Imperial
TRAFFIC & DATA COLLECTION

Planning a Successful

Traffic Data Collection Program

ASHE Harrisburg | October 6, 2026

Lindsey Klein, President

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About ITDC

Lindsey Klein, President
University of Delaware

20 Years of Experience	**10** Years leading ITDC

18 Staff	**1** Central Office
6 Company Vehicles	**300+** Pieces of Equipment

150+ Public & Private Clients	**10,000+** Turning Movement Counts
2,000+ Projects	**7** States Served

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Today's Agenda

- Welcome to ASHEburg: The Project
- Back to Basics: Traffic Data Collection
- The Toolbox: Methods, Equipment & Capabilities
- Build ASHEburg's Data Collection Plan

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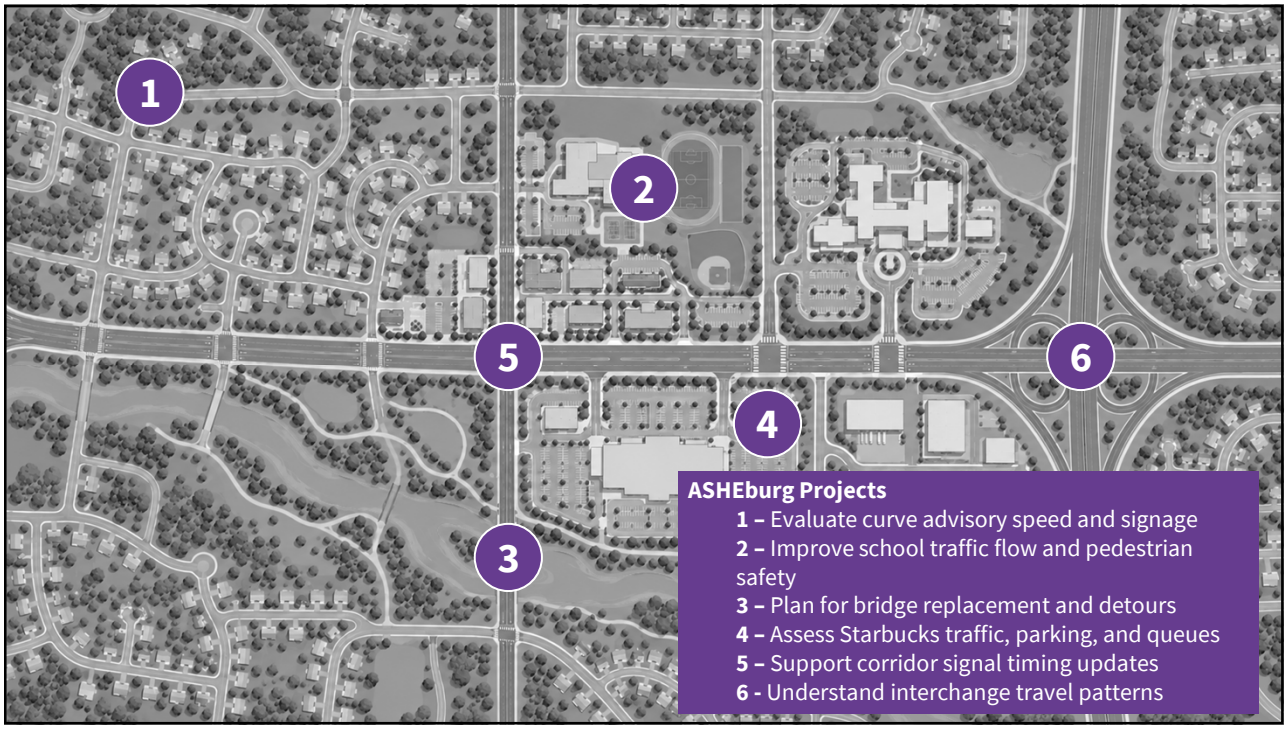
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ASHEburg Projects
1 – Evaluate curve advisory speed and signage
2 – Improve school traffic flow and pedestrian safety
3 – Plan for bridge replacement and detours
4 – Assess Starbucks traffic, parking, and queues
5 – Support corridor signal timing updates
6 - Understand interchange travel patterns

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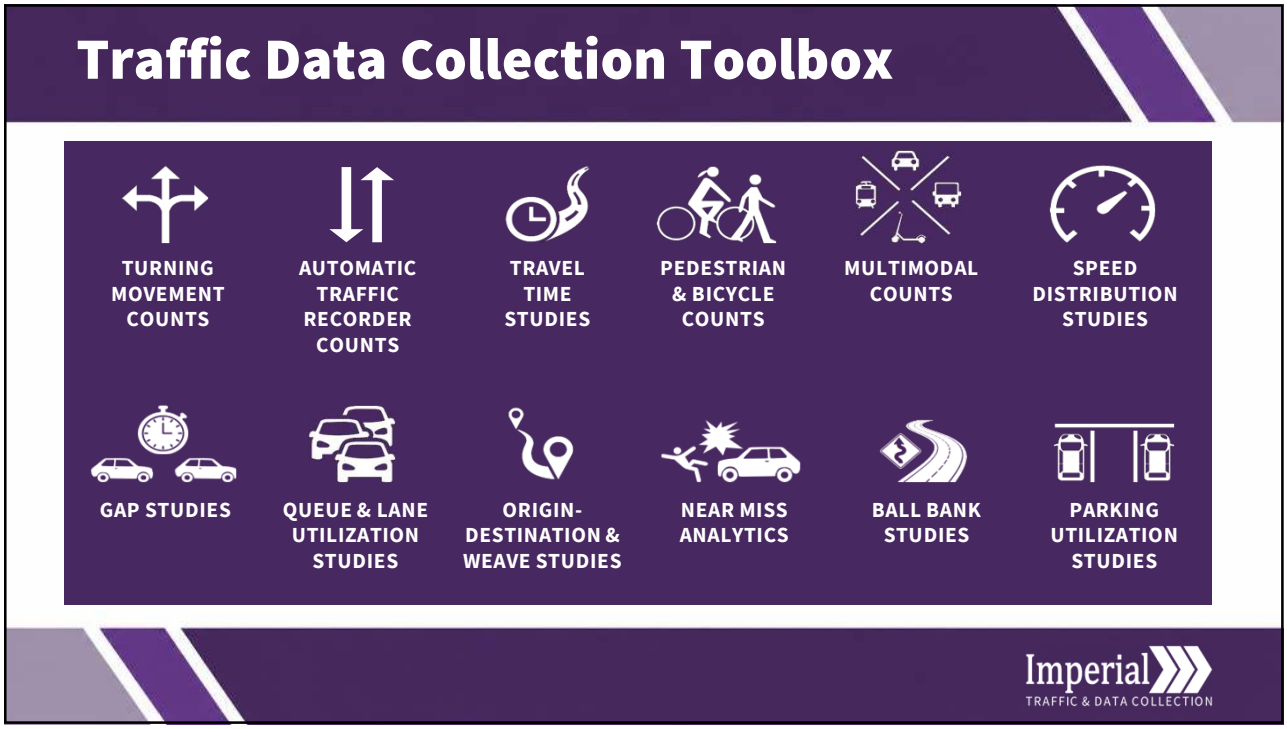
Traffic Data Collection Toolbox
TURNING MOVEMENT COUNTS
AUTOMATIC TRAFFIC RECORDER COUNTS
TRAVEL TIME STUDIES
PEDESTRIAN & BICYCLE COUNTS
MULTIMODAL COUNTS
SPEED DISTRIBUTION STUDIES
GAP STUDIES
QUEUE & LANE UTILIZATION STUDIES
ORIGIN-DESTINATION & WEAVE STUDIES
NEAR MISS ANALYTICS
BALL BANK STUDIES
PARKING UTILIZATION STUDIES
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Automatic Traffic Recorder Counts (ATR)

2 Lanes

4 Lanes

6+ Lanes

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ATR Technologies

	Pneumatic Tube (Traditional)	Radar		Video
		Up to 2 Lanes	3+ Lanes	
Manufacturers	MetroCount Jamar	Jamar BlackCat Houston Radar	Wavetronix Houston Radar	Miovision Rekor
Volume by direction	✓	✓	✓	✓
Speed	✓	✓	✓	✗
FHWA Classification	✓	✗	✗	✓
Length Classification	✓	✓	✓	✗
Summary Classification	✓	✓	✓	✓
Number of Lanes	2	2	12+	6+
Installation in Roadway	✓	✗	✗	✗
Pros	FHWA Class	Safe solution, low maintenance	Capture many lanes	Highly accurate
Cons	High maintenance, flooding snow and failures	Only 2 lanes; proprietary software	Calibration required; Expensive investment	No speed data; costly processing

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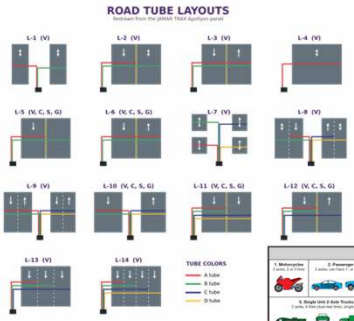
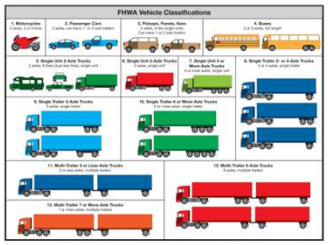
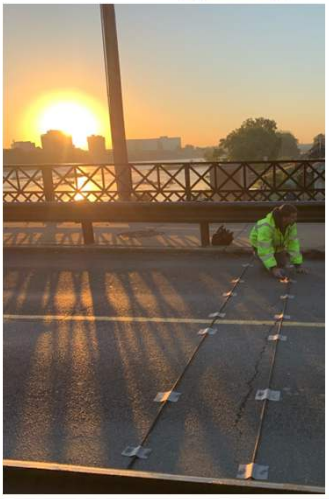
Pneumatic Tube ATR Counts







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Pneumatic Tube ATR Data

5/4/2026	Monday		Tuesday		Wednesday		Thursday		Friday		Weekday Average		Saturday		Sunday	
Time	EB, Dehirsch Avenue	WB, Dehirsch Avenue	EB, Dehirsch Avenue	WB, Dehirsch Avenue	EB, Dehirsch Avenue	WB, Dehirsch Avenue	EB, Dehirsch Avenue	WB, Dehirsch Avenue	EB, Dehirsch Avenue	WB, Dehirsch Avenue	EB, Dehirsch Avenue	WB, Dehirsch Avenue	EB, Dehirsch Avenue	WB, Dehirsch Avenue	EB, Dehirsch Avenue	WB, Dehirsch Avenue
12:00 AM	2	3	1	6	3	4	3	2	3	4	2	4	*	*	*	*
1:00	2	1	2	2	1	3	2	2	1	2	2	2	*	*	*	*
2:00	2	2	2	3	4	5	2	3	8	4	4	3	*	*	*	*
3:00	7	8	5	4	5	5	6	9	7	7	6	7	*	*	*	*
4:00	17	14	18	9	9	8	12	12	12	7	14	10	*	*	*	*
5:00	59	22	50	16	50	21	46	24	47	23	50	21	*	*	*	*
6:00	116															
7:00	187															
8:00	133															
9:00	125															
10:00	115															
11:00	115															
12:00 PM	110															
1:00	110															
2:00	116															
3:00	116															
4:00	112															
5:00	86															
6:00	74															
7:00	60															
8:00	47															
9:00	14															
10:00	10															
11:00	6															
Total	1741															
Day	36															
AM Peak	7:00															
Volume	187															
PM Peak	2:00															
Volume	116															
Comb Total	36															
ADT																

Direction: Combined

5/8/2026 Time	Motor Cycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Bicycles	Total	Truck
12:00 AM	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7	0
1:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3	0
2:00	0	4	7	0	1	0	0	0	0	0	0	0	0	0	12	0
3:00	0	5	3	0	2	4	0	0	0	0	0	0	0	0	14	4
4:00	0	3	6	0	8	0	0	2	0	0	0	0	0	0	19	2
5:00	0	29	13	0	18	7	2	0	1	0	0	0	0	0	70	10
6:00	1															
7:00	0															
8:00	2															
9:00	1															
10:00	0															
11:00	1															
12:00 PM	1															
1:00	2															
2:00	4															
3:00	1															
4:00	2															
5:00	2															
6:00	1															
7:00	0															
8:00	0															
9:00	0															
10:00	0															
11:00	0															
Total	18															
Percent	0.4%															
AM Peak	8:00															
	2															
PM Peak	2:00															
	4															
Grand Total	94															
Percent	0.4%															

Direction: Combined

5/8/2026 Time	0 - 10 MPH	> 10 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 MPH	Total
12:00 AM	0	0	1	1	2	3	0	0	0	0	0	0	0	7
1:00	0	0	0	0	1	2	0	0	0	0	0	0	0	3
2:00	0	0	0	3	3	5	1	0	0	0	0	0	0	12
3:00	0	0	1	2	7	3	1	0	0	0	0	0	0	14
4:00	0	0	1	3	7	7	1	0	0	0	0	0	0	19
5:00	0	0	2	4	19	30	11	2	2	0	0	0	0	70
6:00	1	0	0	23	57	83	34	6	0	0	0	0	0	204
7:00	4	0	12	14	68	116	43	2	0	0	0	0	0	259
8:00	5	4	14	29	59	74	29	1	0	0	0	0	0	215
9:00	4	2	21	26	96	98	27	6	0	0	0	0	0	280
10:00	5	6	15	42	87	106	21	2	0	0	0	0	0	284
11:00	4	1	17	20	110	109	27	3	0	0	0	0	0	291
12:00 PM	10	4	26	43	123	110	29	0	0	0	0	0	0	345
1:00	5	1	26	53	119	107	21	1	1	0	0	0	0	334
2:00	7	6	27	47	119	131	25	4	0	0	0	0	0	366
3:00	23	9	41	60	115	118	37	3	1	0	0	0	0	407
4:00	3	3	16	50	156	143	42	1	0	0	0	0	0	414
5:00	6	0	5	20	138	173	58	6	2	0	0	0	0	408
6:00	4	0	1	11	93	118	36	2	0	0	0	0	0	265
7:00	2	1	4	12	65	116	32	3	0	1	0	0	0	236
8:00	2	0	2	31	76	64	10	2	0	0	0	0	0	187
9:00	0	0	2	19	46	49	8	0	0	0	0	0	0	124
10:00	0	0	2	4	31	24	5	0	0	0	0	0	0	66
11:00	0	0	0	5	14	16	3	0	0	0	0	0	0	38
Total	85	37	236	522	1611	1805	501	44	6	1	0	0	0	4848
			Percentile	15th	50th	85th	95th							
			Speed	23	29	33	36							
			Mean Speed (Average)	29.6										
			10 MPH Pace Speed	26-35										
			Number in Pace	3331										
			Percent in Pace	70.0%										
			Number > 35 MPH	552										
			Percent > 35 MPH	11.4%										
Grand Total	401	312	1219	3124	9606	9549	2172	204	24	2	0	0	2	26615

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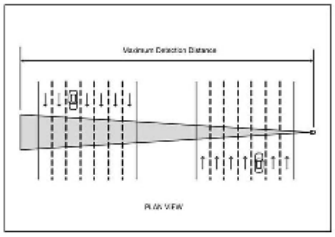
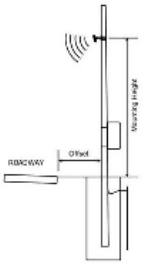
Radar ATR Counts

2 to 4 Lanes

- JAMAR BlackCat II
- Houston Radar Armadillo





4-22 Lanes

- Wavetronix
- Houston Radar

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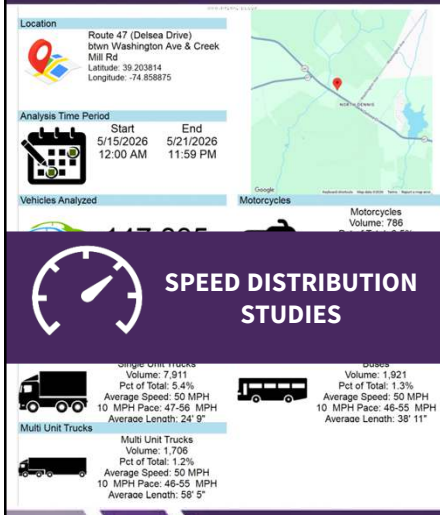
Radar ATR Data



5/18/2026 Time	Monday NB, Route 47	Monday SB, Route 47	Tuesday NB, Route 47	Tuesday SB, Route 47	Wednesday NB, Route 47	Wednesday SB, Route 47	Thursday NB, Route 47	Thursday SB, Route 47	Friday NB, Route 47	Friday SB, Route 47	Weekday Average NB, Route 47	Weekday Average SB, Route 47
12:00 AM	39	67	29	38	29	50	29	53	*	*	32	52
1:00	28	33	23	18	27	24	20	33	*	*	24	27
2:00	29	12	22	22	20	19	22	24	*	*	23	19
3:00	64	20	30	18	34	10	36	23	*	*	41	18
4:00	131	52	94	48	73	51	77	52	*	*	94	51
5:00	267											
6:00	451											
7:00	516											
8:00	537											
9:00	561											
10:00	603											
11:00	663											
12:00 PM	540											
1:00	700											
2:00	771											
3:00												
4:00												
5:00												
6:00												
7:00												
8:00												
9:00												
10:00												
11:00												
PM												
Peak												
PM Peak												
Grand Total												

Direction: Combined

5/21/2026 Time	Motorcycles 0 - 84 in.	Passenger Cars > 84 - 180 in.	Light Trucks and Vans > 180 - 240 in.	Single Unit Trucks > 240 - 420 in.	Buses > 420 - 540 in.	Multi Unit Trucks > 540 in.	Total
12:00 AM	0	56	22	3	1	0	82
1:00	0	31	11	8	1	2	53
2:00	0	21	14	3	3	5	46
3:00	0	34	14	5	2	4	59
4:00	3	73	41	9	1	2	129
5:00	3	205	113	22	3	5	351

Direction: Combined

5/21/2026 Time	0 - 10 MPH	> 10 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 MPH	Total
12:00 AM	0	0	0	0	0	0	0	6	22	20	20	12	2	82
1:00	0	0	0	0	0	0	0	4	11	22	11	4	1	53
2:00	0	0	0	0	0	0	0	2	9	21	11	3	0	46
3:00	0	0	0	0	0	0	1	2	13	23	11	7	2	59
4:00	0	0	0	0	0	0	0	5	25	40	28	15	16	129
5:00	0	0	0	0	0	0	0	0	58	131	100	45	17	351
6:00	0	0	0	0	0	0	14	58	207	335	208	28	12	862
7:00	0	0	1	0	4	29	81	193	449	365	109	15	1	1247
8:00	4	18	20	17	9	24	24	137	401	327	100	10	1	1092
9:00	0	0	0	0	1	9	21	106	442	366	107	18	2	1072
10:00	0	0	0	0	0	0	3	83	356	410	158	25	4	1039
11:00	0	0	0	0	0	0	6	118	478	459	150	10	0	1221
12:00 PM	0	0	0	0	1	2	16	119	465	579	170	17	3	1372
1:00	0	0	0	0	1	6	61	165	465	473	163	17	5	1356
2:00	5	3	27	28	47	60	61	210	424	375	121	17	3	1381
3:00	0	0	0	0	0	0	31	245	525	548	168	17	5	1539
4:00	0	0	1	6	13	42	71	228	585	533	146	18	0	1643
5:00	0	0	0	0	3	4	26	169	544	621	179	16	8	1570
6:00	0	0	0	0	0	0	26	201	535	522	176	20	5	1485
7:00	0	0	0	0	2	6	36	163	402	481	183	25	8	1306
8:00	0	0	0	0	0	12	98	367	459	237	61	4	1	1239
9:00	2	10	29	74	66	88	174	335	349	155	48	7	1	1338
10:00	0	0	3	0	6	9	5	64	243	278	118	17	6	749
11:00	0	0	0	0	0	0	2	31	124	201	111	29	6	504
Total	11	31	81	125	153	291	757	3011	7591	7522	2657	396	109	22735
			Percentile Speed	15th 43	50th 49	85th 54	95th 57							
			Mean Speed (Average)	49.5										
			10 MPH Pace Speed	46-55										
			Number in Pace	14267										
			Percent in Pace	66.0%										
			Number > 55 MPH	3162										
			Percent > 55 MPH	13.9%										
Grand Total	90	195	396	386	466	844	2964	14055	46571	55585	21744	3633	905	147834

SPEED DISTRIBUTION STUDIES

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Video-Based ATR Counts

- 1-8 Lanes Per Camera
- Short or Long Duration
- By Lane Data Breakdown

MIOVISION

- 3-6 Standard Length Bins
- Custom Class Available

REKOR

- FHWA 13-Bin

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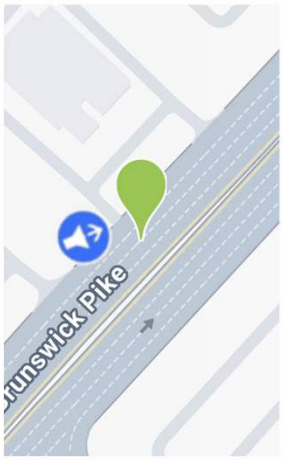
Video-Based ATR Data



Leg Direction Time	North Southbound Lane 1	Lane 2	Lane 3	Lane 4	App	Int
2026-09-10 7:00AM	13	1054	1349	885	**3301**	**3301**
8:00AM	20	1229	1561	1020	**3830**	**3830**
2026-09-12 9:00AM	26	897	1024	489	**2436**	**2436**
10:00AM	34	1103	1219	607	**2963**	**2963**
11:00AM	38	1326	1408	705	**3477**	**3477**
12:00PM	34	1402	1562	754	**3752**	**3752**
1:00PM	50	1370	1623	908	**3951**	**3951**
Total	215	8381	9746	5368	**23710**	**23710**
% Approach	0.9%	35.3%	41.1%	22.6%	-	-
% Total	0.9%	35.3%	41.1%	22.6%	**100%**	-
Lights	212	8160	9308	5316	**22996**	22996
% Lights	98.6%	97.4%	95.5%	99.0%	**97.0%**	97.0%
Articulated Trucks and Single-Unit Trucks	1	197	398	45	**641**	641
% Articulated Trucks and Single-Unit Trucks	0.5%	2.4%	4.1%	0.8%	**2.7%**	2.7%
Buses	2	24	40	7	**73**	73
% Buses	0.9%	0.3%	0.4%	0.1%	**0.3%**	0.3%

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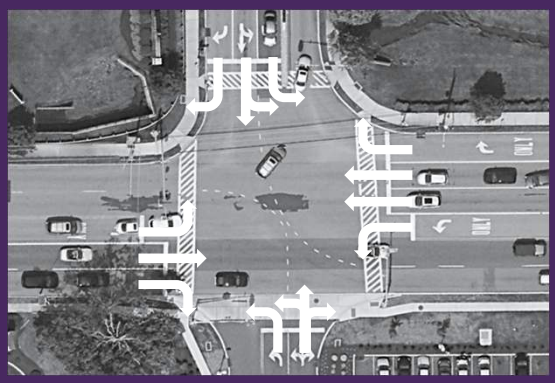
Turning Movement Counts (TMC)



Vehicle Turning Movements

Pedestrian & Bicycle Movements

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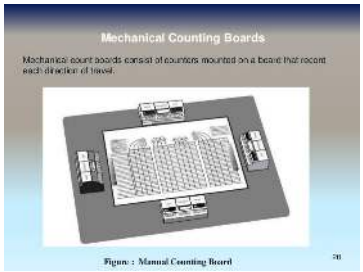
TMC Equipment



Mechanical Count Board
Observe • Click • Record

Electronic Count Board
Observe • Press • Download

Video Collection & Processing
Record • Process • Review

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TMC Field Video Collection

- Position cameras to capture all required movements
- Check visibility, obstructions, and crosswalk coverage
- Confirm recording schedule, power, and storage
- Record the periods required for the project

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TMC Field Video Review

Rain on Lens

Incident

Flooding

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TMC Video Processing

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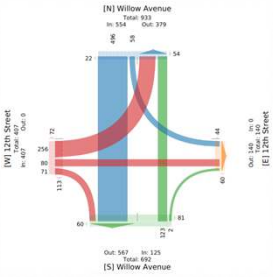
Turning Movement Count Data



Leg Direction	Willow Avenue Northbound						Willow Avenue Southbound					12th Street Eastbound						12th Street Westbound		
Time	T	R	U	RR	App	Ped*	L	T	U	App	Ped*	L	T	R	RR	App	Ped*	App	Ped*	Int
2025-04-03 5:15PM	25	0	0	1	**26**	39	13	117	0	**130**	13	69	17	12	0	**98**	48	**0**	18	**254**
5:30PM	33	0	0	0	**33**	36	17	138	0	**155**	24	60	14	21	0	**95**	33	**0**	34	**283**
5:45PM	31	0	0	0	**31**	34	16	120	0	**136**	16	62	23	16	0	**101**	51	**0**	16	**268**
6:00PM	34	1	0	0	**35**	32	12	121	0	**133**	23	65	26	22	0	**113**	53	**0**	36	**281**
Total	123	1	0	1	**125**	141	58	496	0	**554**	76	256	80	71	0	**407**	185	**0**	104	**1086**
% Approach	98.4%	0.8%	0%	0.8%	**-**	-	10.5%	89.5%	0%	**-**	-	62.9%	19.7%	17.4%	0%	**-**	-	**-**	-	-
% Total	11.3%	0.1%	0%	0.1%	**11.5%**	-	5.3%	45.7%	0%	**51.0%**	-	23.6%	7.4%	6.5%	0%	**37.5%**	-	**0%**	-	-
PHF	0.902	0.250	-	-	**0.909**	-	0.824	0.893	-	**0.886**	-	0.928	0.740	0.807	-	**0.896**	-	**-**	-	0.957
Motorcycles	0	0	0	0	**0**	-	0	0	0	**0**	-	0	2	1	0	**3**	-	**0**	-	3
% Motorcycles	0%	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	2.5%	1.4%	0%	**0.7%**	-	**-**	-	0.3%
Lights	115	1	0	0	**116**	-	54	463	0	**517**	-	247	65	65	0	**377**	-	**0**	-	1010
% Lights	93.5%	100%	0%	0%	**92.8%**	-	93.1%	93.3%	0%	**93.3%**	-	96.5%	81.3%	91.5%	0%	**92.6%**	-	**-**	-	93.0%
Single-Unit Trucks	0	0	0	0	**0**	-	0	1	0	**1**	-	2	1	3	0	**6**	-	**0**	-	7
% Single-Unit Trucks	0%	0%	0%	0%	**0%**	-	0%	0.2%	0%	**0.2%**	-	0.8%	1.3%	4.2%	0%	**1.5%**	-	**-**	-	0.6%
Articulated Trucks	0	0	0	0	**0**	-	0	1	0	**1**	-	0	0	0	0	**0**	-	**0**	-	1
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0.2%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	**-**	-	0.1%
Buses	4	0	0	0	**4**	-	0	21	0	**21**	-	7	2	2	0	**11**	-	**0**	-	36
% Buses	3.3%	0%	0%	0%	**3.2%**	-	0%	4.2%	0%	**3.8%**	-	2.7%	2.5%	2.8%	0%	**2.7%**	-	**-**	-	3.3%
e-Scooters (Road)	0	0	0	0	**0**	-	2	0	0	**2**	-	0	1	0	0	**1**	-	**0**	-	3
% e-Scooters (Road)	0%	0%	0%	0%	**0%**	-	3.4%	0%	0%	**0.4%**	-	0%	1.3%	0%	0%	**0.2%**	-	**-**	-	0.3%
Bicycles on Road	4	0	0	1	**5**	-	2	10	0	**12**	-	0	9	0	0	**9**	-	**0**	-	26
% Bicycles on Road	3.3%	0%	0%	100%	**4.0%**	-	3.4%	2.0%	0%	**2.2%**	-	0%	11.3%	0%	0%	**2.2%**	-	**-**	-	2.4%
e-Scooters	-	-	-	-	-	2	-	-	-	-	0	-	-	-	-	-	0	-	0	
% e-Scooters	-	-	-	-	-	1.4%	-	-	-	-	0%	-	-	-	-	-	0%	-	0%	-
Pedestrians	-	-	-	-	-	138	-	-	-	-	74	-	-	-	-	-	180	-	102	
% Pedestrians	-	-	-	-	-	97.9%	-	-	-	-	97.4%	-	-	-	-	-	97.3%	-	98.1%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	5	-	2	
% Bicycles on Crosswalk	-	-	-	-	-	0.7%	-	-	-	-	2.6%	-	-	-	-	-	2.7%	-	1.9%	-

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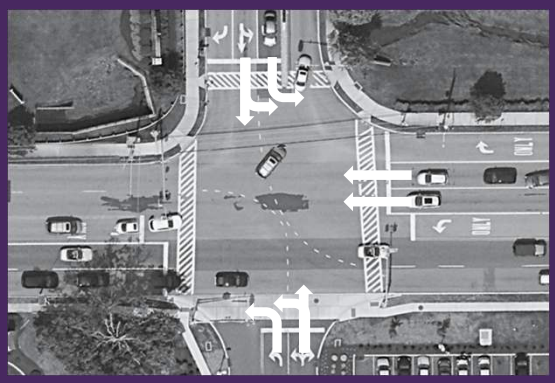
TRAFFIC & DATA COLLECTION

Lane Utilizations and Queue Studies



Lane Utilization Counts

Unmet Demand and Maximum Queue Studies

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TRAFFIC & DATA COLLECTION

Pedestrian, Bicycle & Multimodal Counts

Pedestrians

Scooters

Bicycles

Horses & Custom

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Pedestrian, Bicycle & Multimodal Data

Leg Direction	South Northbound		North Southbound		
Time	T	App	T	App	Int
2026-09-05 8:00AM	394	394	2	2	396
9:00AM	1132	1132	4	4	1136
10:00AM	1128	1128	6	6	1134
11:00AM	1574	1574	3	3	1577
12:00PM	1559	1559	13	13	1572
1:00PM	1673	1673	5	5	1678
2:00PM	1701	1701	8	8	1709
3:00PM	1829	1829	10	10	1839
4:00PM	1657	1657	8	8	1665
5:00PM	1479	1479	4	4	1483
6:00PM	861	861	2	2	863
7:00PM	35	35	1	1	36
2026-09-06 8:00AM	602	602	2	2	604
9:00AM	1525	1525	6	6	1531
10:00AM	1496	1496	7	7	1503
11:00AM	1183	1183	12	12	1195
12:00PM	1639	1639	3	3	1642
1:00PM	1871	1871	4	4	1875
2:00PM	1541	1541	5	5	1546
3:00PM	1963	1963	2	2	1965
4:00PM	1807	1807	3	3	1810
5:00PM	1155	1155	13	13	1168
6:00PM	640	640	10	10	650
7:00PM	19	19	6	6	25
2026-09-07 8:00AM	488	488	9	9	497
9:00AM	766	766	9	9	775
10:00AM	827	827	10	10	837
11:00AM	944	944	8	8	952
12:00PM	954	954	12	12	966
1:00PM	765	765	8	8	773
2:00PM	576	576	7	7	583
3:00PM	605	605	10	10	615
4:00PM	569	569	3	3	572
5:00PM	286	286	5	5	291
6:00PM	0	0	0	0	0
Total	37243	37243	220	220	37463
% Approach	100%	-	100%	-	-
% Total	99.4%	99.4%	0.6%	0.6%	-

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TRAFFIC & DATA COLLECTION

Gap Studies

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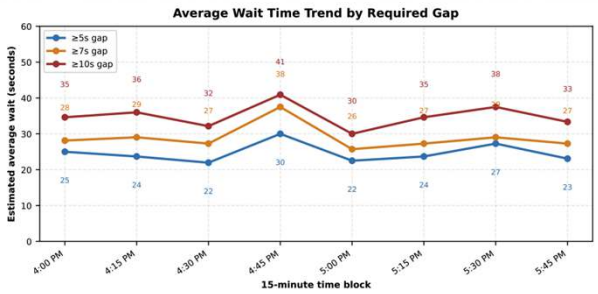
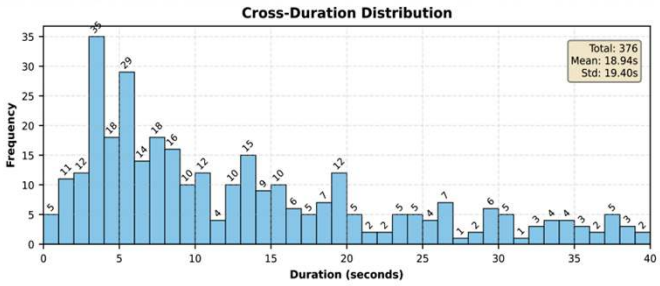
Gap Study Data

Start_Time	Volume	0–1s	1–2s	2–3s	3–4s	4–5s	5–6s	6–7s	7–8s	8–9s	9–10s	10–11s	11–12s	12–13s	13–14s	14–15s	>15s	Mean(>0s)	Mean(>2s)	Mean(>4s)	Std(S)
4:00 PM	45	1	1	0	3	4	3	1	4	1	1	1	0	0	3	2	20	20.6	21.5	22.85	20.43
4:15 PM	44	0	2	0	0	4	5	2	4	2	0	2	1	2	2	3	15	19.87	20.76	20.76	22.94
4:30 PM	52	2	1	1	4	3	5	3	1	2	2	2	0	1	2	2	21	17.34	18.34	20.06	16.16
4:45 PM	42	0	2	3	5	2	3	3	1	1	0	2	1	1	0	0	18	21.1	22.09	26.83	23.29
5:00 PM	45	0	0	0	4	1	2	3	1	2	2	0	0	2	3	0	25	20.21	20.21	21.83	16.43
5:15 PM	45	1	0	2	3	1	3	2	1	5	1	1	1	0	2	0	22	19.82	20.25	22.98	17.15
5:30 PM	47	1	4	1	7	1	2	0	2	3	2	2	0	0	2	0	20	19.37	21.52	25.77	23.41
5:45 PM	56	0	1	5	9	2	6	0	4	0	2	2	1	4	1	2	17	14.65	14.9	18.92	15.56
Grand Total	**376**	**5**	**11**	**12**	**35**	**18**	**29**	**14**	**18**	**16**	**10**	**12**	**4**	**10**	**15**	**9**	**158**	**18.94**	**19.73**	**22.27**	**19.43**





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Near Miss Studies

Pedestrian – Vehicle Conflict

Vehicle – Vehicle Conflict

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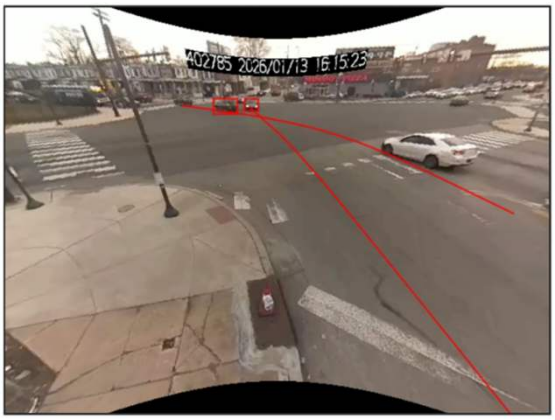
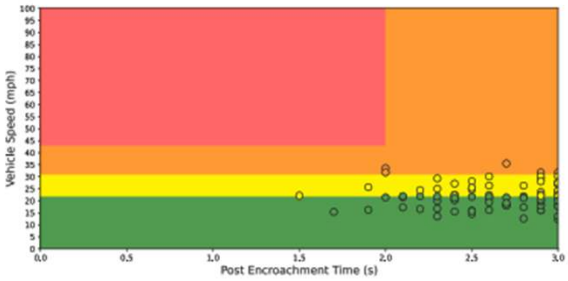
Near Miss Data



Risk Level	Critical Risk	High Risk	Medium Risk	Low Risk
Measured Frequency	0	5	33	45
Annual Estimate	0	912	6022	8212
Conflict Rate (%)	0.0	0.12	0.77	1.06
Relative Risk	NA	0.12	0.57	0.99



27

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TRAFFIC & DATA COLLECTION

Travel Time Studies & Origin-Destination

Travel Time

Origin-Destination

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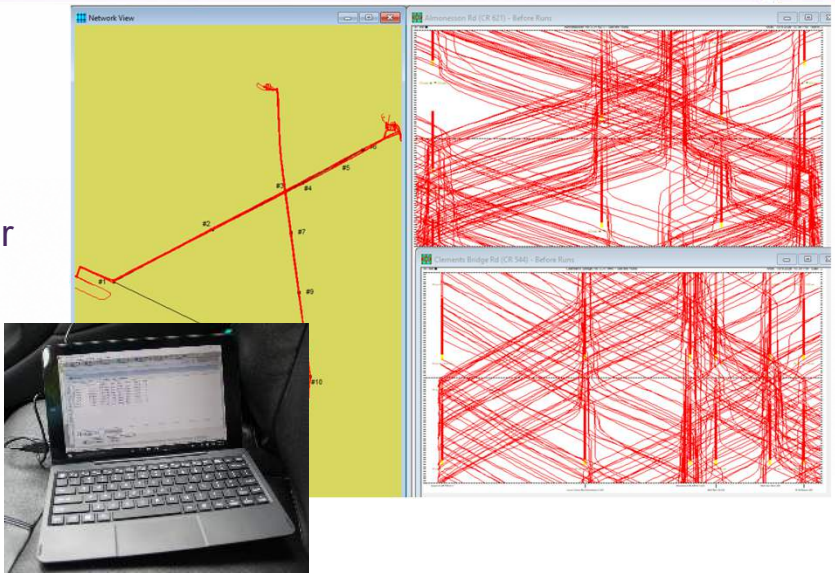
Travel Time Studies – Floating Car

TruTraffic

- Travel time and speed
- Delay and number of stops
- Corridor performance measures



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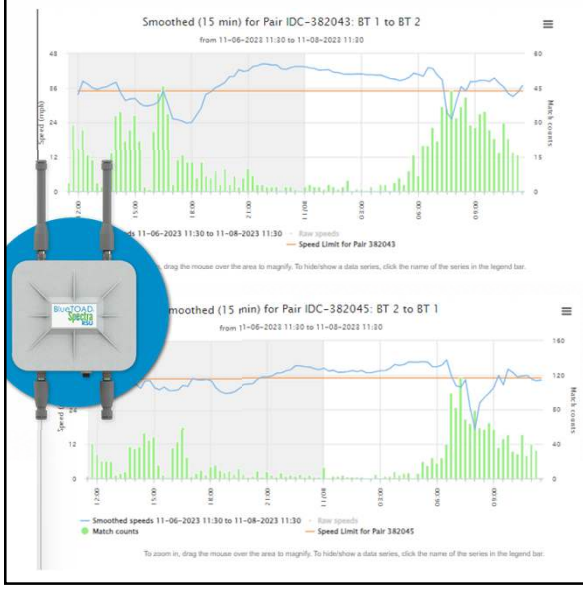
Travel Time & Origin Destination - Bluetooth



BlueTOAD®

- Roadside Bluetooth detection
- Travel times between collection points
- Origin–destination patterns from matched detections

Big Data

INRIX
MICHELIN MOBILITY INTELLIGENCE
REPLICA
SPOTLIGHT
TERALYTICS
tomtom

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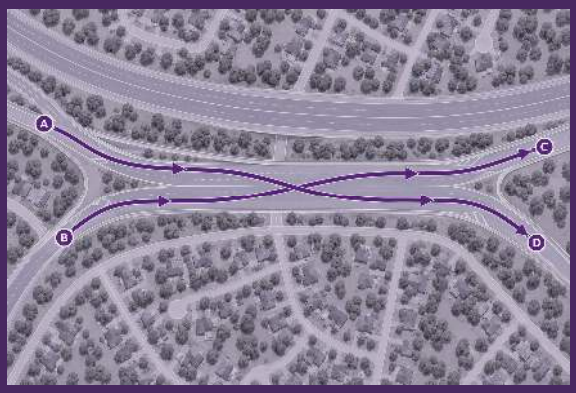
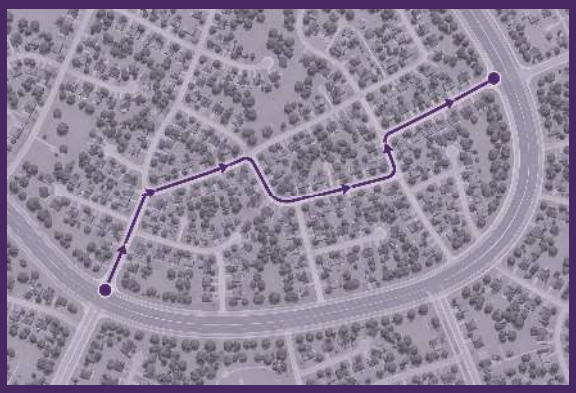
Weave & Cut-Through Studies



Weave Movements



Cut-Through Traffic

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Ball Bank Studies

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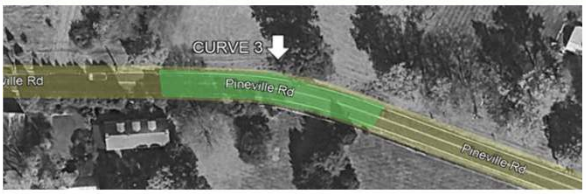
Ball Bank Data



Curve 3: Pineville Road, between Buckmansville Rd and Thompson Mill Rd		EB Pineville Road, Curve 3				WB Pineville Road, Curve 3			
		Pass 1	Pass 2	Pass 3	Average	Pass 1	Pass 2	Pass 3	Average
		Max	Max	Max		Max	Max	Max	
<12°	55 mph								
	50 mph								
	45 mph					**19.5**	**22.1**	**17.2**	**19.6**
	40 mph	**13.9**	**14.6**	**13.4**	**14.0**	**15.3**	**17.4**	**17.2**	**16.6**
	35 mph	8.6	10.0	8.5	9.0	**13.4**	**12.8**	**10.0**	**12.1**
12.0°-14.0°	30 mph					8.2	8.5	9.3	8.7
	25 mph								

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Parking Demand & Dwell Time Studies

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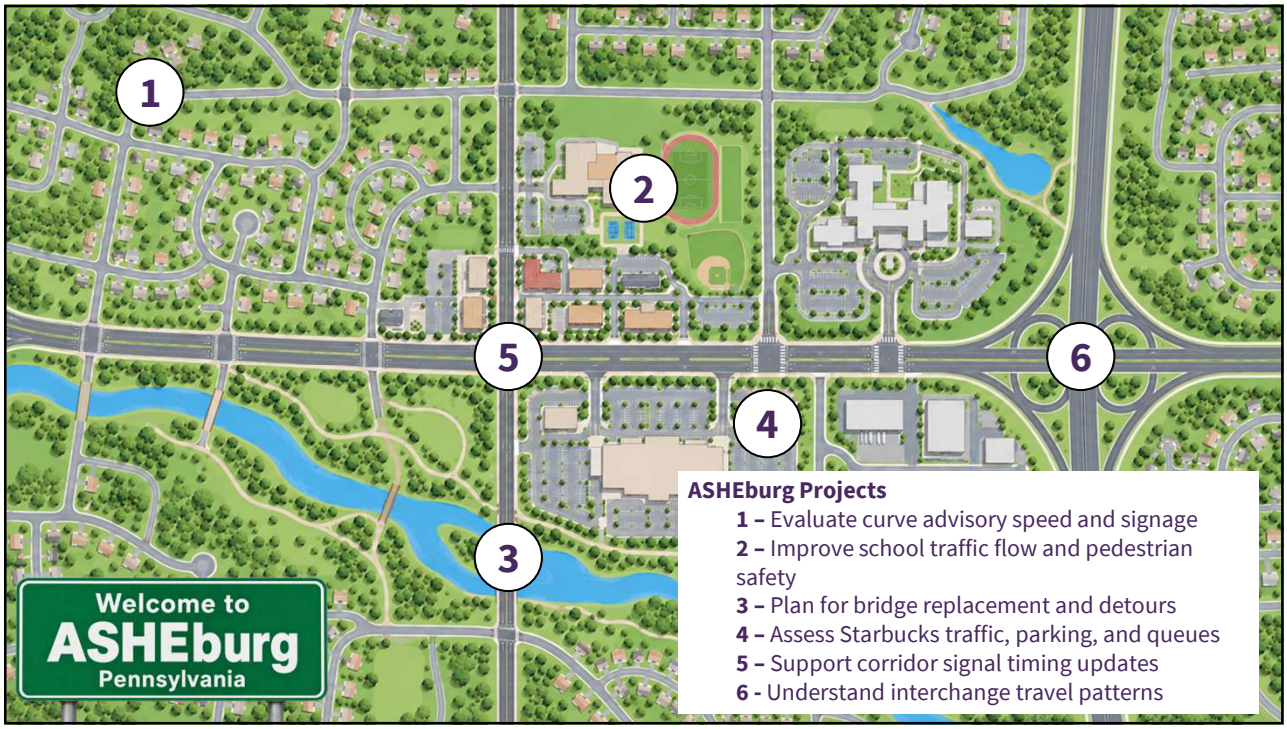
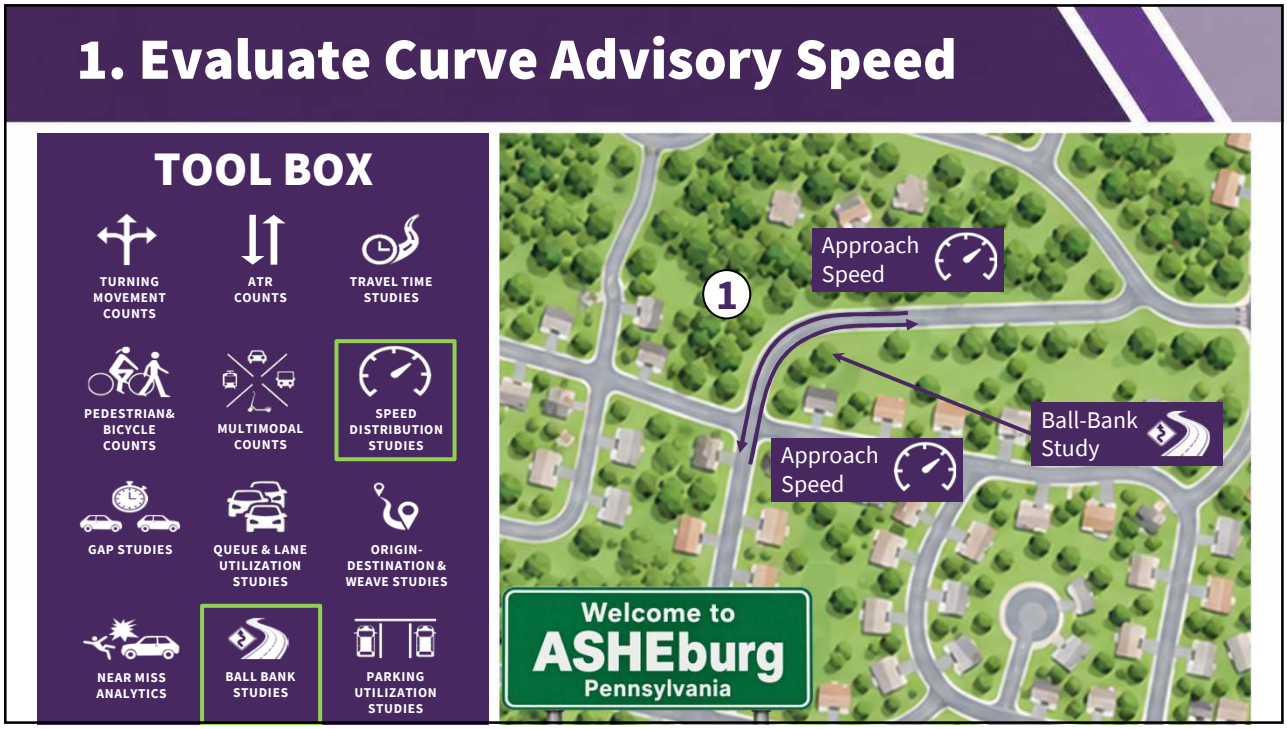

1
2
3
4
5
6
Welcome to
ASHEburg
Pennsylvania
ASHEburg Projects
1 – Evaluate curve advisory speed and signage
2 – Improve school traffic flow and pedestrian safety
3 – Plan for bridge replacement and detours
4 – Assess Starbucks traffic, parking, and queues
5 – Support corridor signal timing updates
6 - Understand interchange travel patterns

35


1. Evaluate Curve Advisory Speed
TOOL BOX
TURNING MOVEMENT COUNTS
ATR COUNTS
TRAVEL TIME STUDIES
PEDESTRIAN& BICYCLE COUNTS
MULTIMODAL COUNTS
SPEED DISTRIBUTION STUDIES
GAP STUDIES
QUEUE & LANE UTILIZATION STUDIES
ORIGIN-DESTINATION & WEAVE STUDIES
NEAR MISS ANALYTICS
BALL BANK STUDIES
PARKING UTILIZATION STUDIES
1
Approach Speed
Approach Speed
Ball-Bank Study
Welcome to
ASHEburg
Pennsylvania

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2. Improve School Safety

TOOL BOX

- TURNING MOVEMENT COUNTS
- ATR COUNTS
- TRAVEL TIME STUDIES
- PEDESTRIAN& BICYCLE COUNTS
- MULTIMODAL COUNTS
- SPEED DISTRIBUTION STUDIES
- GAP STUDIES
- QUEUE & LANE UTILIZATION STUDIES
- ORIGIN-DESTINATION & WEAVE STUDIES
- NEAR MISS ANALYTICS
- BALL BANK STUDIES
- PARKING UTILIZATION STUDIES

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3. Bridge Replacement & Detours

TOOL BOX

- TURNING MOVEMENT COUNTS
- ATR COUNTS
- TRAVEL TIME STUDIES
- PEDESTRIAN& BICYCLE COUNTS
- MULTIMODAL COUNTS
- SPEED DISTRIBUTION STUDIES
- GAP STUDIES
- QUEUE & LANE UTILIZATION STUDIES
- ORIGIN-DESTINATION & WEAVE STUDIES
- NEAR MISS ANALYTICS
- BALL BANK STUDIES
- PARKING UTILIZATION STUDIES

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4. Traffic Impact Study

TOOL BOX

- TURNING MOVEMENT COUNTS
- ATR COUNTS
- TRAVEL TIME STUDIES
- PEDESTRIAN& BICYCLE COUNTS
- MULTIMODAL COUNTS
- SPEED DISTRIBUTION STUDIES
- GAP STUDIES
- QUEUE & LANE UTILIZATION STUDIES
- ORIGIN-DESTINATION & WEAVE STUDIES
- NEAR MISS ANALYTICS
- BALL BANK STUDIES
- PARKING UTILIZATION STUDIES

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5. Corridor Signal Retiming

TOOL BOX

- TURNING MOVEMENT COUNTS
- ATR COUNTS
- TRAVEL TIME STUDIES
- PEDESTRIAN& BICYCLE COUNTS
- MULTIMODAL COUNTS
- SPEED DISTRIBUTION STUDIES
- GAP STUDIES
- QUEUE & LANE UTILIZATION STUDIES
- ORIGIN-DESTINATION & WEAVE STUDIES
- NEAR MISS ANALYTICS
- BALL BANK STUDIES
- PARKING UTILIZATION STUDIES

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6. Interchange Travel Patterns

TOOL BOX

- TURNING MOVEMENT COUNTS
- ATR COUNTS
- TRAVEL TIME STUDIES
- PEDESTRIAN& BICYCLE COUNTS
- MULTIMODAL COUNTS
- SPEED DISTRIBUTION STUDIES
- GAP STUDIES
- QUEUE & LANE UTILIZATION STUDIES
- ORIGIN-DESTINATION & WEAVE STUDIES
- NEAR MISS ANALYTICS
- BALL BANK STUDIES
- PARKING UTILIZATION STUDIES

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Building the Data Collection Program

WHAT
- Project Purpose
- Required Data and Deliverables

WHERE
- Study Limits
- Collection Locations and Movements

WHEN
- Days, Hours, Duration
- Representative Conditions

COORDINATE
- Agencies & Stakeholders
- Site Access
- Schedule & Budget

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TRAFFIC & DATA COLLECTION

Questions?

Lindsey Klein, President
lklein@imperialtdc.com

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