

Faculty Advisor: Fritz Fiedler, Ph.D., P.E.

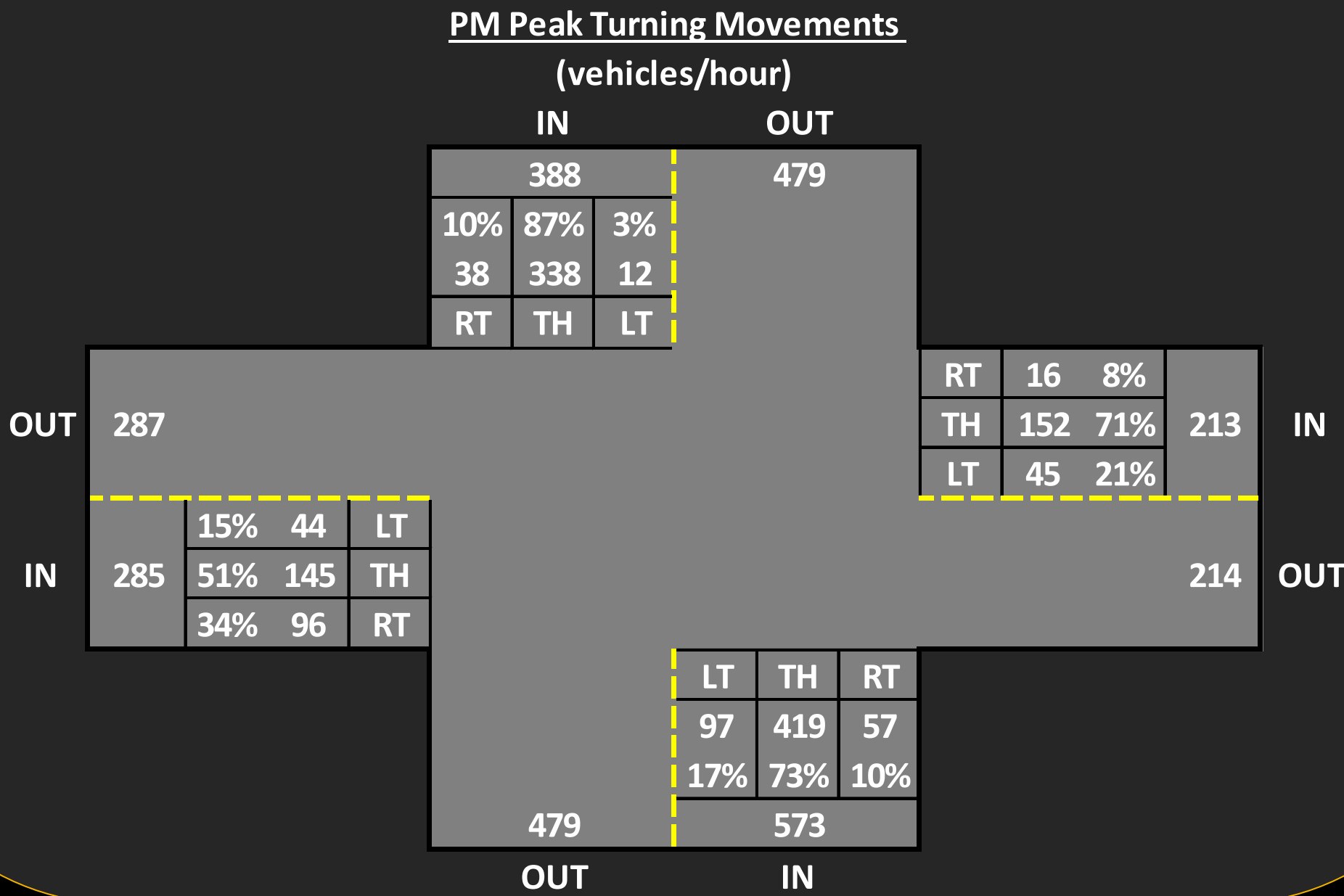
Special Thanks: Kevin Chang, Ph.D., P.E.

Project Sponsor: Six Mile Engineering

Contact: Meagan Larrea, E.I.

Traffic Analysis

- Count Year: 2015
- Design Year: 2040
- Calculated 2040 Turning Movements
- Used PTV Vissim to Model 2040 Traffic

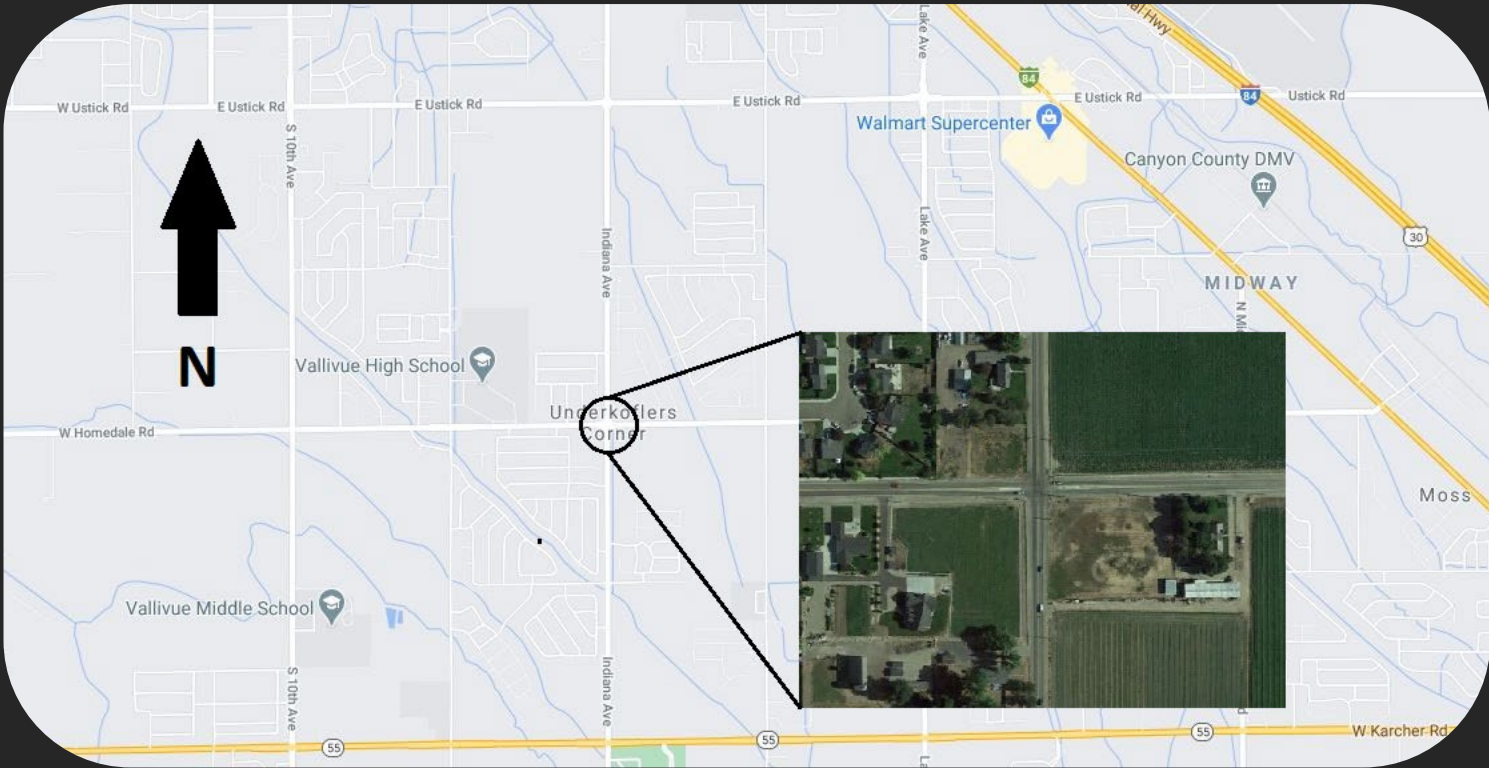


Objectives

- Conduct Traffic Analysis
- Assess Alternatives for Redesign (Roundabout vs. Signalized Intersection)
- Create Plans for Chosen Alternative
- Design Drainage Improvements

Background

- Located in Caldwell, Idaho
- Intersection of Indiana Avenue and Homedale Road
- High Crash Rate at Intersection

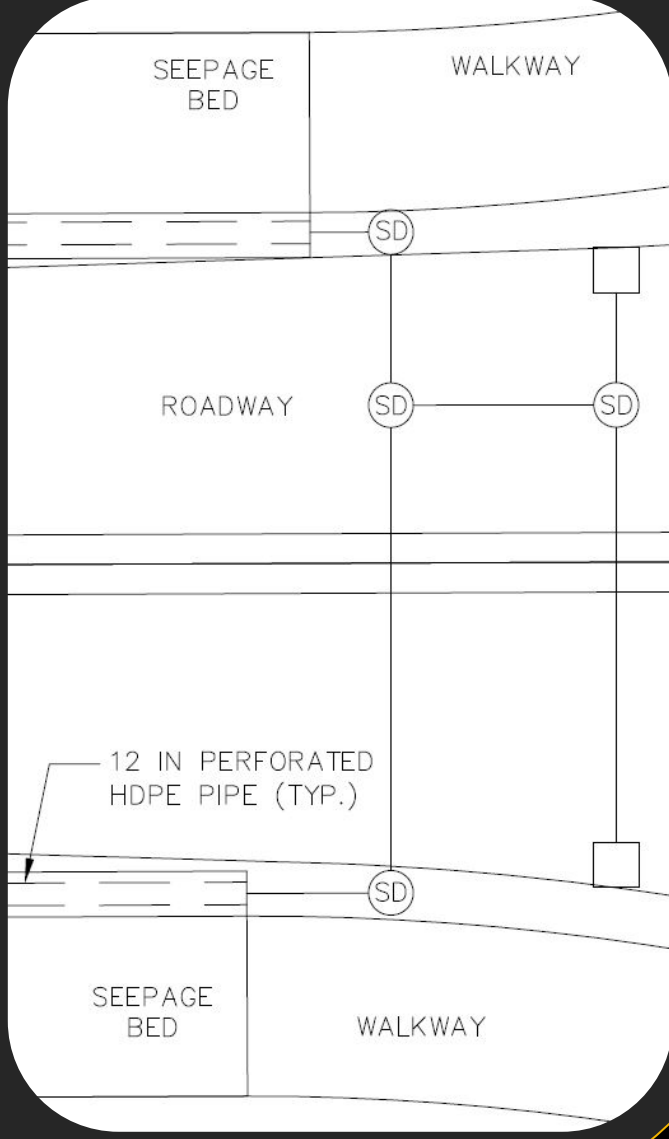
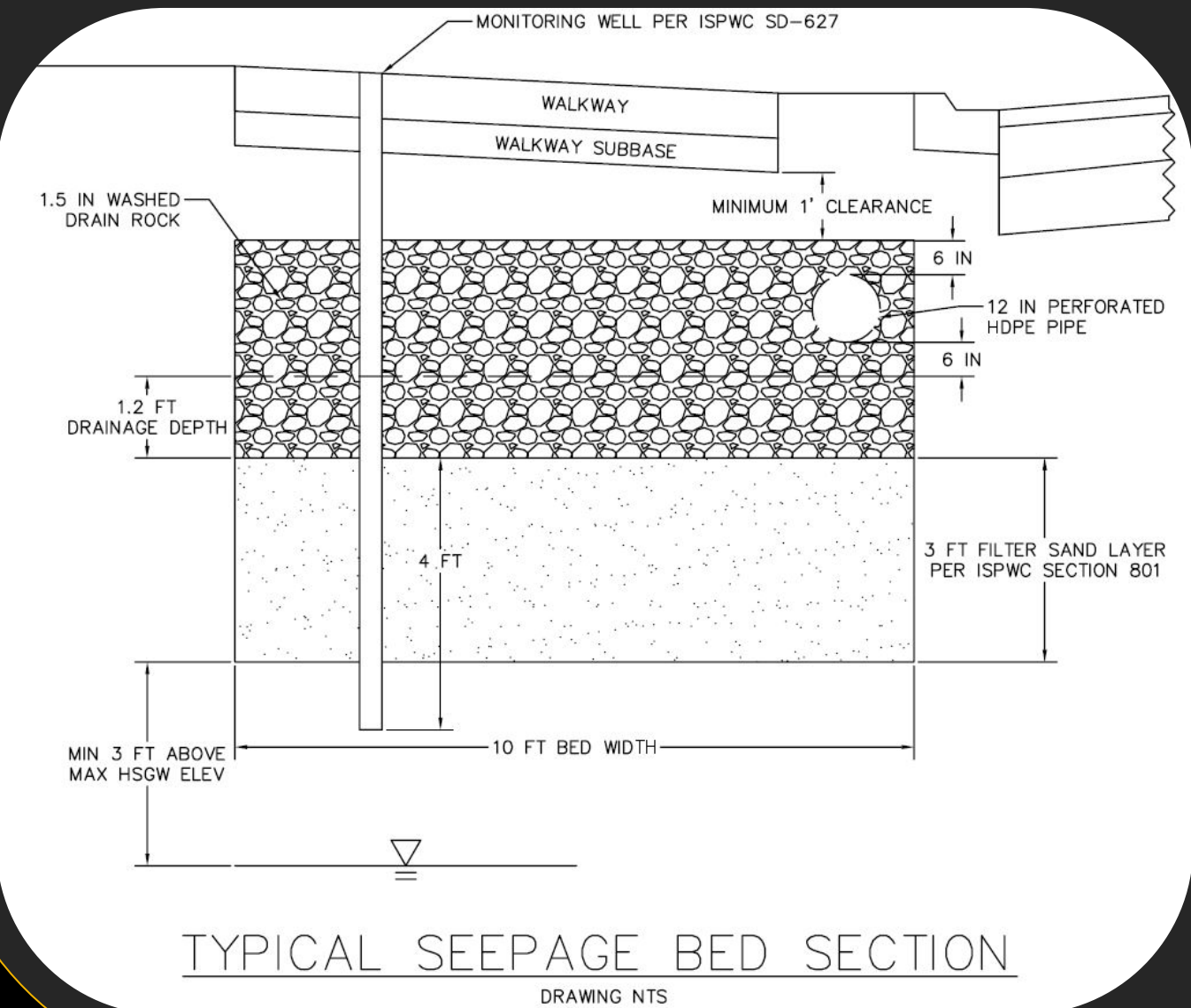


Intersection Design

- Roundabout Design Selected
- 60' Diameter Center Island
- 26' Truck Apron
- Accommodates WB-67 Trucks
- 12' Lane Widths
- Separated Pathways to Accommodate Bicycles and Pedestrians
- Luminaires for Illumination Plan
 - Lumec
 - RFM Cobra Head
 - Medium Warmth
 - Type 2

Drainage Improvements

- Rational Method for Runoff Calculation
- Storm Drains Collect Roadway Runoff
- Seepage Beds Beneath Walkways Retain Peak Storm Runoff



Cost Estimate

TABLE: ENGINEER'S OPINION OF PROBABLE COST				
Preliminary Design				
INDIANA AVENUE AND HOMEDALE ROAD INTERSECTION				
ITEM NUMBER	ITEM DESCRIPTION	SCHEDULE OF VALUES		
		EST. QUAN.	UNIT PRICE	TOTAL PRICE
1	Mobilization, Demobilization, Bonding, and Insurance	1	LS	\$25,340.00
2	Excavation and Site Grading	2498	CY	\$16
3	Pavement Removal/Mitigation	6700	SY	\$10
4	HMA	74	TON	\$75
5	Base	138	TON	\$28
6	Ballast	90	TON	\$24
7	Granular Borrow	452	CY	\$24
8	Pavement Line Paint	10000	FT	\$0.67
9	Curbs	3770	FT	\$31
10	Landscaping	1	LS	\$0.00
11	Truck Apron Concrete	266	CY	\$1,330
12	Seepage Bed Excavation	6613	CY	\$16
13	Gravel Pipe Bedding	239	TON	\$80
14	Sand Filter	296	TON	\$35
15	Manhole	16	EA	\$3,323
16	Manhole Cover	16	EA	\$190
17	Fabricated Drain Basin (2x2 Curb Inlet Grate)	8	EA	\$1,937
18	12" HDPE Pipe	250	FT	\$32
19	12" Perforated HDPE Pipe	2800	FT	\$24
20	Observation Well Pipe (4" PVC Pipe)	56	FT	\$25
21	Observation Well Pipe (4" Perforated PVC Pipe)	24	FT	\$20
22	Observation Well Cover	8	EA	\$10
23	Concrete Collar	0.21	CY	\$1,330
BASE BID TOTAL				\$917,000.00
Contingency @ 20%				\$183,400.00
ADJUSTED BID TOTAL				\$1,100,400.00

Intersection Layout

