00 DM	0:00	24	12:00 DM	23 12:00 DM	0:00	<u> </u>	11:00	ZZ 11:00	
Alvi Peak	0	0	0	0	0	0	12.00 PW	9.00	0.00	12.00 PW	12.00 PW	9.00	10	11.00	11.00	12.00 PW
	0	0	0	0	0	0	110	105	120	10	110	10	10	104	10	110
Total DM Dook	0	0	0	0	0	0	5:00	105	120	124	5:00	2.00	100 5:00	104		2:00
	0	0		0		0	5.00	0.00	4.00	3.00	5.00	3.00	5.00	1.00	12.00 PW	2.00
	0	0	L 0	0	1 0		1 15	12	10	14	13	<u> </u>	10	10	14	10
	(0	(J	(J	Ζ'	G	24	+4	23	00	2	12	22	21
Iotal																
ADT	N/A															

Bluebird Solar Project Harrison County, KY

Location 1: Silar Rd Location 2: Latitude: 38.277579 Longitude: -84.381999

Combined Lanes

Peak Analysis

1/8/2021

1/9/2021

Day Total

Channel 1, A to B

244

108

1.00



File Name: Start Date: End Date:

244

108

Silas Road Volumes 1/6/2021 1/11/2021

Classes Exc	cluded F	rom Pe	aks: No	ne																		
Date			AM Peak	[K V	Hour olume		Highes Interva	st l al I	Highes nterva	t I S F	Peak Hour		P Pe:	'm ak	Hour Volume	•	High Inter	iest val	Highe Interva Volum	st al	Peak Hour Factor	
1/6/2021		No	Volume				1 111		v orunne		actor	No	Volur	ne			11	me	v oluli	IC	racior	
1/7/2021		110	R·41 AM	ſ	21		9·23 AI	Л	5	2	0.66	110	5.50 P	M	29)	5.51	PM	1	1	0.66	
1/8/2021		Ċ	9:34 AM	[16		9:45 AN	M	8	Ŝ	0.50		4:22 P	M	30)	4:46	PM	1	2	0.63	
1/9/2021		10):52 AM	[21	1	1:36 AI	N	10)	0.53	1	2:57 P	Μ	28	\$	1:34	PM	1	5	0.47	
1/10/2021		10	0:17 AM	[22	1	0:50 AI	M	ç)	0.61		4:47 P	Μ	29)	4:52	PM	1	2	0.60	
1/11/2021		No	Volume	•								No	Volur	ne								
Classificati	ion Stati	stics																				
Unclassed	Motor	cycles	Cars &	2	Axle Lo	ong Bus	es	2 Ax	le 6	3 Axle	4	4 Axle	<	5 Axl	5 A	xle	>6 A	xl	<6 Ax	d	6 Axle	>6 Axl
_			Trailers	5	_	_		Tire		Single	5	Single	D	ouble	Do	uble	Dou	ble	Multi	i	Multi	Multi
7	4		755	10	15	5		10		3	(0	6	70/	0	0/	0	,	0		0	0
0.8%	0.4%		84.4%	11	./%	0.65	0	1.1%		0.3%	(0.0%	0	./%	0.0	%	0.0%	0	0.0%		0.0%	0.0%
Percentile S	Speeds																					
Percentile		5th	10th	15th	20th	25th	30th	35th	40th	45th	50th	55th	60th	65th	70th	75th	80th	85th	90th	95th	100th	
Speed - MP	РН	17.1	19.2	21	22.1	23.1	24.2	25.1	25.8	26.7	27.4	28.2	29	29.9	30.6	31.4	32.3	33.3	34.9	37.8	54	
Mean, Med	lian, and	ł Mode	e Averag	es																		
Mean:			27.4																			
Median (50)th %):		27.4																			
Mode:			26.9																			
AADT																						
Date	Lan	ie		V	olume	х	Us	er	х	Daily	=	AD	Τ	х	Season	ı =	= A	ADT				
1/7/2021	Cha	annel 1	, A to B		110		1.0	00		1.00		1	10		1.00)		110				
1/7/2021	Cha	annel 2	, B to A		108		1.0	00		1.00		10)8		1.00)		108				
1/7/2021	Day	/ Total			218							2	18					218				
1/8/2021	Cha	annel 1	, A to B		120		1.0	00		1.00		12	20		1.00)		120				
1/8/2021	Cha	annel 2	, B to A		124		1.0	00		1.00		12	24		1.00)		124				

1.00

244

108

1.00

Bluebird Solar Project Harrison County, KY

Latitude:

Date

1/9/2021

1/9/2021

1/10/2021

1/10/2021

1/10/2021 Total

Average

Longitude:



224

Location 1: Silar Rd File Name: Location 2: Start Date: 38.277579 End Date: -84.381999 Volume Daily ADT Season Lane User х = AADT Х Х = Channel 2, B to A 104 1.00 1.00 104 1.00 104 212 Day Total 212 212 1.00 Channel 1, A to B 111 1.00 1.00 111 111 Channel 2, B to A 110 1.00 1.00 110 1.00 110 Day Total 221 221 221 895 895 895

224

Silas Road Volumes 1/6/2021 1/11/2021

224

Bluebird Solar Project

Harrison County, KY Location 1: Allen Pike Location 2: Latitude: 38.289639 Longitude: -84.390414



File Name: Start Date: End Date: Allen Pike Volumes 1/6/2021 1/10/2021

Longitude.		04.330414														
1/4/2021	1/4/2	2021	1/5/2	2021	1/6/2	2021	1/7/2	2021	1/8/2	2021	Weekday	/ Average	1/9/2	2021	1/10/	2021
Time	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou								
	nd, A to B	nd, B to A	nd, A to B	nd, B to A	nd, A to B	nd, B to A	nd, A to B	nd, B to A	nd, A to B	nd, B to A	nd, A to B	nd, B to A	nd, A to B	nd, B to A	nd, A to B	nd, B to A
12:00 AM	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	0
1:00	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	1
2:00	*	*	*	*	*	*	0	0	0	0	0	0	1	0	0	0
3:00	*	*	*	*	*	*	0	0	0	0	0	0	0	1	0	0
4:00	*	*	*	*	*	*	0	1	0	1	0	1	0	0	0	0
5:00	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	0
6:00	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	0
7:00	*	*	*	*	*	*	0	2	0	0	0	1	0	0	0	0
8:00	*	*	*	*	*	*	2	0	1	0	2	0	0	0	0	1
9:00	*	*	*	*	*	*	1	1	0	0	0	0	0	0	1	1
10:00	*	*	*	*	*	*	0	1	3	2	2	2	3	1	0	0
11:00	*	*	*	*	*	*	1	0	2	1	2	0	1	3	0	0
12:00 PM	*	*	*	*	*	*	0	1	6	4	3	2	0	0	0	2
1:00	*	*	*	*	*	*	3	1	2	5	2	3	1	0	2	0
2:00	*	*	*	*	*	*	0	0	2	4	1	2	2	3	2	0
3:00	*	*	*	*	*	*	1	0	3	7	2	4	3	4		2
4.00	*	*	*	*	*	*	1	0	1	0	1	0	1	0		0
5:00	*	*	*	*	*	*	1	3		0	2	2	1	3	3	3
6.00	*	*	*	*	*	*	1	3	1	2	1	2	0	0		4
7.00	*	*	*	*	0	0	l o	0	l o	2	0	- 1	1	1		0
8:00	*	*	*	*	0	0		0		0	0	0	l o	. 0		Ő
9.00	*	*	*	*	0	0		0		0	0	0		0		Ő
10:00	*	*	*	*	0	0		2		0	0	1		0		Ő
11:00	*	*	*	*	0	0		0		0	0	0		0		0 0
Dav	()		0		<u>)</u>	2	<u> </u>	5	<u> </u>	3	9	3	<u> </u>	2	4
AM Peak				0	Ì	<u> </u>	8.00	7:00	12:00 PM	12:00 PM	12:00 PM	10:00	10:00	11:00	9.00	12.00 PM
Volume	0	0	0	0	0	0	2	2	6	4	3	2	3	3	1	2
Total	0	0	0	0	0	0	11	15	23	28	18	21	15	16	10	14
PM Peak	Ũ	Ŭ	۰ ۱	Ũ	Ū	0	1.00	5.00	12.00 PM	3.00	12.00 PM	3.00	3.00	3.00	5.00	6.00
Volume	٥	٥	_ ۱	٥	٥	٥	3	3	6	0.00	3	0.00 4	3	0.00 4	3	0.00 4
Comb	0	<u> </u>	<u> </u>	<u>ิ บ</u>	<u> </u>	<u>ั</u>	<u>່</u> 0	6	5	<u>,</u> 1	<u> </u>	ب ۵	<u>ר</u> כ		<u>່</u> ງ	<u> </u>
Total	, i	,	,	0	, i	5	2	0		, i	0	3	5		2	-
rotar																

ADT N/A

Bluebird Solar Project Harrison County, KY

Location 1: Allen Pike Location 2: Latitude: 38.289639 Longitude: -84.390414

Combined Lanes

Peak Analysis

Classes Excluded From Peaks: None



File Name: Start Date: End Date: Allen Pike Volumes 1/6/2021 1/11/2021

Classes Exc	cluded From	Peaks: None													
Date		AM Peak	Hour Volume	Hig Inte T	hest rval Time	Highes Interva Volum	st Pe al Ho De Fac	eak our tor		Pm Peak	Hour Volume	Highest Interval Time	Highest Interval Volume	Peak Hour Factor	
1/6/2021	I	No Volume		-	mit	v oran			No Vo	olume		1 1110	, orunic	1 40001	
1/7/2021	-	8:33 AM	3	8:35	AM		2 0	.38	5:3	3 PM	6	5:44 PM	2	0.75	
1/8/2021		10:05 AM	6	10:17	AM		$\frac{1}{3}$ 0	.50	1:1	8 PM	13	1:33 PM	6	0.54	
1/9/2021		9:58 AM	4	9:58	AM		2 0	.50	2:2	7 PM	9	2:50 PM	5	0.45	
1/10/2021		8:51 AM	3	8:51	AM		1 0	.75	4:4	7 PM	6	5:11 PM	4	0.38	
1/11/2021]	No Volume	-					.,.	No Vo	olume					
Classificati	on Statistics	5													
Unclassed	Motorcyc	lesCars & Trailers	2 Axle Lon	gBuses	2 A Tir	xle 6 :e	3 Axle Single	4 A Sir	Axle 1gle	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi
22	20	48	8	17	15		2	0	-	0	0	0	0	0	0
16.7%	15.2%	36.4%	6.1%	12.9%	11.	4%	1.5%	0.0	1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Mean, Med</i> Mean: Median (50 Mode:	<i>lian, and Mo</i> th %):	<i>ode Averages</i> 29.1 21.7 12.3													
AADT															
Date	Lane		Volume	Х	User	х	Daily	=	AD	Г х	Season	= AA	.DT		
1/7/2021	Southbo	ound, A to B	11		1.00		1.00		1	1	1.00		11		
1/7/2021	Northbo	ound, B to A	15		1.00		1.00		1:	5	1.00		15		
1/7/2021	Day To	otal	26						20	6			26		
1/8/2021	Southbo	ound, A to B	23		1.00		1.00		23	3	1.00		23		
1/8/2021	Northbo	ound, B to A	28		1.00		1.00		28	8	1.00		28		
1/8/2021	Day To	otal	51						5	1			51		
1/9/2021	Southbo	ound, A to B	15		1.00		1.00		1:	5	1.00		15		
1/9/2021	Northbo	ound, B to A	16		1.00		1.00		10	6	1.00		16		
1/9/2021	Day To	tal	31						3	1			31		
1/10/2021	Southbo	ound, A to B	10		1.00		1.00		10	0	1.00		10		
1/10/2021	Northbo	ound, B to A	14		1.00		1.00		14	4	1.00		14		
1/10/2021	Day To	otal	24						24	4			24		

Bluebird Solar Harrison Count	Project ty, KY						P	a11	me	1				
Location 1: Location 2:		Allen Pike						INF	BERII	N G			File Name: Start Date:	Allen Pike Volumes 1/6/2021
Latitude:		38.289639											End Date:	1/11/2021
Longitude:		-84.390414												
Date	Lane		Volume	х	User	х	Daily	=	ADT	х	Season	=	AADT	
Total			132						132				132	
Average			33						33				33	

		HCS7 Two	o-Lane	e Highway Re	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/13/2021
Ag	ency	PEC		Analysis Year		2023
Jur	isdiction			Time Period Analy	/zed	No Build AM
Pro	oject Description	Leesburg Pike - I Solar Farm	Bluebird	Unit		United States Customary
			Seg	ment 1		
Ve	hicle Inputs					
Seg	gment Type	Passing Constrai	ned	Length, ft		5280
Lar	ne Width, ft	12		Shoulder Width, f	t	2
Sp	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.4
D	emand and Capacity					
Dir	ectional Demand Flow Rate, veh/h	327		Opposing Deman	d Flow Rate, veh/h	-
Pea	ak Hour Factor	0.88		Total Trucks, %		6.00
Seg	gment Capacity, veh/h	1700		Demand/Capacity	r (D/C)	0.19
In	termediate Results	•		•		
Se	gment Vertical Class	1		Free-Flow Speed,	mi/h	59.4
Sp	eed Slope Coefficient	3.77695		Speed Power Coe	fficient	0.41674
PF	Slope Coefficient	-1.30235		PF Power Coefficie	ent	0.75961
In	Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	2.4
%1	mproved % Followers	0.0		% Improved Avg	Speed	0.0
Sı	ıbsegment Data					2
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	57.3
Ve	hicle Results		·		•	·
Av	erage Speed, mi/h	57.3		Percent Followers	, %	42.7
Se	gment Travel Time, minutes	1.05		Followers Density	, followers/mi/ln	2.4
Ve	hicle LOS	В				
Bi	cycle Results					
Per	rcent Occupied Parking	0		Pavement Conditi	on Rating	4
Flo	w Rate Outside Lane, veh/h	327		Bicycle Effective V	Vidth, ft	14
Bic	ycle LOS Score	5.68		Bicycle Effective S	peed Factor	4.79
Bic	ycle LOS	F				

HCSTM Two-Lane Version 7.8 Leesburg Pike_2023_Existing_AM.xuf Generated: 04/22/2021 07:53:43

		HCS7 Two	-Lane	e Highway Re	eport	
Pre	oject Information					
Ana	alyst	JJLC		Date		4/13/2021
Age	ency	PEC		Analysis Year		2023
Juri	sdiction			Time Period Analy	zed	No Build PM
Pro <u></u>	ject Description	Leesburg Pike - Bl Solar Farm	uebird	Unit		United States Customary
			Segi	ment 1		
Ve	hicle Inputs					
Seg	iment Type	Passing Constraine	ed	Length, ft		5280
Lan	e Width, ft	12		Shoulder Width, f	t	2
Spe	ed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.4
De	mand and Capacity					
Dire	ectional Demand Flow Rate, veh/h	406		Opposing Deman	d Flow Rate, veh/h	-
Pea	k Hour Factor	0.89		Total Trucks, %		6.00
Seg	0.24					
Int	termediate Results					
Seg	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.4
Spe	ed Slope Coefficient	3.77695		Speed Power Coe	fficient	0.41674
PF S	Slope Coefficient	-1.30235		PF Power Coefficie	ent	0.75961
In P	Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	3.4
%In	nproved % Followers	0.0		% Improved Avg S	Speed	0.0
Su	bsegment Data					
#	Segment Type	Length, ft	Ra	idius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	57.0
Ve	hicle Results					
Ave	rage Speed, mi/h	57.0		Percent Followers	, %	48.1
Seg	ment Travel Time, minutes	1.05		Followers Density,	followers/mi/ln	3.4
Veh	icle LOS	В				
Bio	cycle Results					
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4
Flov	w Rate Outside Lane, veh/h	406		Bicycle Effective V	/idth, ft	14
Bicy	cle LOS Score	5.79		Bicycle Effective S	peed Factor	4.79
Bicy	/cle LOS	F				

HCS T Two-Lane Version 7.8 Leesburg Pike_2023_Existing_PM.xuf Generated: 04/22/2021 07:53:08

		HCS7 Two-L	ane	Highway Re	eport						
Pr	oject Information										
Ana	alyst	JJLC		Date		4/16/2021					
Age	ency	PEC		Analysis Year		2023					
Juri	sdiction			Time Period Analy	/zed	AM No Build					
Pro	ject Description	Russel Cave - Bluebin Solar in Harrison Cou KY	rd unty,	Unit		United States Customary					
			Segn	nent 1							
Ve	hicle Inputs										
Seg	iment Type	Passing Constrained		Length, ft		5280					
Lan	e Width, ft	11		Shoulder Width, f	t	2					
Spe	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.0					
De	emand and Capacity										
Dire	ectional Demand Flow Rate, veh/h	108		Opposing Deman	d Flow Rate, veh/h	-					
Pea	k Hour Factor	0.73		Total Trucks, %		1.50					
Seg	ment Capacity, veh/h	1700		Demand/Capacity	/ (D/C)	0.06					
Int	termediate Results										
Seg	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.0					
Spe	ed Slope Coefficient	3.75797		Speed Power Coe	fficient	0.41674					
PF :	Slope Coefficient	-1.30577		PF Power Coefficie	ent	0.75803					
In F	Passing Lane Effective Length?	No		Total Segment De	ensity, veh/mi/ln	0.4					
%lr	nproved % Followers	0.0		% Improved Avg	Speed	0.0					
Su	bsegment Data										
#	Segment Type	Length, ft	Rad	dius, ft	Superelevation, %	Average Speed, mi/h					
1	Tangent	5280	-		-	58.5					
Ve	hicle Results										
Ave	erage Speed, mi/h	58.5		Percent Followers	, %	21.5					
Seg	ment Travel Time, minutes	1.03		Followers Density	, followers/mi/ln	0.4					
Veh	icle LOS	A									
Bie	Bicycle Results										
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4					
Flov	w Rate Outside Lane, veh/h	108		Bicycle Effective V	Vidth, ft	21					
Bicy	cle LOS Score	2.65		Bicycle Effective S	peed Factor	4.79					
Bicy	vcle LOS	C									

HCSTM Two-Lane Version 7.8 Russel Cave_2023_Existing_AM.xuf

		HCS7 Two-L	ane	Highway Re	eport						
Pr	oject Information										
Ana	alyst	IJLC	_	Date		4/16/2021					
Age	ency	PEC		Analysis Year		2023					
Juri	isdiction			Time Period Analy	/zed	PM No Build					
Pro	ject Description	Russel Cave - Bluebirg Solar in Harrison Cou KY	d nty,	Unit		United States Customary					
		S	egn	nent 1							
Ve	hicle Inputs										
Sec	gment Type	Passing Constrained		Length, ft		5280					
Lar	ne Width, ft	11		Shoulder Width, f	t	2					
Spe	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.0					
De	emand and Capacity										
Dir	ectional Demand Flow Rate, veh/h	114		Opposing Deman	d Flow Rate, veh/h	-					
Pea	ak Hour Factor	0.76		Total Trucks, %		1.50					
Seg	gment Capacity, veh/h	1700		Demand/Capacity	/ (D/C)	0.07					
In	termediate Results										
Seg	gment Vertical Class	1		Free-Flow Speed,	mi/h	59.0					
Spe	eed Slope Coefficient	3.75797		Speed Power Coe	fficient	0.41674					
PF	Slope Coefficient	-1.30577		PF Power Coefficie	ent	0.75803					
In F	Passing Lane Effective Length?	No		Total Segment De	ensity, veh/mi/ln	0.4					
%lr	nproved % Followers	0.0		% Improved Avg	Speed	0.0					
Su	bsegment Data										
#	Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h					
1	Tangent	5280	-		-	58.4					
Ve	hicle Results										
Ave	erage Speed, mi/h	58.4		Percent Followers	, %	22.3					
Seg	gment Travel Time, minutes	1.03		Followers Density	, followers/mi/ln	0.4					
Veł	nicle LOS	A									
Bi	icycle Results										
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4					
Flo	w Rate Outside Lane, veh/h	114		Bicycle Effective V	Vidth, ft	20					
Bic	ycle LOS Score	2.88		Bicycle Effective S	peed Factor	4.79					
Bic	ycle LOS	С									

HCSTM Two-Lane Version 7.8 Russel Cave_2023_Existing_PM.xuf

		HCS7 Tw	o-Lane	e Highway R	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/16/2021
Ag	ency	PEC		Analysis Year		2023
Jur	isdiction		Time Period Analyzed		AM No Build	
Pro	oject Description	ct Description Allen Pike - Bluebird Solar in Harrison County, KY		Unit		United States Customary
			Segi	ment 1		
Ve	hicle Inputs					
Seg	gment Type	Passing Constra	ined	Length, ft		5280
Lar	ne Width, ft	9		Shoulder Width, f	t	0
Sp	eed Limit, mi/h	55		Access Point Den	sity, pts/mi	1.2
De	emand and Capacity			·		
Directional Demand Flow Rate, veh/h		12		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.50	0.50			42.50
Seg	gment Capacity, veh/h	1700		Demand/Capacity	/ (D/C)	0.01
In	termediate Results	•		•		
Seg	gment Vertical Class	1		Free-Flow Speed,	mi/h	55.0
Sp	eed Slope Coefficient	3.54034		Speed Power Coe	fficient	0.41674
PF	Slope Coefficient	-1.33150		PF Power Coeffici	ent	0.75313
In I	Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		0.0
%lı	mproved % Followers	0.0		% Improved Avg Speed		0.0
Su	ıbsegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	55.0
Ve	hicle Results					- 1
Ave	erage Speed, mi/h	55.0		Percent Followers	, %	4.6
Seg	gment Travel Time, minutes	1.09		Followers Density	, followers/mi/In	0.0
Vel	hicle LOS	A				
Bi	cycle Results					·
Per	rcent Occupied Parking	0		Pavement Condit	ion Rating	4
Flo	w Rate Outside Lane, veh/h	12		Bicycle Effective V	Vidth, ft	18
Bic	ycle LOS Score	28.88		Bicycle Effective S	peed Factor	4.79
Bicycle LOS F		F	F			

		HC <u>S7 Two-</u>	Lane	Hig <u>hway R</u> e	eport	
Pr	oject Information		_			
An	alyst	JJLC		Date		4/16/2021
Ag	ency	PEC	EC Analysis Year			2023
Jur	isdiction			Time Period Analy	/zed	PM No Build
Pro	ject Description	Allen Pike - Bluebirg in Harrison County,	d Solar KY	Unit		United States Customary
			Segr	nent 1		
Ve	hicle Inputs					
Seg	gment Type	Passing Constrained	d	Length, ft		5280
Lar	ne Width, ft	9		Shoulder Width, f	t	0
Sp	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.2
De	emand and Capacity					
Dir	ectional Demand Flow Rate, veh/h	13		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.55		Total Trucks, %		42.50
Seg	gment Capacity, veh/h	1700		Demand/Capacity	/ (D/C)	0.01
In	termediate Results			·		
Seg	gment Vertical Class	1		Free-Flow Speed,	mi/h	55.0
Spe	eed Slope Coefficient	3.54034		Speed Power Coe	fficient	0.41674
PF	Slope Coefficient	-1.33150		PF Power Coefficient		0.75313
In I	Passing Lane Effective Length?	No	No		ensity, veh/mi/ln	0.0
%lı	mproved % Followers	0.0		% Improved Avg Speed		0.0
Su	ıbsegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	55.0
Ve	hicle Results	• •				
Ave	erage Speed, mi/h	55.0		Percent Followers	, %	4.9
Seg	gment Travel Time, minutes	1.09		Followers Density	, followers/mi/ln	0.0
Vel	Vehicle LOS A					
Bi	cycle Results					
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4
Flo	w Rate Outside Lane, veh/h	13		Bicycle Effective V	Vidth, ft	18
Bic	ycle LOS Score	28.92		Bicycle Effective S	peed Factor	4.79
Bicycle LOS F						

HCSTM Two-Lane Version 7.8 Allen Pike_2023_Existing_PM.xuf Generated: 04/22/2021 07:50:18

Project Information Analyst JJLC Agency PEC Jurisdiction Silas Road - Bluebic Farm in Harrison Contemporation Project Description Silas Road - Bluebic Farm in Harrison Contemporation Vehicle Inputs Vehicle Inputs	rd Solar ounty, Segn	Date Analysis Year Time Period Analy Unit	zed	4/16/2021 2023 AM No Build United States Customary
Analyst JJLC Agency PEC Jurisdiction Silas Road - Bluebi Farm in Harrison C KY Vehicle Inputs	rd Solar ounty, Segn	Date Analysis Year Time Period Analy Unit	zed	4/16/2021 2023 AM No Build United States Customary
Agency PEC Jurisdiction	rd Solar ounty, Segn	Analysis Year Time Period Analy Unit nent 1	zed	2023 AM No Build United States Customary
Jurisdiction Project Description Silas Road - Bluebi Farm in Harrison C KY Vehicle Inputs	rd Solar ounty, Segn	Time Period Analy Unit nent 1	zed	AM No Build United States Customary
Project Description Farm in Harrison C KY Vehicle Inputs	rd Solar ounty, Segn	Unit nent 1		United States Customary
Vehicle Inputs	Segn	nent 1		
Vehicle Inputs				
Segment Type Passing Constraine	ed .	Length, ft		5280
Lane Width, ft 9		Shoulder Width, ft	:	0
Speed Limit, mi/h 55		Access Point Dens	ity, pts/mi	2.9
Demand and Capacity				
Directional Demand Flow Rate, veh/h 26		Opposing Deman	d Flow Rate, veh/h	-
Peak Hour Factor 0.61	0.61			3.50
Segment Capacity, veh/h 1700		Demand/Capacity	(D/C)	0.02
Intermediate Results				
Segment Vertical Class 1	1		mi/h	55.9
Speed Slope Coefficient 3.58770	3.58770		ficient	0.41674
PF Slope Coefficient -1.32995	-1.32995		ent	0.74991
In Passing Lane Effective Length? No		Total Segment Density, veh/mi/ln		0.0
%Improved % Followers 0.0	0.0		peed	0.0
Subsegment Data				
# Segment Type Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent 5280	-		-	55.9
Vehicle Results				
Average Speed, mi/h 55.9		Percent Followers,	%	8.3
Segment Travel Time, minutes 1.07		Followers Density, followers/mi/In		0.0
Vehicle LOS A				
Bicycle Results				
Percent Occupied Parking 0		Pavement Condition	on Rating	4
Flow Rate Outside Lane, veh/h 26		Bicycle Effective W	/idth, ft	17
Bicycle LOS Score 3.19		Bicycle Effective S	peed Factor	4.79
Bicycle LOS C				

Project Information	I				
Analyst	1				
	JJLC		Date		4/16/2021
Agency	PEC		Analysis Year		2023
Jurisdiction		•	Time Period Analy	zed	PM No Build
Project Description Silas Road - Bluebird Solar Farm in Harrison County, KY		olar ty,	Unit		United States Customary
	Se	egm	ent 1		
Vehicle Inputs					
Segment Type	Passing Constrained		Length, ft		5280
Lane Width, ft	9		Shoulder Width, ft	t	0
Speed Limit, mi/h	55		Access Point Dens	ity, pts/mi	2.9
Demand and Capacity					
Directional Demand Flow Rate, veh/h	25		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor	0.63		Total Trucks, %		3.50
Segment Capacity, veh/h	1700		Demand/Capacity	(D/C)	0.01
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.9
Speed Slope Coefficient	3.58770		Speed Power Coefficient		0.41674
PF Slope Coefficient	-1.32995		PF Power Coefficient		0.74991
In Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		0.0
%Improved % Followers	0.0		% Improved Avg Speed		0.0
Subsegment Data					
# Segment Type	Length, ft	Radiu	us, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	55.9
Vehicle Results				<u>.</u>	
Average Speed, mi/h	55.9		Percent Followers,	%	8.1
Segment Travel Time, minutes	1.07		Followers Density,	followers/mi/ln	0.0
Vehicle LOS A					
Bicycle Results	-				
Percent Occupied Parking	0		Pavement Conditi	on Rating	4
Flow Rate Outside Lane, veh/h	25		Bicycle Effective W	/idth, ft	17
Bicycle LOS Score	3.17		Bicycle Effective S	peed Factor	4.79
Bicycle LOS	С				

Silas Rd_2023_Existing_PM.xuf

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		HCS7 Two-	Lane	e Highway Re	eport	
Pr	oject Information					
Ana	alyst	JILC		Date		4/13/2021
Age	ency	PEC		Analysis Year		2023
Juri	sdiction			Time Period Analy	zed	Build AM
Pro	ject Description	Leesburg Pike - Blu Solar Farm	uebird	Unit		United States Customary
			Segr	ment 1		
Ve	hicle Inputs					
Sec	iment Type	Passing Constraine	d	Length, ft		5280
Lan	e Width, ft	12		Shoulder Width, f	t	2
Spe	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.4
De	emand and Capacity					
Directional Demand Flow Rate, veh/h		344		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.88		Total Trucks, %		6.00
Segment Capacity, veh/h		1700		Demand/Capacity	r (D/C)	0.20
Int	termediate Results					
Sec	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.4
Spe	ed Slope Coefficient	3.77695		Speed Power Coe	fficient	0.41674
PF	Slope Coefficient	-1.30235		PF Power Coefficient		0.75961
In F	Passing Lane Effective Length?	No	No		nsity, veh/mi/ln	2.6
%lr	nproved % Followers	0.0		% Improved Avg S	Speed	0.0
Su	bsegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	57.3
Ve	hicle Results	-			•	·
Ave	erage Speed, mi/h	57.3		Percent Followers,	, %	44.0
Sec	ment Travel Time, minutes	1.05		Followers Density,	followers/mi/ln	2.6
Veł	Vehicle LOS B					
Bi	cycle Results	·		·		·
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4
Flo	w Rate Outside Lane, veh/h	344		Bicycle Effective V	Vidth, ft	14
Bic	cle LOS Score	5.70		Bicycle Effective S	peed Factor	4.79
Bic	/cle LOS	F				

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		HCS7 Two	o-Lan	e Highway Re	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/13/2021
Ag	ency	PEC		Analysis Year		2023
Jur	isdiction			Time Period Analy	/zed	Build PM
Prc	oject Description	Leesburg Pike - I Solar Farm	Bluebird	Unit		United States Customary
			Seg	ment 1		
Ve	hicle Inputs					
Seg	gment Type	Passing Constrai	ned	Length, ft		5280
Lar	ne Width, ft	12		Shoulder Width, f	t	2
Spe	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.4
De	emand and Capacity					
Directional Demand Flow Rate, veh/h 42		422	422		d Flow Rate, veh/h	-
Peak Hour Factor		0.89	0.89			6.00
Segment Capacity, veh/h		1700		Demand/Capacity	/ (D/C)	0.25
In	termediate Results					
Seg	gment Vertical Class	1		Free-Flow Speed,	mi/h	59.4
Spe	eed Slope Coefficient	3.77695		Speed Power Coe	fficient	0.41674
PF	Slope Coefficient	-1.30235	-1.30235		ent	0.75961
In I	Passing Lane Effective Length?	No	No		ensity, veh/mi/ln	3.6
%lr	mproved % Followers	0.0		% Improved Avg	vg Speed 0.0	
Su	ıbsegment Data					
#	Segment Type	Length, ft	R	adius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	57.0
Ve	hicle Results					÷
Ave	erage Speed, mi/h	57.0		Percent Followers	, %	49.2
Seg	gment Travel Time, minutes	1.05		Followers Density	, followers/mi/ln	3.6
Veł	Vehicle LOS B					
Bi	cycle Results					·
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4
Flo	w Rate Outside Lane, veh/h	422		Bicycle Effective V	Vidth, ft	14
Bic	ycle LOS Score	5.81		Bicycle Effective S	peed Factor	4.79
Bicycle LOS F						

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		HCS7 Two-	Lane	Highway R	eport	
Pre	oject Information					
Ana	lyst	JJLC		Date		4/16/2021
Age	ency	PEC		Analysis Year		2023
Juri	sdiction		Time Period Analyzed		AM Build	
Pro	ject Description	Russel Cave - Blueb Solar in Harrison Cc KY	luebird Unit n County,		United States Customary	
			Segn	nent 1		
Ve	hicle Inputs					
Seg	ment Type	Passing Constrained	d	Length, ft		5280
Lan	e Width, ft	11		Shoulder Width, f	t	2
Spe	ed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.0
De	mand and Capacity					
Directional Demand Flow Rate, veh/h		129	129		d Flow Rate, veh/h	-
Peak Hour Factor		0.73	0.73			1.50
Segment Capacity, veh/h		1700	1700		/ (D/C)	0.08
Int	ermediate Results					
Seg	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.0
Spe	ed Slope Coefficient	3.75797		Speed Power Coefficient		0.41674
PF S	Slope Coefficient	-1.30577	-1.30577		ent	0.75803
In P	assing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		0.5
%In	nproved % Followers	0.0		% Improved Avg Speed		0.0
Su	bsegment Data					
#	Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	58.1
Ve	hicle Results					
Ave	rage Speed, mi/h	58.1		Percent Followers, %		24.1
Seg	ment Travel Time, minutes	1.03		Followers Density	, followers/mi/ln	0.5
Vehicle LOS A		A				
Bio	cycle Results					
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4
Flov	w Rate Outside Lane, veh/h	129		Bicycle Effective V	Vidth, ft	20
Bicy	cle LOS Score	2.94		Bicycle Effective S	peed Factor	4.79
Bicy	rcle LOS	С				

		HCS7 Two	o-Lane	e Highway R	eport	
Project Informat	ion					
Analyst		JJLC		Date		4/16/2021
Agency		PEC		Analysis Year		2023
Jurisdiction			Time Period Analyzed		PM Build	
Project Description	Project Description Solar in Harrison County, KY		Unit		United States Customary	
			Segr	nent 1		
Vehicle Inputs						
Segment Type		Passing Constrain	ned	Length, ft		5280
Lane Width, ft		11		Shoulder Width, f	īt	2
Speed Limit, mi/h		55		Access Point Den	sity, pts/mi	1.0
Demand and Ca	pacity					
Directional Demand Flo	ow Rate, veh/h	134		Opposing Deman	nd Flow Rate, veh/h	-
Peak Hour Factor		0.76	0.76			1.50
Segment Capacity, veh/h		1700		Demand/Capacity	y (D/C)	0.08
Intermediate Res	sults					
Segment Vertical Class		1		Free-Flow Speed,	mi/h	59.0
Speed Slope Coefficien	t	3.75797		Speed Power Coefficient		0.41674
PF Slope Coefficient		-1.30577		PF Power Coefficient		0.75803
In Passing Lane Effectiv	e Length?	No		Total Segment Density, veh/mi/ln		0.6
%Improved % Follower	S	0.0		% Improved Avg	Speed	0.0
Subsegment Dat	ta					
# Segment Type		Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent		5280	-		-	58.1
Vehicle Results						
Average Speed, mi/h		58.1		Percent Followers	s, %	24.8
Segment Travel Time, minutes		1.03		Followers Density	, followers/mi/ln	0.6
Vehicle LOS A						
Bicycle Results						
Percent Occupied Parki	ng	0		Pavement Condit	ion Rating	4
Flow Rate Outside Lane	e, veh/h	134		Bicycle Effective V	Vidth, ft	19
Bicycle LOS Score		3.16		Bicycle Effective S	Speed Factor	4.79
Bicycle LOS		С				

	HCS7 Tw	o-Lane	Highway R	eport	
Project Information					
Analyst	JJLC		Date		4/16/2021
Agency	PEC		Analysis Year		2023
Jurisdiction		Time Period Analyzed		AM Build	
Project Description	Allen Pike - Blue in Harrison Cou	ebird Solar nty, KY	Unit		United States Customary
		Segr	ment 1		
Vehicle Inputs					
Segment Type	Passing Constra	ined	Length, ft		5280
Lane Width, ft	9		Shoulder Width, f	t	0
Speed Limit, mi/h	55		Access Point Den	sity, pts/mi	1.2
Demand and Capacity					
Directional Demand Flow Rate, veh/h	42	42		d Flow Rate, veh/h	-
Peak Hour Factor	0.50	0.50			42.50
Segment Capacity, veh/h	1700		Demand/Capacity	/ (D/C)	0.02
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.0
Speed Slope Coefficient	3.54034		Speed Power Coefficient		0.41674
PF Slope Coefficient	-1.33150	-1.33150		ent	0.75313
In Passing Lane Effective Length?	No	No		ensity, veh/mi/ln	0.1
%Improved % Followers	0.0		% Improved Avg Speed		0.0
Subsegment Data					
# Segment Type	Length, ft	Rad	dius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	55.0
Vehicle Results					
Average Speed, mi/h	55.0		Percent Followers	, %	11.5
Segment Travel Time, minutes	1.09		Followers Density	, followers/mi/ln	0.1
Vehicle LOS	A				
Bicycle Results					
Percent Occupied Parking	0		Pavement Conditi	on Rating	4
Flow Rate Outside Lane, veh/h	42		Bicycle Effective V	Vidth, ft	17
Bicycle LOS Score	29.69		Bicycle Effective S	peed Factor	4.79
Bicycle LOS	F		1		1

		HCS7 Tw	o-Lane	e Highway R	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/16/2021
Ag	ency	PEC		Analysis Year		2023
Jur	isdiction		Time Period Analyzed		PM Build	
Prc	ject Description	Allen Pike - Bluebird Solar in Harrison County, KY		Unit		United States Customary
			Segr	ment 1		
Ve	hicle Inputs					
Seg	gment Type	Passing Constra	ined	Length, ft		5280
Lar	ne Width, ft	9		Shoulder Width, f	īt	0
Spe	eed Limit, mi/h	55		Access Point Den	sity, pts/mi	1.2
De	emand and Capacity					
Directional Demand Flow Rate, veh/h		40	40		nd Flow Rate, veh/h	-
Peak Hour Factor		0.55	0.55			42.50
Segment Capacity, veh/h		1700		Demand/Capacity	y (D/C)	0.02
In	termediate Results			·		
Seg	gment Vertical Class	1		Free-Flow Speed,	mi/h	55.0
Spe	eed Slope Coefficient	3.54034		Speed Power Coe	fficient	0.41674
PF	Slope Coefficient	-1.33150		PF Power Coefficient		0.75313
In F	Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		0.1
%Ir	nproved % Followers	0.0		% Improved Avg	Speed	0.0
Su	ibsegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	55.0
Ve	hicle Results				•	•
Ave	erage Speed, mi/h	55.0		Percent Followers	;, %	11.1
Seg	gment Travel Time, minutes	1.09		Followers Density	r, followers/mi/ln	0.1
Vehicle LOS A						
Bi	cycle Results					
Per	cent Occupied Parking	0		Pavement Condit	ion Rating	4
Flo	w Rate Outside Lane, veh/h	40		Bicycle Effective V	Vidth, ft	17
Bic	ycle LOS Score	29.67		Bicycle Effective S	peed Factor	4.79
Bicycle LOS F		F	F			

	HCS7 Two-La	ane	Highway Re	eport	
Project Information					
Analyst	JJLC		Date		4/16/2021
Agency	PEC	PEC			2023
Jurisdiction			Time Period Analy	zed	AM Build
Project Description	ject Description Silas Road - Bluebird Solar Farm in Harrison County, KY		Unit		United States Customary
	S	egm	ent 1		
Vehicle Inputs					
Segment Type	Passing Constrained		Length, ft		5280
Lane Width, ft	9		Shoulder Width, ft	t	0
Speed Limit, mi/h	55		Access Point Dens	ity, pts/mi	2.9
Demand and Capacity					
Directional Demand Flow Rate, veh/h	49	49		d Flow Rate, veh/h	-
Peak Hour Factor	0.61		Total Trucks, %		3.50
Segment Capacity, veh/h	1700		Demand/Capacity	(D/C)	0.03
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.9
Speed Slope Coefficient	3.58770		Speed Power Coefficient		0.41674
PF Slope Coefficient	-1.32995		PF Power Coefficient		0.74991
In Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		0.1
%Improved % Followers	0.0		% Improved Avg Speed		0.0
Subsegment Data					
# Segment Type	Length, ft	Radi	us, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	55.9
Vehicle Results					
Average Speed, mi/h	55.9		Percent Followers, %		13.0
Segment Travel Time, minutes	1.07		Followers Density,	followers/mi/ln	0.1
Vehicle LOS A					
Bicycle Results					
Percent Occupied Parking	0		Pavement Condition	on Rating	4
Flow Rate Outside Lane, veh/h	49		Bicycle Effective W	/idth, ft	17
Bicycle LOS Score	3.51		Bicycle Effective S	peed Factor	4.79
Bicycle LOS	D				
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Project Information Analyst Agency	IIIC			
Analyst Agency	JJLC			
Agency		Date		4/16/2021
5 - 5	PEC	Analysis Year		2023
lurisdiction		Time Period Analy	zed	PM Build
Project Description	ct Description Silas Road - Bluebird Solar Farm in Harrison County, KY			United States Customary
	Se	gment 1		
Vehicle Inputs				
Segment Type	Passing Constrained	Length, ft		5280
∟ane Width, ft	9	Shoulder Width, f	t	0
Speed Limit, mi/h	55	Access Point Dens	sity, pts/mi	2.9
Demand and Capacity				
Directional Demand Flow Rate, veh/h	49	Opposing Deman	d Flow Rate, veh/h	-
Peak Hour Factor	0.63	Total Trucks, %		3.50
Segment Capacity, veh/h	1700	Demand/Capacity	r (D/C)	0.03
Intermediate Results				
Segment Vertical Class	1	Free-Flow Speed,	mi/h	55.9
Speed Slope Coefficient	3.58770	Speed Power Coe	fficient	0.41674
PF Slope Coefficient	-1.32995	PF Power Coefficie	ent	0.74991
n Passing Lane Effective Length?	No	Total Segment De	nsity, veh/mi/ln	0.1
%Improved % Followers	0.0	% Improved Avg S	Speed	0.0
Subsegment Data				
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-	-	55.9
Vehicle Results				
Average Speed, mi/h	55.9	Percent Followers	, %	13.0
Segment Travel Time, minutes	1.07	Followers Density,	followers/mi/ln	0.1
Vehicle LOS	A			
Bicycle Results		·		
Percent Occupied Parking	0	Pavement Conditi	on Rating	4
Flow Rate Outside Lane, veh/h	49	Bicycle Effective V	Vidth, ft	17
Bicycle LOS Score	3.51	Bicycle Effective S	peed Factor	4.79
Bicycle LOS	D			

Silas Rd_2023_Build_PM.xuf

		HCS7 Two	-Lane	e Highway Re	eport		
Pr	oject Information						
Ana	alyst	JJLC		Date		4/13/2021	
Age	ency	PEC		Analysis Year		2033	
Jur	sdiction			Time Period Analy	zed	No Build AM	
Pro	ject Description	Leesburg Pike - B Solar Farm	luebird	Unit		United States Customary	
			Seg	ment 1			
Ve	hicle Inputs						
Seg	iment Type	Passing Constrain	ned	Length, ft		5280	
Lar	e Width, ft	12		Shoulder Width, f	t	2	
Spe	ed Limit, mi/h	55		Access Point Dens	ity, pts/mi	1.4	
De	mand and Capacity						
Directional Demand Flow Rate, veh/h		439		Opposing Deman	d Flow Rate, veh/h	-	
Peak Hour Factor		0.88		Total Trucks, %		6.00	
Segment Capacity, veh/h		1700		Demand/Capacity	(D/C)	0.26	
In	termediate Results						
Seg	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.4	
Spe	ed Slope Coefficient	3.77695		Speed Power Coe	fficient	0.41674	
PF	Slope Coefficient	-1.30235		PF Power Coefficie	ent	0.75961	
In F	Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	3.9	
%lr	nproved % Followers	0.0		% Improved Avg S	Speed	0.0	
Su	bsegment Data						
#	Segment Type	Length, ft	Ra	adius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-		-	56.9	
Ve	hicle Results						
Ave	erage Speed, mi/h	56.9		Percent Followers	%	50.2	
Seg	ment Travel Time, minutes	1.05		Followers Density	followers/mi/ln	3.9	
Veł	Vehicle LOS B						
Bi	cycle Results						
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4	
Flo	w Rate Outside Lane, veh/h	439		Bicycle Effective V	/idth, ft	14	
Bic	cle LOS Score	5.83		Bicycle Effective S	peed Factor	4.79	
Bicycle LOS F							

HCS TM Two-Lane Version 7.8 Leesburg Pike_2033_No Build_AM.xuf Generated: 04/22/2021 08:13:33

		HCS7 Two	o-Lan	e Highway Re	eport			
Pr	oject Information							
Ana	alyst	JJLC		Date		4/13/2021		
Age	ency	PEC		Analysis Year		2033		
Juri	sdiction			Time Period Analy	vzed	No Build PM		
Pro	ject Description	Leesburg Pike - I Solar Farm	Bluebird	Unit		United States Customary		
			Seg	ment 1				
Ve	hicle Inputs							
Sec	iment Type	Passing Constrai	ned	Length, ft		5280		
Lan	e Width, ft	12		Shoulder Width, f	t	2		
Spe	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.4		
De	emand and Capacity							
Directional Demand Flow Rate, veh/h		545		Opposing Deman	d Flow Rate, veh/h	-		
Peak Hour Factor		0.89		Total Trucks, %		6.00		
Segment Capacity, veh/h		1700		Demand/Capacity	r (D/C)	0.32		
Int	termediate Results							
Sec	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.4		
Spe	ed Slope Coefficient	3.77695		Speed Power Coe	fficient	0.41674		
PF	Slope Coefficient	-1.30235		PF Power Coefficie	ent	0.75961		
In F	Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	5.4		
%lr	nproved % Followers	0.0		% Improved Avg S	Speed	0.0		
Su	bsegment Data							
#	Segment Type	Length, ft	R	adius, ft	Superelevation, %	Average Speed, mi/h		
1	Tangent	5280	-		-	56.7		
Ve	hicle Results							
Ave	erage Speed, mi/h	56.7		Percent Followers	, %	56.0		
Seg	ment Travel Time, minutes	1.06		Followers Density,	, followers/mi/ln	5.4		
Veh	Vehicle LOS C							
Bi	cycle Results							
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4		
Flo	w Rate Outside Lane, veh/h	545		Bicycle Effective V	Vidth, ft	14		
Bic	cle LOS Score	5.94		Bicycle Effective S	peed Factor	4.79		
Bic	/cle LOS	F						

HCS TM Two-Lane Version 7.8 Leesburg Pike_2033_No Build_PM.xuf Generated: 04/22/2021 08:14:05

	HCS7 Two-La	ne	Highway Re	eport		
Project Information						
Analyst	JILC		Date		4/16/2021	
Agency	PEC		Analysis Year		2033	
Jurisdiction			Time Period Analy	/zed	AM No Build	
Project Description	Russel Cave - Bluebird Solar in Harrison Coun KY	ty,	Unit		United States Customary	
	Se	egn	nent 1			
Vehicle Inputs						
Segment Type	Passing Constrained		Length, ft		5280	
Lane Width, ft	11		Shoulder Width, f	t	2	
Speed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.0	
Demand and Capacity						
Directional Demand Flow Rate, veh/h 108 Opposing Demand Flow Ra			d Flow Rate, veh/h	-		
Peak Hour Factor	0.73		Total Trucks, %		1.50	
Segment Capacity, veh/h	1700		Demand/Capacity (D/C)		0.06	
Intermediate Results						
Segment Vertical Class	1		Free-Flow Speed,	mi/h	59.0	
Speed Slope Coefficient	3.75797		Speed Power Coe	fficient	0.41674	
PF Slope Coefficient	-1.30577		PF Power Coefficie	ent	0.75803	
In Passing Lane Effective Length?	No		Total Segment De	ensity, veh/mi/ln	0.4	
%Improved % Followers	0.0		% Improved Avg S	Speed	0.0	
Subsegment Data						
# Segment Type	Length, ft	Rad	dius, ft	Superelevation, %	Average Speed, mi/h	
1 Tangent	5280	-		-	58.5	
Vehicle Results						
Average Speed, mi/h	58.5		Percent Followers	, %	21.5	
Segment Travel Time, minutes 1.03		Followers Density,	, followers/mi/ln	0.4		
Vehicle LOS A						
Bicycle Results						
Percent Occupied Parking	0		Pavement Conditi	on Rating	4	
Flow Rate Outside Lane, veh/h	108		Bicycle Effective V	Vidth, ft	21	
Bicycle LOS Score	2.65		Bicycle Effective S	peed Factor	4.79	
Bicycle LOS	С					

		_			
	HCS7 Two-L	ane	Highway Re	eport	
Project Information					
Analyst	JILC		Date		4/16/2021
Agency	PEC		Analysis Year		2033
Jurisdiction			Time Period Analy	zed	PM No Build
Project Description	Russel Cave - Bluebirg Solar in Harrison Cou KY	d nty,	Unit		United States Customary
	S	egn	nent 1		
Vehicle Inputs					
Segment Type	Passing Constrained		Length, ft		5280
Lane Width, ft	11		Shoulder Width, f	t	2
Speed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h 114 Opposing Demand Flow			d Flow Rate, veh/h	-	
Peak Hour Factor	0.76		Total Trucks, %		1.50
Segment Capacity, veh/h	1700		Demand/Capacity (D/C)		0.07
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	59.0
Speed Slope Coefficient	3.75797		Speed Power Coe	fficient	0.41674
PF Slope Coefficient	-1.30577		PF Power Coefficient		0.75803
In Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	0.4
%Improved % Followers	0.0		% Improved Avg S	Speed	0.0
Subsegment Data					
# Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	58.4
Vehicle Results				<u>.</u>	
Average Speed, mi/h	58.4		Percent Followers	, %	22.3
Segment Travel Time, minutes 1.03		Followers Density,	followers/mi/ln	0.4	
Vehicle LOS A					
Bicycle Results					
Percent Occupied Parking 0 Pavement Condition Rating 4					
Flow Rate Outside Lane, veh/h	114		Bicycle Effective V	Vidth, ft	20
Bicycle LOS Score	2.88		Bicycle Effective S	peed Factor	4.79
Bicycle LOS	С				

		HCS7 Tw	o-Lane	Highway R	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/16/2021
Ag	ency	PEC		Analysis Year		2033
Jui	isdiction			Time Period Analy	/zed	AM No Build
Pro	oject Description	Allen Pike - Bluebird Solar in Harrison County, KY		Unit		United States Customary
			Segr	nent 1		
Ve	hicle Inputs					
Se	gment Type	Passing Constra	ined	Length, ft		5280
La	ne Width, ft	9		Shoulder Width, f	t	0
Sp	eed Limit, mi/h	55		Access Point Density, pts/mi		1.2
D	emand and Capacity					
Dir	ectional Demand Flow Rate, veh/h	12		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.50		Total Trucks, %		42.50
Segment Capacity, veh/h		1700		Demand/Capacity	/ (D/C)	0.01
In	termediate Results					-
Se	gment Vertical Class	1		Free-Flow Speed,	mi/h	55.0
Sp	eed Slope Coefficient	3.54034		Speed Power Coefficient		0.41674
PF	Slope Coefficient	-1.33150		PF Power Coefficient		0.75313
In	Passing Lane Effective Length?	No		Total Segment De	ensity, veh/mi/ln	0.0
%I	mproved % Followers	0.0		% Improved Avg	Speed	0.0
Sı	ıbsegment Data					
#	Segment Type	Length, ft	Rad	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	55.0
Ve	hicle Results	-				•
Av	erage Speed, mi/h	55.0		Percent Followers	, %	4.6
Se	gment Travel Time, minutes	1.09		Followers Density	, followers/mi/ln	0.0
Ve	Vehicle LOS A					
Bi	cycle Results					
Pe	rcent Occupied Parking	0		Pavement Conditi	on Rating	4
Flc	w Rate Outside Lane, veh/h	12		Bicycle Effective V	Vidth, ft	18
Bic	ycle LOS Score	28.88		Bicycle Effective S	peed Factor	4.79
Bic	ycle LOS	F		1		

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		HCS7 Tw	o-Lane	Highway R	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/16/2021
Ag	ency	PEC		Analysis Year		2033
Jui	isdiction			Time Period Analy	/zed	PM No Build
Pro	oject Description	Allen Pike - Bluebird Solar in Harrison County, KY		Unit		United States Customary
			Segr	nent 1		
Ve	ehicle Inputs					
Se	gment Type	Passing Constra	ined	Length, ft		5280
La	ne Width, ft	9		Shoulder Width, f	t	0
Sp	eed Limit, mi/h	55		Access Point Density, pts/mi		1.2
D	emand and Capacity					
Dir	ectional Demand Flow Rate, veh/h	13		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.55		Total Trucks, %		42.50
Segment Capacity, veh/h		1700		Demand/Capacity	/ (D/C)	0.01
In	termediate Results			·		•
Se	gment Vertical Class	1		Free-Flow Speed,	mi/h	55.0
Sp	eed Slope Coefficient	3.54034		Speed Power Coefficient		0.41674
PF	Slope Coefficient	-1.33150		PF Power Coefficient		0.75313
In	Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		0.0
%I	mproved % Followers	0.0		% Improved Avg	Speed	0.0
Sı	ıbsegment Data					
#	Segment Type	Length, ft	Rad	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	55.0
Ve	hicle Results	•			•	•
Av	erage Speed, mi/h	55.0		Percent Followers	, %	4.9
Se	gment Travel Time, minutes	1.09		Followers Density	, followers/mi/ln	0.0
Ve	Vehicle LOS A					
Bi	cycle Results					
Pe	rcent Occupied Parking	0		Pavement Conditi	on Rating	4
Flc	w Rate Outside Lane, veh/h	13		Bicycle Effective V	Vidth, ft	18
Bic	ycle LOS Score	28.92		Bicycle Effective S	peed Factor	4.79
Bic	ycle LOS	F		1		

	HCS7 Two	-Lane	Highway Re	eport	
Project Information					
Analyst	JJLC		Date		4/16/2021
Agency	PEC		Analysis Year		2033
Jurisdiction			Time Period Analy	zed	AM No Build
Project Description	Silas Road - Blueb Farm in Harrison (KY	oird Solar County,	Unit		United States Customary
		Segn	nent 1		
Vehicle Inputs					
Segment Type	Passing Constrain	ed	Length, ft		5280
Lane Width, ft	9		Shoulder Width, f	t	0
Speed Limit, mi/h	55		Access Point Dens	sity, pts/mi	2.9
Demand and Capacity					
Directional Demand Flow Rate, veh/h	26		Opposing Deman	d Flow Rate, veh/h	-
Peak Hour Factor	0.61		Total Trucks, %		3.50
Segment Capacity, veh/h	1700		Demand/Capacity	Demand/Capacity (D/C) 0.02	
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.9
Speed Slope Coefficient	3.58770		Speed Power Coefficient		0.41674
PF Slope Coefficient	-1.32995		PF Power Coefficient		0.74991
In Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	0.0
%Improved % Followers	0.0		% Improved Avg S	Speed	0.0
Subsegment Data					
# Segment Type	Length, ft	Rac	lius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	55.9
Vehicle Results					
Average Speed, mi/h	55.9		Percent Followers,	, %	8.3
Segment Travel Time, minutes	1.07		Followers Density,	followers/mi/ln	0.0
Vehicle LOS A					
Bicycle Results					-
Percent Occupied Parking	0		Pavement Conditi	on Rating	4
Flow Rate Outside Lane, veh/h	26		Bicycle Effective W	- Vidth, ft	17
Bicycle LOS Score	3.19		Bicycle Effective S	peed Factor	4.79
Bicycle LOS	С				
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	HCS7 Two-La	ine	Highway Re	eport	
Project Information		_			
Analyst	JJLC		Date		4/16/2021
Agency	PEC		Analysis Year		2033
Jurisdiction			Time Period Analy	/zed	PM No Build
Project Description	ect Description Silas Road - Bluebird Solar Unit Farm in Harrison County, KY			United States Customary	
	Se	egn	nent 1		
Vehicle Inputs					
Segment Type	Passing Constrained		Length, ft		5280
Lane Width, ft	9		Shoulder Width, f	t	0
Speed Limit, mi/h	55		Access Point Dens	sity, pts/mi	2.9
Demand and Capacity					
Directional Demand Flow Rate, veh/h 27 Opposing Demand Flow Rate				d Flow Rate, veh/h	-
Peak Hour Factor	0.63		Total Trucks, %		3.50
Segment Capacity, veh/h	1700		Demand/Capacity	/ (D/C)	0.02
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.9
Speed Slope Coefficient	3.58770		Speed Power Coefficient		0.41674
PF Slope Coefficient	-1.32995		PF Power Coefficient		0.74991
In Passing Lane Effective Length?	No		Total Segment De	ensity, veh/mi/ln	0.0
%Improved % Followers	0.0		% Improved Avg	Speed	0.0
Subsegment Data					
# Segment Type	Length, ft	Rac	lius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	55.9
Vehicle Results					
Average Speed, mi/h	55.9		Percent Followers	, %	8.5
Segment Travel Time, minutes 1.07			Followers Density	, followers/mi/ln	0.0
Vehicle LOS A					
Bicycle Results					
Percent Occupied Parking	0		Pavement Conditi	on Rating	4
Flow Rate Outside Lane, veh/h	27		Bicycle Effective V	Vidth, ft	17
Bicycle LOS Score	3.21		Bicycle Effective S	peed Factor	4.79
Bicycle LOS	С				

			_			
		HCS7 Two	-Lane	e Highway Re	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/13/2021
Ag	ency	PEC		Analysis Year		2033
Jur	isdiction			Time Period Analy	zed	Build AM
Pro	oject Description	Leesburg Pike - E Solar Farm	Bluebird	Unit		United States Customary
			Segr	ment 1		
Ve	ehicle Inputs					
Seg	gment Type	Passing Constrair	ned	Length, ft		5280
Lar	ne Width, ft	12		Shoulder Width, f	t	2
Sp	eed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.4
De	emand and Capacity					
Directional Demand Flow Rate, veh/h		456		Opposing Deman	d Flow Rate, veh/h	-
Peak Hour Factor		0.88		Total Trucks, %		6.00
Segment Capacity, veh/h		1700		Demand/Capacity	′ (D/C)	0.27
In	termediate Results					
Seg	gment Vertical Class	1		Free-Flow Speed,	mi/h	59.4
Spe	eed Slope Coefficient	3.77695		Speed Power Coefficient		0.41674
PF	Slope Coefficient	-1.30235		PF Power Coefficient		0.75961
In I	Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	4.1
%lı	mproved % Followers	0.0		% Improved Avg S	Speed	0.0
Su	ıbsegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	56.9
Ve	hicle Results	•			•	·
Ave	erage Speed, mi/h	56.9		Percent Followers	, %	51.2
Seg	gment Travel Time, minutes	1.05		Followers Density	, followers/mi/ln	4.1
Vel	Vehicle LOS C					
Bi	cycle Results					
Per	rcent Occupied Parking	0		Pavement Conditi	on Rating	4
Flo	w Rate Outside Lane, veh/h	456		Bicycle Effective V	Vidth, ft	14
Bic	ycle LOS Score	5.85		Bicycle Effective S	peed Factor	4.79
Bicycle LOS F						

		HCS7 Two	o-Lan	e Highwa	y R	eport	
Р	roject Information						
An	alyst	JJLC		Date			4/13/2021
Ag	lency	PEC		Analysis Yea	Analysis Year		2033
Ju	risdiction			Time Period	Anal	yzed	Build PM
Pro	oject Description	Leesburg Pike - Solar Farm	Bluebird	d Unit		United States Customary	
			Seg	jment 1			
Ve	ehicle Inputs						
Se	gment Type	Passing Constrai	ned	Length, ft			5280
La	ne Width, ft	12		Shoulder Wi	dth, f	īt	2
Sp	eed Limit, mi/h	55		Access Point	: Den	sity, pts/mi	1.4
D	emand and Capacity						
Di	rectional Demand Flow Rate, veh/h	562		Opposing D	Opposing Demand Flow Rate, veh/h		-
Pe	ak Hour Factor	0.89		Total Trucks,	Total Trucks, %		6.00
Segment Capacity, veh/h		1700		Demand/Ca	pacity	y (D/C)	0.33
In	termediate Results						
Se	gment Vertical Class	1		Free-Flow Sp	peed,	mi/h	59.4
Sp	eed Slope Coefficient	3.77695		Speed Powe	Speed Power Coefficient		0.41674
PF	Slope Coefficient	-1.30235		PF Power Co	PF Power Coefficient		0.75961
In	Passing Lane Effective Length?	No		Total Segme	Total Segment Density, veh/mi/ln		5.6
%I	mproved % Followers	0.0		% Improved	Avg	Speed	0.0
Sı	ubsegment Data						
#	Segment Type	Length, ft	F	Radius, ft		Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-			-	56.6
Ve	ehicle Results						
Av	erage Speed, mi/h	56.6		Percent Follo	owers	i, %	56.8
Se	gment Travel Time, minutes	1.06		Followers De	ensity	r, followers/mi/ln	5.6
Ve	Vehicle LOS C						
Bi	cycle Results						
Pe	rcent Occupied Parking	0		Pavement Co	ondit	ion Rating	4
Flo	w Rate Outside Lane, veh/h	562		Bicycle Effec	tive V	Vidth, ft	14
Bio	cycle LOS Score	5.95		Bicycle Effec	tive S	peed Factor	4.79
Bio	cycle LOS	F					

		HCS7 Two-L	.ane	Highway Re	eport	
Pre	oject Information					
Ana	ilyst	JJLC		Date		4/16/2021
Age	ency	PEC		Analysis Year		2033
Juri	sdiction			Time Period Analy	/zed	AM Build
Pro <u></u>	ject Description	Russel Cave - Bluebir Solar in Harrison Cou KY	d unty,	Unit		United States Customary
		S	Segn	nent 1		
Ve	hicle Inputs					
Seg	ment Type	Passing Constrained		Length, ft		5280
Lan	e Width, ft	11		Shoulder Width, f	t	2
Spe	ed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.0
De	emand and Capacity					
Directional Demand Flow Rate, veh/h 129				Opposing Deman	d Flow Rate, veh/h	-
Peak Hour Factor		0.73		Total Trucks, %		1.50
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.08
Int	termediate Results					
Seg	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.0
Spe	ed Slope Coefficient	3.75797		Speed Power Coefficient		0.41674
PF S	Slope Coefficient	-1.30577		PF Power Coefficient 0		0.75803
In F	Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	0.5
%In	nproved % Followers	0.0		% Improved Avg	Speed	0.0
Su	bsegment Data					
#	Segment Type	Length, ft	Rad	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	58.1
Ve	hicle Results					
Ave	rage Speed, mi/h	58.1		Percent Followers	, %	24.1
Seg	ment Travel Time, minutes	1.03		Followers Density	, followers/mi/ln	0.5
Vehicle LOS A						
Bio	cycle Results					
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4
Flov	w Rate Outside Lane, veh/h	129		Bicycle Effective V	Vidth, ft	20
Bicy	cle LOS Score	2.94		Bicycle Effective S	peed Factor	4.79
Bicy	/cle LOS	С				
-						

		HCS7 Two-	Lane	Highway Re	eport	
Pr	oject Information					
Ana	ilyst	JJLC		Date		4/16/2021
Age	ency	PEC		Analysis Year		2033
Juri	sdiction			Time Period Analy	/zed	PM Build
Pro	ject Description	Russel Cave - Blueb Solar in Harrison Co KY	ird ounty,	Unit		United States Customary
			Segn	nent 1		
Ve	hicle Inputs					
Seg	iment Type	Passing Constrained	k	Length, ft		5280
Lan	e Width, ft	11		Shoulder Width, f	t	2
Spe	ed Limit, mi/h	55		Access Point Dens	sity, pts/mi	1.0
De	emand and Capacity					
Directional Demand Flow Rate, veh/h 134			Opposing Demand Flow Rate, veh/h		-	
Peak Hour Factor		0.76		Total Trucks, %		1.50
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.08
Int	termediate Results					
Seg	ment Vertical Class	1		Free-Flow Speed,	mi/h	59.0
Spe	ed Slope Coefficient	3.75797		Speed Power Coe	fficient	0.41674
PF :	Slope Coefficient	-1.30577		PF Power Coefficient		0.75803
In F	assing Lane Effective Length?	No		Total Segment De	ensity, veh/mi/ln	0.6
%lr	nproved % Followers	0.0		% Improved Avg	Speed	0.0
Su	bsegment Data					
#	Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	58.1
Ve	hicle Results					
Ave	erage Speed, mi/h	58.1		Percent Followers	, %	24.8
Segment Travel Time, minutes 1.03		Followers Density	, followers/mi/ln	0.6		
Vehicle LOS A						
Bie	cycle Results					
Per	cent Occupied Parking	0		Pavement Conditi	on Rating	4
Flov	w Rate Outside Lane, veh/h	134		Bicycle Effective V	Vidth, ft	19
Bicy	cle LOS Score	3.16		Bicycle Effective S	peed Factor	4.79
Bicy	vcle LOS	С				

	HCS7 Tw	o-Lane	Highway R	eport	
Project Information					
Analyst	JJLC		Date		4/16/2021
Agency	PEC		Analysis Year		2033
Jurisdiction			Time Period Analyzed		AM Build
Project Description	Description Allen Pike - Bluebird Solar in Harrison County, KY		Unit		United States Customary
		Segr	nent 1		
Vehicle Inputs					
Segment Type	Passing Constra	ined	Length, ft		5280
Lane Width, ft	9	9		t	0
Speed Limit, mi/h	55	55		sity, pts/mi	1.2
Demand and Capacity					
Directional Demand Flow Rate, veh/h	42		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor	0.50		Total Trucks, %		42.50
Segment Capacity, veh/h	1700	1700		/ (D/C)	0.02
Intermediate Results	·		-		·
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.0
Speed Slope Coefficient	3.54034	3.54034		fficient	0.41674
PF Slope Coefficient	-1.33150	-1.33150		ent	0.75313
In Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		0.1
%Improved % Followers	0.0		% Improved Avg Speed		0.0
Subsegment Data					
# Segment Type	Length, ft	Rad	dius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	55.0
Vehicle Results					•
Average Speed, mi/h 55.0			Percent Followers, %		11.5
Segment Travel Time, minutes	1.09		Followers Density, followers/mi/ln		0.1
Vehicle LOS	A				
Bicycle Results					
Percent Occupied Parking 0		Pavement Conditi	on Rating	4	
Flow Rate Outside Lane, veh/h	42	42		Vidth, ft	17
Bicycle LOS Score	29.69		Bicycle Effective Speed Factor		4.79
licycle LOS F					

		HCS7 Tw	o-Lane	e Highway R	eport	
Pr	oject Information					
An	alyst	JJLC		Date		4/16/2021
Ag	ency	PEC		Analysis Year		2033
Jur	isdiction			Time Period Anal	yzed	PM Build
Prc	ject Description	Allen Pike - Bluebird Solar in Harrison County, KY		Unit		United States Customary
			Segr	nent 1		
Ve	hicle Inputs					
Seg	gment Type	Passing Constra	ined	Length, ft		5280
Lar	ne Width, ft	9		Shoulder Width, f	īt	0
Spe	eed Limit, mi/h	55	55		sity, pts/mi	1.2
De	emand and Capacity					
Directional Demand Flow Rate, veh/h		40		Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.55		Total Trucks, %		42.50
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.02
In	termediate Results			·		
Segment Vertical Class 1		Free-Flow Speed,	mi/h	55.0		
Speed Slope Coefficient		3.54034		Speed Power Coefficient		0.41674
PF Slope Coefficient		-1.33150	-1.33150		ent	0.75313
In Passing Lane Effective Length?		No		Total Segment Density, veh/mi/ln		0.1
%Improved % Followers		0.0		% Improved Avg	Speed	0.0
Su	ibsegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	55.0
Ve	hicle Results	•				·
Ave	Average Speed, mi/h 55.0		Percent Followers, %		11.1	
Segment Travel Time, minutes 1.09		1.09	Followers Densi		r, followers/mi/ln	0.1
Veł	Vehicle LOS A					
Bi	cycle Results					
Per	Percent Occupied Parking 0		Pavement Condit	ion Rating	4	
Flo	w Rate Outside Lane, veh/h	40		Bicycle Effective Width, ft		17
Bic	ycle LOS Score	29.67		Bicycle Effective Speed Factor		4.79
Bic	Bicycle LOS F					

	HCS7 Two-La	ne Highw	ay R	eport	
Project Information					
Analyst	JJLC	Date	Date		4/16/2021
Agency	PEC	Analysis Y	Analysis Year		2033
Jurisdiction		Time Period Analyzed		/zed	AM Build
Project Description Silas Road - Blu Farm in Harriso KY		blar Unit y,	Unit		United States Customary
	Se	gment 1			
Vehicle Inputs					
Segment Type	Passing Constrained	Length, ft	Length, ft		5280
Lane Width, ft	9	Shoulder	Shoulder Width, ft		0
Speed Limit, mi/h	55	Access Po	Access Point Density, pts/mi		2.9
Demand and Capacity					
Directional Demand Flow Rate, veh/h	51	Opposing	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor	0.61	Total Truc	Total Trucks, %		3.50
Segment Capacity, veh/h	1700	Demand/0	Demand/Capacity (D/C)		0.03
Intermediate Results					
Segment Vertical Class 1		Free-Flow	Speed,	mi/h	55.9
Speed Slope Coefficient	3.58770	Speed Pov	Speed Power Coefficient		0.41674
PF Slope Coefficient	-1.32995	PF Power	PF Power Coefficient		0.74991
In Passing Lane Effective Length?	No	Total Segr	Total Segment Density, veh/mi/ln		0.1
%Improved % Followers	0.0 % Improv		mproved Avg Speed		0.0
Subsegment Data					
# Segment Type	Length, ft	Radius, ft	lius, ft Superelevation, %		Average Speed, mi/h
1 Tangent	5280	-		-	55.9
Vehicle Results					- ·
Average Speed, mi/h	55.9	Percent Fo	Percent Followers, %		13.3
Segment Travel Time, minutes	1.07	Followers	Followers Density, followers/mi/ln		0.1
Vehicle LOS	A				
Bicycle Results					
Percent Occupied Parking 0		Pavement	Conditi	on Rating	4
Flow Rate Outside Lane, veh/h	51	Bicycle Eff	Bicycle Effective Width, ft		17
Bicycle LOS Score	3.53	Bicycle Eff	Bicycle Effective Speed Factor		4.79
Bicycle LOS	D				

	HCS7 Two-Lar	ne Highway R	eport	
Project Information				
Analyst	JJLC	Date		4/16/2021
Agency	PEC	Analysis Year		2033
Jurisdiction		Time Period Anal	yzed	PM Build
Project Description	Silas Road - Bluebird Solar Farm in Harrison County, KY			United States Customary
	Se	gment 1		
Vehicle Inputs				
Segment Type	Passing Constrained	Length, ft		5280
Lane Width, ft	9	Shoulder Width,	ft	0
Speed Limit, mi/h	55	Access Point Den	sity, pts/mi	2.9
Demand and Capacity				
Directional Demand Flow Rate, veh/h	I Flow Rate, veh/h 51		nd Flow Rate, veh/h	-
Peak Hour Factor	0.63	Total Trucks, %		3.50
Segment Capacity, veh/h	1700	Demand/Capacity	y (D/C)	0.03
Intermediate Results				
Segment Vertical Class 1		Free-Flow Speed,	mi/h	55.9
Speed Slope Coefficient	3.58770	Speed Power Coe	efficient	0.41674
PF Slope Coefficient	-1.32995	PF Power Coeffici	ent	0.74991
In Passing Lane Effective Length?	No	Total Segment De	ensity, veh/mi/ln	0.1
%Improved % Followers	0.0	% Improved Avg	Speed	0.0
Subsegment Data				
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-	-	55.9
Vehicle Results			- -	
Average Speed, mi/h	55.9	Percent Followers	5, %	13.3
Segment Travel Time, minutes	1.07	Followers Density	ı, followers/mi/ln	0.1
Vehicle LOS	A			
Bicycle Results				
Percent Occupied Parking 0		Pavement Condit	ion Rating	4
Flow Rate Outside Lane, veh/h	51	Bicycle Effective \	Width, ft	17
Bicycle LOS Score	3.53	Bicycle Effective S	Speed Factor	4.79
Bicycle LOS	D			





