



**FELSBURG  
HOLT &  
ULLEVIG**

*engineering paths to transportation solutions*

March 19, 2007

**MEMORANDUM**

To: Scott O' Meara  
Dream Design, International

From: Lyle DeVries

Re: Contribution to roadway improvements  
Rushmore Crossing Development  
FHU Reference No. 05-076

**RECEIVED**

MAR 19 2007

**Rapid City Growth  
Management Department**

The *Rushmore Crossing Traffic Impact Study, Third Edition* was completed by Felsburg Holt & Ullevig in February of 2007 and submitted to the City of Rapid City for review by its Staff. Rapid City Staff provided feedback on the study in its comments made on March 8, 2007 and at a meeting held on March 13. This memorandum summarizes and responds to the key traffic-related comments.

**COMMENT:** (*Street System Evaluation, #7*) Traffic Study says the Luna Street extension should be constructed by approximately 2013. (*Who/How will this get done?*)

**RESPONSE:** The north-south extension of Luna Avenue would connect Eglin Street with Anamosa Street east of LaCrosse Street. This extension would ease travel demand along a segment of LaCrosse Street and improve intersection delay at the LaCrosse Street intersections with Eglin Street and Meridian Lane. In response to Comment #7, we have developed an initial approach to evaluating the contribution of site traffic to the need for extending Luna Avenue.

Future traffic volumes along LaCrosse Street are the primary reason for extending Luna Avenue. This growth would result both from additional traffic due to land uses outside of the proposed Rushmore Crossing (background traffic) and site generated traffic. The development of Rushmore Crossing would contribute to the need for the extension according to the percent contribution of site traffic to future growth in LaCrosse Street traffic volumes.

The table below summarizes the elements of traffic volumes along LaCrosse Street based on information contained in the traffic study.

Daily LaCrosse Street Traffic Volume (Vehicles Per Day)		
Existing	Long Term Future (Year 2030) Background (without site)	Long Term Future (Year 2030) Total (with site)
23,800	31,500	37,900

As shown, the site would add approximately 6,400 Vehicles per day (vpd) to LaCrosse Street by the Year 2030, or 45 percent of total growth. Using the approach described above suggests that the proposed development would comprise 45 percent of the need for extending Luna Avenue.

**COMMENT:** *(Street System Evaluation, #8) Traffic Study says improvements will be required to maintain level of service at LaCrosse / Anamosa.*

**RESPONSE:** The approaches to this intersection currently provide two through lanes in each direction along LaCrosse Street and a single through lane in each direction along Anamosa Street in addition to exclusive turn lanes for all movements. The fiscally constrained roadway plan in the *Rapid City Area 2030 Long Range Transportation Plan (LSA, September 2005)* depicts the addition of two through lanes to both LaCrosse and Anamosa Streets. Per the direction of City Staff, these improvements were not included in the traffic study evaluation of this intersection, as right-of-way constraints make these improvements impractical.

The results of the traffic impact analysis indicated that the LaCrosse Street / Anamosa Street intersection would operate at Level of Service (LOS) D by the Year 2030 without construction of Rushmore Crossing and LOS E with Rushmore Crossing complete. Rapid City criteria specify a design objective of LOS C or better for peak hour traffic operations. Future intersection improvements would be needed to reach this objective at the LaCrosse Street / Anamosa Street intersection, even without site traffic.

To satisfy City LOS criteria, it is recommended that Anamosa Street be widened in the future to accommodate an additional westbound left turn lane at LaCrosse Street. The westbound dual left turn lane would be needed by approximately the Year 2013. By the Year 2030, the dual left turn lane would help provide LOS C operations without the development and LOS D operations with the development. It is important to note that this result is based on the assumption of protected / permissive westbound left turn signal phasing. If possible, though not identified in the traffic study, it is recommended that a second eastbound through lane also be added to the intersection at the time the additional westbound left turn lane is constructed. This addition would improve intersection operations to LOS C with the development complete.

Applying the same approach as with the Luna Avenue extension, development-related traffic would comprise 24 percent of the need for the LaCrosse Street / Anamosa Street intersection improvements.

**COMMENT:** *(Street System Evaluation, #9) Revise plans to provide required storage as stated in the Traffic Study (e.g. Eglin at LaCrosse has 200', but study calls for 250')*

**RESPONSE:** Storage length for this movement (the westbound dual left turn) is limited by the location of Rapp Street east of the intersection. Examination indicates that a maximum of approximately 225 feet of storage may be provided given this constraint. We have revisited operational analyses of the intersection of LaCrosse Street with Eglin Street and determined that increasing the amount of green time for the westbound left turn movement would reduce the required storage length to approximately 200 feet while maintaining overall LOS C intersection traffic operations. It is recommended that a minimum of 200 feet of vehicle storage length be provided for the dual westbound turn lanes at LaCrosse Street and Eglin Street.