

## DeCoursey, Jillian

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**Sent:** Thursday, March 01, 2018 4:32 PM  
**To:** Heron, Tim; Ballew, Cassie  
**Cc:** Jake Walker (jwalker@leoncapitalgroup.com); Bryan Barry (bbarry@leoncapitalgroup.com)  
**Subject:** Applicant's traffic information (3/1/18) second open record period LU 17-144195 DZ  
**Attachments:** Powell & 62nd Ave Memo\_030118.pdf

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## Technical Memorandum

**To:** Bryan Barry  
**From:** William R. Farley, PE  
**Date:** March 1, 2018  
**Subject:** SE Powell Boulevard & SE 62nd Avenue  
Safety Analysis



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This memorandum is written to provide a brief safety analysis for the intersection of SE Powell Boulevard at SE 62<sup>nd</sup> Avenue in Portland, Oregon.

The intersection of SE Powell Boulevard at SE 62<sup>nd</sup> Avenue is a four-legged intersection under two-way stop control for the northbound and southbound approaches of SE 62<sup>nd</sup> Avenue. The eastbound and westbound approaches on SE Powell Boulevard each have a dedicated left-turn lane, a through lane, and a shared through/right-turn lane. The northbound and southbound approaches have a single, shared lane for all turning movements.

### ***Sight Distance***

The intersection is under the jurisdiction of the Oregon Department of Transportation (ODOT), which references *A Policy on Geometric Design of Highways and Streets*<sup>1</sup> (AASHTO Green Book) for the requirements of sight distance. Two different measurements of sight distance are typically conducted at intersections: stopping sight distance and intersection sight distance.

Stopping sight distance is a safety measure that identifies the length required for a vehicle to react to an object in the travel path and then come to a complete stop. At an intersection, stopping sight distance is measured for the vehicle on the major-street approach to ensure they can react safely to a vehicle entering the roadway.

Per the AASHTO Green Book, *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, a major-road vehicle may need to stop or slow to accommodate the maneuver by a minor-road vehicle."* Accordingly, provision of at least the minimum required stopping sight distance is sufficient to ensure the safe operation of an intersection.

Conversely, intersection sight distance is an operational measure, intended to provide sufficient line of sight along the major street so that a vehicle can enter the roadway without impeding the flow of through traffic.

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<sup>1</sup> American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 6<sup>th</sup> Edition, 2011.



The provision of intersection sight distance is not required in order to maintain the safe function of an intersection.

Intersection sight distance is measured from a point within the minor-street approach 15 feet from the near edge of the major-road traveled way and at a height of 3.5 feet above the minor-street approach pavement. The major-street approaching driver's eye height is assumed to be 3.5 feet above the cross-street pavement.

For the intersection of SE Powell Boulevard at SE 62<sup>nd</sup> Avenue, 15 feet behind the edge of the major-road traveled way puts the minor-street's driver's eye in front of the stop bar, which is located approximately 17 feet from the edge of the nearest lane on Powell Boulevard. From this location, the building located at 6205 SE Powell Boulevard is not anticipated to obstruct sight distance to the east.



Figure 1: Viewing east of SE 62<sup>nd</sup> Avenue along SE Powell Boulevard.





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Based on the posted speed limit of 35 mph on SE Powell Boulevard, the necessary intersection sight distance required for a vehicle entering the roadway to not interrupt the flow of through traffic is 390 feet.



**Figure 2: Viewing west of SE 62nd Avenue along SE Powell Boulevard.**

Based on the assumed design speed of 45 mph on SE Powell Boulevard, the required stopping sight distance to ensure safety of the facility is 360 feet. This calculation conservatively assumes a 2.5-second perception reaction time, a comfortable  $11.2 \text{ ft/sec}^2$  rate of deceleration, and a level grade on both major-street approaches.



## ***Crash History***

To determine whether there are any safety deficiencies at the intersection of SE Powell Boulevard at SE 62<sup>nd</sup> Avenue, the most recent five years of crash data (January 2011 through December 2015) was obtained from ODOT's Crash Analysis and Reporting Unit. The crash data was evaluated based on the number of crashes, the types of collisions, and the severity of collisions.

A total of 10 crashes were reported as being related to the intersection during the analysis period. Of these, three were rear-end collisions, one involved a fixed object, two involved a turning vehicle, and four were angle-type collisions. Four crashes resulted in only property damage, five resulted in possible injuries or complaints of pain, and one resulted in a non-incapacitating injury.

A more detailed evaluation into the crashes showed that of the crashes involving a turning movement or were angle-type collisions, one involved an eastbound vehicle colliding with a southbound vehicle, three involved a westbound vehicle colliding with a southbound vehicle, one involved an eastbound vehicle colliding with a northbound vehicle, and one involved a northbound vehicle colliding with a westbound vehicle.

Based on the detailed review of the crash data, there were no apparent trends or significant safety hazards identified at the intersection of SE Powell Boulevard at SE 62<sup>nd</sup> Avenue. Detailed information about the reported crashes is included in the technical appendix.

If you have any questions or concerns regarding this analysis or need further assistance, please don't hesitate in contacting us.

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*Appendix*



## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## URBAN NON-SYSTEM CRASH LISTING

CITY OF PORTLAND SE, MULTNOMAH COUNTY

**62ND AVE at POWELL BLVD, City of Portland SE, Multnomah County, 01/01/2011 to 12/31/2015**

5 - 7 of 10 Crash records shown.

SER#	P	R S W DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE																	
INVEST	E A U C O DAY		DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE					A S						
RD DPT	E L G H R TIME		FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G E LICNS	PED							
UNLOC?	D C S L K LAT		LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E X RES	LOC	ERROR	ACT	EVENT	CAUSE	
08047	N N N	Y 08/04/2011	14	SE POWELL BLVD	INTER	4-LEG	N	N	CLR	ANGL-OTH	01	NONE	0	TURN-L									
				SE 62ND AVE	CN		CHANNEL	N	DRY	TURN		UNKN	N	-E							000		00
					02	0		N	DARK	PDO		PSNGR	CAR		01	DRVR	NONE	00	M	OR-Y	080,028	000	02
				002600100S00																			
				50.8768144 57.7986671																			
												02	NONE	0	STRGHT								
												PRVTE			01	DRVR	NONE	23	F	OR-Y		000	00
												PSNGR	CAR								000	000	00
08429	N N N N N	08/06/2012	14	SE POWELL BLVD	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT									
				SE 62ND AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE		E	-W							000	
					01	0		N	DAY	INJ		PSNGR	CAR		01	DRVR	INJC	21	F	OR-Y	000	000	00
				002600100S00																			
				50.8768085 57.7986438																			
												01	NONE	0	STRGHT								
												PRVTE										000	00
												PSNGR	CAR		02	PSNG	INJC	21	F		000	000	00
												02	NONE	0	TURN-L								
												PRVTE			N	-E						000	00
												PSNGR	CAR		01	DRVR	INJB	49	M	OTH-Y	028	000	02
												02	NONE	0	TURN-L								
												PRVTE			N	-E						000	00
												PSNGR	CAR		02	PSNG	INJC	71	F		000	000	00
09948	N N N	09/11/2012	14	SE POWELL BLVD	INTER	4-LEG	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT									
				SE 62ND AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE		W	-E							000	
					03	0		N	DAY	PDO		PSNGR	CAR		01	DRVR	NONE	18	F	OR-Y	000	000	00
				002600100S00																			
				50.8768085 57.7986438																			
												02	NONE	0	STRGHT								
												UNKN			N	-S						000	00
												PSNGR	CAR		01	DRVR	NONE	21	F	OTH-Y	028	000	02
00710	N N N	01/23/2014	14	SE POWELL BLVD	INTER	4-LEG	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT									
				SE 62ND AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE		S	-N							000	
					04	0		N	DAY	INJ		PSNGR	CAR		01	DRVR	NONE	00	F	UNK	028	000	02
				002600100S00																			
				50.8768079 57.7986359																			
												02	NONE	0	STRGHT								
												RENTL			W	-E						000	00
												PSNGR	CAR		01	DRVR	NONE	63	M	OTH-Y	000	000	00

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.



