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<b>TO:</b>	Nate Baldwin, PE, City of Olathe
<b>FROM:</b>	Todd Fredericksen, PE, PTOE Ryan Fleming, PE
<b>RE:</b>	Black Bob Road/Lackman Road 159 <sup>th</sup> Street to 175 <sup>th</sup> Street
<b>DATE:</b>	June 21, 2019
<b>PROJECT #:</b>	019-1521

Per the City's request, existing and future volumes, and current crash data was reviewed to confirm the recommendations provided in the Olathe Transportation Master Plan (TMP) to update Black Bob Road/Lackman Road from 159<sup>th</sup> Street to 175<sup>th</sup> Street from two-lane to four-lane. Current daily volume data for this segment was received from the City and is summarized below.

Segment	Year	
	2017	2019
Black Bob Road/Lackman Road (159 <sup>th</sup> Street to 167 <sup>th</sup> Street)	N/A	5,606
Black Bob Road/Lackman Road (167 <sup>th</sup> Street to 175 <sup>th</sup> Street)	2,164	2,835

Future volume along the segments, for 2025 and 2040 land use scenarios, was obtained from the City of Olathe TransCAD model which is peak hour-based model. Based on the information from the future model, volumes are expected to grow to greater than 15,000 ADT by 2025 and 25,000 ADT by 2040 for the northern section. Volumes are expected to grow to greater than 10,000 ADT by 2025 and near 20,000 ADT by 2040 for the southern section. Using the *Typical Classification Capacities* found in NCHRP 365 Chapter 10 as a quick reference, a four-lane divided roadway is typically warranted with an ADT above 15,000 and can accommodate volumes up to and greater than 30,000 ADT. Future 2025 and 2040 volume data from the model are summarized below.

Segment	Year	
	2025	2040
Black Bob Road/Lackman Road (159 <sup>th</sup> Street to 167 <sup>th</sup> Street)	16,560	26,233
Black Bob Road/Lackman Road (167 <sup>th</sup> Street to 175 <sup>th</sup> Street)	11,241	19,475

*\*Daily volumes were based on a 12% peak hour to daily ratio.*

Thus, a four-lane divided roadway is recommended for the northern section based on the anticipated volumes. The southern section is anticipated to be above 15,000 ADT by year 2032,



based on linear interpolation from the 2025 and 2040 model scenarios. This section of roadway should continue to be planned to be a four-lane divided section at some point in the future.

Crash data along Black Bob Road/Lackman Road was also provided by the City. Looking at a three-year period from 2016-2018, 17 correctable crashes occurred along the corridor. Fifteen crashes occurred at the intersection of 159<sup>th</sup> Street and Black Bob Road/Lackman Road, one crash along the segment south of 167<sup>th</sup> Street, and one crash at the intersection of 175<sup>th</sup> Street and Lackman Road. As a result, the calculated crash rate for the corridor is 3.56 crashes/million vehicle miles traveled (MVMT). This rate is over the critical crash rate of 2.55 crashes/MVMT and the average crash rate of 1.52 crashes/MVMT. Since most of the crashes (15) from 2016 to 2018 occurred at the intersection of 159<sup>th</sup> Street and Black Bob Road, improvements to the intersection are expected to improve safety and subsequently reduce the crash rate along the corridor. According to the City's 2016-2020 Capital Improvement Plan, improvements, including adding additional capacity and providing signal control, at 159<sup>th</sup> Street and Black Bob Road are scheduled to be completed soon.

Along with intersection improvements at 159<sup>th</sup> Street and Black Bob Road, the construction of a four-lane divided section is expected to accommodate the future volume and current safety concerns along Black Bob Road / Lackman Road as stated in the Olathe TMP.

We hope that we have provided adequate information for your request. If you have additional questions, please contact us at 913.381.1170.