12.0 LEVEL 1 EVALUATION – INITIAL SCREENING

12.1 Level 1 Evaluation Summary

The following pages present the results of the Level 1 Initial Screening analysis. For the alternatives advanced to Level 2, a brief summary is given. However, for the alternatives set aside from further consideration in Level 1, a more in-depth discussion is provided to clearly illustrate the reasons for not pursuing those alternatives further. Refer to Table 22 (Appendix A) for a list of the preliminary alternatives and the corresponding ratings for each in the following five evaluation categories:

- *Implementation / Construction Feasibility*
- *Project Goals*
- *Community Impacts*
- *Environmental Impacts*
- *Public Support*

Alternative 1 – No-Build

The No-Build Alternative involves no new construction and is therefore rated GOOD for both *Implementation / Construction Feasibility* and *Environmental Impacts*. However, with regard to *Project Goals*, the No-Build Alternative is rated POOR. While the No-Build limits negative impacts, it offers no benefits to safety, traffic flow, highway geometry, and truck traffic conditions. In fact, the current traffic safety issues may intensify if traffic volumes grow. The No-Build is rated FAIR for *Community Impacts*. Again, it limits physical impacts to the community, but it also offers no community benefits. Deficiencies such as the poor continuity and condition of sidewalks in town are not addressed. It also does nothing to change the impact of truck traffic on the community. The initial stakeholder meetings and the first public meeting revealed some support for doing nothing, giving it a rating of FAIR for *Public Support*.

Although the No-Build Alternative may not improve the transportation system or address the transportation deficiencies identified in the study, it was carried forward to Level 2 (and throughout the study) both as a possible alternative, as well as to provide a baseline for comparing the potential build alternatives.

Alternative 2 – Spot Improvements

The spot improvements are rated GOOD for *Implementation / Construction Feasibility* because they require the least amount of new construction of any build alternative, minimizing cost and construction complexity. The spot improvements may achieve a number of project goals such as enhanced traffic flow and safety, improved geometry and better truck traffic operations. However, they are not expected to provide the same traffic benefits as complete reconstruction of the highway or a new highway. They do leave traffic flowing through town, providing continued visibility for existing businesses on US 51. They are rated FAIR for *Project Goals.* The spot improvements minimize community impacts (both positive and negative), giving a rating of FAIR for *Community Impacts*. They are also unlikely to have significant negative environmental impacts,

yielding a GOOD rating for *Environmental Impacts*. Based on initial stakeholder meetings, and on the results of the first public meeting, the spot improvements had more support than any other alternative (50 percent of all survey respondents supported this alternative). It is rated GOOD for *Public Support*.

Alternative 2 (Spot Improvements) has the potential to achieve many project goals with minimal cost and impact. It also has substantial local support. Therefore this alternative was recommended for further study in Level 2.

Alternative 3 – Reconstruct US 51 as Two-Lane Roadway with Turn Lanes

Improving the existing highway is feasible, but may be complicated and costly, especially given the expected utility and right-of-way issues. It is rated FAIR for *Implementation / Construction Feasibility*. Improving the current highway addresses many project goals including improved traffic flow, safety, and truck traffic operations. The benefits in these areas are expected to be greater for Alternative 3 than for Alternative 2, but possibly less than a complete new highway east or west of town. Visibility for existing businesses on US 51 is also maintained. Overall, it is rated GOOD for *Project Goals*. Alternative 3 is expected to support current businesses through continued visibility and enhance the aesthetics of the existing developed community. It may have some physical or right-of-way impacts on businesses and properties along US 51. Overall it is rated GOOD for *Community Impacts*. Improving the current highway is unlikely to affect the natural environment, but it does have the potential for historic resource impacts. These would be avoided to the greatest extent possible. Alternative 3 is rated GOOD for *Environmental Impacts*. There appears to be considerable public support for Alternative 3. (Approximately 37 percent of survey respondents supported this alternative.) It is rated GOOD for *Public Support*.

Alternative 3 is likely to achieve a number of the key project goals, while minimizing negative community and environmental impacts. It also has local public support. Therefore this alternative was recommended for further study in Level 2.

Alternative 4A – US 51 Realignment West of the Methodist Church

The improvements in town may be complicated and costly. However, the realignment and other improvements north and south of town are likely to be straightforward. It is rated FAIR for *Implementation / Construction Feasibility*. Alternative 4A addresses many of the project goals including improved traffic flow, safety, and truck traffic movement while providing continued visibility for existing businesses on US 51 in town but not south of the Methodist Church. It is rated GOOD for *Project Goals*. It is expected to support most current businesses and enhance the aesthetics of the existing developed community, but it may impact some homes, farms, and businesses. Overall, it is rated GOOD for *Community Impacts*. Alternative 4A crosses an area with wetlands, streams and a floodplain southwest of the Methodist Church as well as an agricultural district. It may also result in impacts to one or more potentially historic sites. These issues give it a FAIR rating for *Environmental Impacts*. Based on input from the Project Work Group and the public, it appears that some local residents and community leaders

support Alternative 4A (approximately 20% of the surveys from the first public meeting supported Alternative 4.) It is rated FAIR for *Public Support*.

Alternative 4A is expected to provide identifiable benefits and has the potential to achieve a number of the key project goals; however, it appears to have the potential for some negative environmental impacts. Alternative 4A was recommended for further study and evaluation in Level 2.

Alternative 4B – US 51 Realignment East of the Methodist Church

Alternative 4B is similar to Alternative 4A in many ways, therefore it is rated the same in three of the five evaluation categories. Alternative 4B is rated FAIR for *Implementation / Construction Feasibility* and GOOD for *Project Goals*. Regarding community issues, Alternative 4B differs from Alternative 4A because it may result in property impacts on the east side of US 51 and the Methodist Church instead of on the west side. Due to potential issues in this area Alternative 4B is rated FAIR for *Community Impacts*. Alternative 4B, unlike Alternative 4A, stays away from the wetlands, streams and floodplain southwest of the Methodist Church, though it still crosses the agricultural district and has potential historic resource impacts. Overall, it is rated GOOD for *Environmental Impacts*. Similar to Alternative 4A, Alternative 4B is rated FAIR for *Public Support*.

Alternative 4B addresses identified problems and has the potential to achieve a number of the key project goals. However, it may have negative property impacts. Alternative 4B was recommended for further study and evaluation in Level 2.

Alternative 5A – US 51 Bypass from the Curve near the Fire Station

Alternative 5A is rated GOOD for *Implementation / Construction Feasibility*. It follows a new bypass alignment for US 51, reducing construction complexity and certain costs (i.e. utilities, maintenance of traffic, and property access). However, other issues may add costs such as route length, right-of-way, and bridge construction (Truman Creek). The 5A bypass addresses the highway related project goals including improved traffic flow, safety, and truck traffic movement. However, it reduces visibility for existing businesses; may not enhance the physical condition of the existing community; and may require substantial property acquisition. Overall, *Project Goals* is rated FAIR. It is rated FAIR for *Community Impacts*. It bypasses Bardwell, reducing the visibility of current businesses and doing nothing to improve community aesthetics. However, it minimizes direct impacts to homes and businesses and opens land for development, though the potential for new development is expected to be low. Alternative 5A crosses at least one stream (Truman Creek), two floodplain areas, an agricultural district, a potential Indiana Bat habitat, and has possible wetland impacts. Cultural resource impacts are possible at either end of the corridor including cemeteries and an archeological site. Therefore, Alternative 5A is given a POOR rating for *Environmental Impacts*. Based on public input, there is limited support for this alternative with a significant portion of the public opposed to a bypass. It is rated POOR for *Public Support*.

Alternative 5A has a mix of benefits and drawbacks. It may have a number of environmental impacts. It also has significant local opposition. However, it offers potential traffic flow, safety, and truck operations benefits. It also has the construction benefits of a new highway alignment and is the best of the three bypass options. As a result, Alternative 5A was recommended for further study in Level 2.

Alternative 5B – US 51 Bypass From South of the Bardwell Cemetery

Implementation / Construction Feasibility - Similar to Alternative 5A, Alternative 5B will be along a new alignment, limiting construction complexity. However, issues such as route length, new right-of-way, bridges, and topography will influence design and may increase project costs. For example, at least one bridge will be necessary to cross Truman Creek. Alternative 5B is also longer than Alternative 5A. Given that Alternative 5B is longer than Alternative 5A and given the uncertainty regarding how it compares to the other alternatives (including Alternative 3) it has been given a rating of FAIR.

Project Goals - Alternative 5B addresses the traffic and highway related goals such as improved traffic flow, safety, and truck traffic movement. However, it reduces visibility for existing businesses and may not enhance the aesthetics of the existing community. It may also require substantial property acquisition. Overall, it is rated FAIR.

Community Impacts - Alternative 5B diverts traffic from the town center, reducing visibility for current businesses in town. It runs further from town than Alternative 5A at its southern end. Also, it may not improve the appearance of the existing developed community. It may open up land to development, though the potential for significant new development is expected to be low. Much of the new right-of-way required for the project is in undeveloped areas, thereby minimizing direct impacts to homes and businesses. However, a considerable amount of right-of-way may be required, some of which is active agricultural land. Overall, Alternative 5B is rated POOR.

Environmental Impacts - Alternative 5B crosses predominantly undeveloped land east of the town of Bardwell. This includes crossing at least one stream (Truman Creek) and two floodplain areas, as well as possible wetland impacts. It crosses one potential Indiana Bat habitat area. Cultural resource impacts are possible at either end of the corridor. While the alignment runs east of the Bardwell Cemetery, there is another unmarked African-American cemetery just to the north of the Bardwell Cemetery. In addition, there is a potential archeological site near the northern end of the corridor. The new road would also cross an agricultural district in the north. These potential environmental impacts give Alternative 5B a POOR rating.

Public Support - Based on input from the Project Work Group, stakeholders, public officials, and the general public, it is apparent that there is limited support for this alternative. In fact there are many local leaders, business owners, and residents that are opposed to this alternative. Approximately 17 percent of survey respondents indicated support for Alternative 5, while 27 percent indicted opposition to a bypass. In addition, many of the local officials involved in the study process spoke out against a bypass. It is rated POOR.

Alternative 5B has drawbacks in the areas of community and environmental impacts as well as significant local opposition and little public support. Alternative 5B was therefore NOT recommended for further study in Level 2.

Alternative 6 – US 51 Western Bypass

Implementation / Construction Feasibility - Alternative 6 will follow Alternative 4A from the south and then cross the railroad to run north through town. At this point, it crosses the railroad again, to rejoin US 51 north of town. The two railroad crossings both increase the complexity of the project as well as the project cost. The new highway along the western side of the railroad through town will also require new right-of-way and is expected to be more costly than the other corridors and improvement alternatives. Therefore, given the structures, right-of-way issues, involvement of the railroad, and other complexities, Alternative 6 has been given a rating of POOR.

Project Goals - Alternative 6 has the potential to address some of the project goals such as improved traffic flow and truck movements; however, it may cause some problems as well. For example, with the town on the other side of the railroad from US 51, the amount of traffic at the at-grade crossings in town would be expected to increase leading to possible safety problems. In addition, while the traffic would still go through town, it would not run along "old" US 51 thereby reducing visibility for existing businesses. The aesthetics of the downtown area could be improved with this alternative. However, Alternative 6 also requires new property/right-of-way acquisition. Overall, it is rated FAIR with respect to the project goals.

Community Impacts - Alternative 6 may not maintain the current through-traffic flow in the town, but shifts traffic to the west side of town. This may reduce visibility for current businesses. It may improve the appearance of the existing developed community, but exactly how much or where is uncertain. This alternative could also open some new land for development on the west side of town, though the potential for significant new development is expected to be low. The direct impacts to homes and businesses are also uncertain, though new right-of-way would be required. Given the apparently mixed potential for community impacts, Alternative 6 is rated FAIR.

Environmental Impacts - Alternative 6 crosses at least one stream (an unnamed tributary of Truman Creek), floodplain areas, and possible wetland areas. The corridor would cross at least one and possibly two agricultural districts. Cultural resource impacts are possible but not certain at present. The potential environmental impacts give Alternative 6 a rating of FAIR.

Public Support - Based on public input received on the project, there appears to be little if any support for this alternative. Essentially, none of the survey respondents voiced support for this or any similar western bypass type alternatives. One citizen at the meeting discussed it and showed it on a map. It is rated POOR.

Alternative 6 has drawbacks in the areas of implementation and public support. It also may have substantial negative environmental and/or community impacts. Alternative 6 was therefore NOT recommended for further study in Level 2.

Alternative 7 – One-Way Street System (US 51 and Front Street)

Implementation / Construction Feasibility - Implementation of Alternative 7, the one-way street concept is expected to be similar in complexity (and possibly even cost) to Alternative 3. The issues of property access and utilities would be present. Alternative 7 may however require less right-of-way acquisition, unless the right-of-way along Front Street is deemed inadequate. The most difficult areas for this alternative would be at the northern and southern ends where Front Street would be tied back into the existing US 51. Overall, Alternative 7 is rated FAIR.

Project Goals - Alternative 7 may improve the highway system and address some of the project's goals such as improved through-traffic flow and better truck traffic movement. However, one-way streets cause drivers to travel further to reach their destinations. In a town with low traffic volumes, like Bardwell, the increase may seem unnecessary and burdensome. With regard to safety, one-way streets can improve safety by decreasing the number of potential vehicle-vehicle and pedestrian-vehicle conflict points and by improving lines of sight.[3] However, vehicles may also be encouraged to drive faster on a one-way street system. As far as business visibility, the traffic would be split between the two streets with some loss to businesses on US 51 and some gain to those on Front Street. Property impacts would be anticipated to be minimal except at the northern and southern ends of Front Street where more extensive improvements would be necessary. Overall, Alternative 7 is rated FAIR.

Community Impacts - Alternative 7 is expected to support current businesses through continued visibility and enhance the aesthetics of the existing developed community. It may however, have some physical or right-of-way impacts on businesses and properties along US 51 and along Front Street. The nature of Front Street might change dramatically from a quiet, low volume street to a fairly busy main street with many large trucks. This traffic impact may affect the entire length of Front Street from the stockyard in the north, to the senior center and City Hall, to the commercial properties throughout, and to the residential homes at the southern end of the street. The parking, traffic patterns, and even the treatment of the railroad grade crossings may need to be modified. A one-way street system also seems out of character with the current rural, small town, nature of the community. Overall, Alternative 7 is rated FAIR.

Environmental Impacts - Alternative 7 may have minor impacts on the natural environment. It has the potential for historic resource impacts, but these would be avoided as far as is possible. Alternative 7 is therefore rated GOOD.

Public Support - There does not appear to be significant support for (or opposition to) a one-way street system in Bardwell. Approximately 7 percent of survey respondents supported this alternative. It is rated POOR.

[3] There are some researchers that contend that one-way streets are less safe for pedestrians. (*Downtown Streets – Are We Strangling Ourselves on One-Way Networks?,* Walker, Kulash and McHugh, TRB Circular E-C109: Urban Street Symposium, F-2/p.10)

In addition to the above discussion, the Institute of Transportation Engineers, Traffic Engineering Handbook (ITE, 1999) lists a number of general conditions that should be met for a roadway to be converted from two-way operations to one-way operations. Two of these conditions include:

- *A specific traffic problem would be alleviated and the overall efficiency of the transportation system improved;*
- *The overall advantages significantly outweigh the disadvantages.*

The proposed one-way street system in Bardwell does not clearly meet these two conditions. Instead, there appear to be other alternatives that would provide benefits to the local street system, thus meeting the needs of the community. It is also useful to note that there has been a recent trend across the nation away from one-way street systems.

At best, Alternative 7 (one-way street system) has mixed benefits and drawbacks. Considering its potential negative impacts, lack of local support, and other shortcomings, Alternative 7 was NOT recommended for further study in Level 2.

12.2 Level 1 Analysis Summary

The overall ratings for each of the nine alternatives are shown in Table 22 in Appendix A. Of the nine (9) initial alternatives, six (6) were recommended for further study in Level 2. These included Alternatives 1, 2, 3, 4A, 4B, and 5A. It was recommended that the three (3) remaining alternatives (5B, 6, and 7) be removed from further consideration. The reasons for discarding these three alternatives ranged from anticipated adverse environmental and community impacts to implementation and construction cost issues, to a lack of local support (or outright opposition).