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MEMORANDUM

TO: Dan Roadt
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FROM: Peter Daniels, P.E., City Engineer

DATE: January 11, 2022

SUBJECT: Street Lighting Program

The City's electrical engineering consultants at KL Engineering were asked to analyze our future street lighting plans in accordance with the Mayor's new initiative for a "Neighborhood Lighting Program" as stated in the budget:

"Neighborhood Lighting Program - Increased lighting improves quality of life by increasing safety on the streets for drivers and pedestrians. It also serves as a deterrent for criminal activity because there is a greater chance that offenders may be seen and recognized"

Our consultant, KL Engineering, is currently following the requirements outlined by the Illuminating Engineering Society (IES) for use on local streets (the Type II lights shown below in the diagram), but we have received a few complaints about the new LED lights being on just one side of the street and only lighting up the road. The old low pressure sodium bulbs (yellow lights) threw an eerie yellow glow into the front yards of many homes along the street which made some people "feel" safer. The old low pressure sodium lights did light up front yards quite well and were equally just as energy efficient as LED lights are now. But they were very yellow, which made them very ineffective in identifying the true color of "get away" cars or the clothing worn in crime incidents. So the old lights allowed residents to see what was happening better in the neighborhood, but not to accurately identify important details from a crime.

Conversely the new LED lights we are using (Type II) are made up of a group of fiber optics which by their very design only send light in one direction downward. There are other types of LED lights available (Type III or IV), for no extra cost, that could spread more light into the front yards again (with a corresponding loss of light on the road). We could also return to placing light poles on both sides of the street again with only a 7% increase in the cost of our lighting projects (which would help light up the neighborhood a little more). These Type III LED lights would allow for more accurate color identifications at night if crime were to occur and would give a greater chance that offenders would be seen and recognized as stated in the Mayor's new initiative.

Some residents may consider this extra light to be "light pollution" in their front yards or in their windows at night, but it appears that a fairly small increase in cost could provide more light to fight crime going forward. I would recommend switching to Type III LED lights and returning to the installation of light poles on both sides of the street.

Distribution Comparison

Example - 90th St				
Visual Output	Target	Type II	Type III	Type IV
Average (fc)	0.3	0.67	0.55	0.38
		223%	183%	127%
Average/Min	6.0:1	6.09:1	11.0:1	1.92:1

