

Table 10: Alternative Evaluation Matrix

Evaluation Criteria	Comments	Alternative 1	Alternative 2	Alternative 3
Geometry and Compatibility with I-96 Interchange	Degree to which options are compatible and function with the operation of the I-96 ramps, the entry and exit to M-59, and the intersecting local roads. Considers traffic volumes, lane configuration, and motorist expectations.	Moderate compatibility and function. The configuration will function with the I-96 ramps, M-59, Burkhart Road and Marketplace Drive. However, the intersection ties together a private road, a major collector, a principal arterial, and an interstate freeway, resulting in an imbalance of much heavier traffic on the north and east legs. Also, there will be a high volume of left turns through the intersection, requiring dedicated signal phases at which time other movements must wait.	Low to Moderate compatibility and function. The north intersection configuration will function with the I-96 ramps, M-59, and Burkhart Road. However, there will be a high volume of left turns at the intersection, requiring dedicated signal phases at which time other movements must wait. Also, the south intersection will not function as well with the north intersection, particularly as traffic becomes heavier along Burkhart Road.	Excellent compatibility and function. Roundabouts are better able to accommodate a high volume of left turns than a multi-phase traffic signal. Also, the south roundabout intersection functions well with the north roundabout intersection, resulting in a smooth steady progression of traffic.
Future Traffic Operations (2030)	Average seconds of delay per vehicle at intersections. LOS for AM and PM peak hours for 2030 traffic projections.	Acceptable LOS AM Delay = 17.6 sec / LOS = B PM Delay = 15.4 sec / LOS = B	North Intersection: Acceptable LOS AM Delay = 16.4 sec / LOS = B PM Delay = 13.8 sec / LOS = B South Intersection: Acceptable LOS AM Delay = 5.1 sec / LOS = A PM Delay = 22.0 sec / LOS = C	North Intersection: Acceptable LOS AM Delay = 5.6 sec / LOS = A PM Delay = 6.5 sec / LOS = A South Intersection: Acceptable LOS AM Delay = 3.4 sec / LOS = A PM Delay = 4.2 sec / LOS = A
New Right-of-Way Required	Amount of new ROW required to construct the alternative.	Approximately 3.0 Acres No relocations are necessary	Approximately 2.6 Acres No relocations are necessary	Approximately 2.8 Acres No relocations are necessary
Safety	Based on existing crash data, RODEL crash prediction model and recent U.S. studies.	Introduction of a traffic signal to an unsignalized intersection has the potential to increase crash frequency due to newly introduced conflicts resulting from signaling the intersection and increasing traffic volumes. Signalized intersections also have the potential to increase certain types of crashes. These include rear-end and high speed right angle ("T-bone") crashes. At the same time, signalized intersections also have the potential to decrease angle crashes and in this situation eliminate unusual interchange geometry.	Same as Alternative 1	Properly designed roundabouts significantly reduce the potential number of, and severity of crashes since there are fewer conflict points and there are much lower circulating speeds. Roundabouts also virtually eliminate the possibility of high-speed T-bone and head-on crashes which usually account for the majority of serious injury and fatal crashes.
Planning-Level Construction Cost Estimate	Includes construction cost with a 30 percent contingency. Does not include ROW, utility relocation, or design costs. Costs are in year 2007 dollars.	\$ 2,900,000	\$ 2,800,000	\$ 3,000,000
Operational Cost	Long term maintenance: energy consumption, equipment, and supplies	Moderate: Requires electricity, bulbs, signal maintenance equipment, pavement markings, signage	Moderate: Requires electricity, bulbs, signal maintenance equipment, pavement marking paint, signage	Low: Requires pavement marking paint, signage, and mowing
Construction Impact	Temporary impacts from traffic delays, construction equipment; dust, noise, visual impacts	High	High	High
Environmental Impact	Impacts on natural resources and people	Low	Low	Low