14.0 LEVEL 3 EVALUATION – DETAILED ANALYSIS

14.1 Final Refinement

Based on the Level 2 analysis, the remaining alternatives were refined for the Level 3 evaluation. This included refinement of potential corridors and the typical sections. The typical sections shown in Figure 21 reflect the adjustments made for the Level 3 analysis and are the final conceptual typical sections used for cost estimating purposes (with turn lanes added where necessary). Construction phasing was also considered for each alternative where applicable.

14.2 Alternative Refinement and Phasing

Alternative 2A – US 51 in the Vicinity of Cresap Street

For the proposed Spot Improvement 2A, refinements have been made to define the extent of work at this site. Alternative 2A consists of lowering the hill just north of Cresap Street on US 51. To avoid impacts to historic and potentially historic sites along US 51 at this location, while maintaining the typical urban cross section through town, the construction of a retaining wall approximately 800 feet in length is proposed. In addition to improving the sight distance at this location, sidewalk and curb and gutter reconstruction is specified. (Refer to Figure 23 in Appendix B)

Alternative 2B – US 51 (Washington Street) at KY 58 / KY 123 (Clay Street)

Alternative 2B involves incremental improvements over time to the intersection at US 51 (Washington Street) and KY 58 / KY 123 (Clay Street). The intersection is projected to operate acceptably through 2010. However, by 2020, an eastbound right turn lane would be added to the intersection. This could likely be done by eliminating some parking and re-striping the west and south legs of the intersection. By 2030, northbound and southbound left turn lanes would be added on US 51. Also, the traffic signal would be upgraded to a traffic-actuated signal (a signal that can detect and then give a green light to waiting vehicles) with pedestrian signal heads. Another improvement would be to increase the corner radii to better accommodate trucks. To implement these improvements without impacting existing buildings, the number of on-street parking spaces would be reduced. Some of the angled parking on KY 58 / KY 123 near the intersection would be eliminated or converted to parallel parking stalls. The angled parking on US 51 in front of the courthouse may also be converted to parallel stalls. Some of the existing parallel stalls on US 51 such as in front of the courthouse annex would be removed. These changes in parking around the courthouse would allow for the new lanes and wider radii. It would also facilitate the construction of sidewalks to the north and east of the courthouse where there are currently none. To lessen the impact of reduced parking in town, this alternative also proposes the construction of a parking lot in a currently vacant lot at the northeast corner of the intersection. (Refer to Figure 24 in Appendix B)

Alternative 2C – Vicinity of US 51 (Washington Street) and KY 58 (Mayfield Road)

Alternative 2C is a proposal to repave and restripe the northeast corner of the intersection to allow for an increased turning radius from US 51 to KY 58 (Mayfield Road). An additional improvement is the installation of an overhead flashing warning beacon to improve the level of safety at the intersection. (Refer to Figure 25 in Appendix B) In the future, installation of a traffic signal should also be considered.

Alternative 3 – Reconstruct US 51 as a Two-Lane Roadway with Center Two-Way Left Turn Lane

Alternative 3 is a composite of the three proposed spot improvements with the addition of full reconstruction of US 51 from north of town (in the vicinity of the jail), south to the Bayou de Chien, along with the construction of a center two-way left turn lane just south of town. (Refer to Figure 26 in Appendix B) In town, a two-lane urban typical section is to be used. This transitions the in town section into the two-lane urban section with a center turn lane from just south of town to south of the development near Martin Road. From there to the end of construction at the Bayou de Chien, a two-lane rural typical section is proposed. The typical sections for Alternative 3 are shown in Figure 21.

Due to the nature and extent of the proposed improvements, it is possible to construct Alternative 3 in phases. The benefits of phased construction are defrayed construction costs and near term results for the community. One possible phasing plan would be to complete all recommended spot improvements and US 51 reconstruction through town as Phase 1 (this could include the ultimate build for US 51 / KY 58 / KY 123). The spot improvements require minimal to moderate construction and could be finished in a timely manner. The reconstruction of US 51 through town will be more difficult, but could be completed in conjunction with the spot improvements. Phase 2 could consist of the construction of the two-way left turn lane beginning from just south of town to just south of the development near Martin Road. This is a reasonable stand-alone project. The final phase (Phase 3) would be the reconstruction of US 51 south of the turn lane to the Bayou de Chien.

Alternative 6A – Far Eastern Bypass Option A

Alternative 6A is a proposal for an eastern bypass. (Refer to Figure 27 in Appendix B) The Alternative 6A bypass corridor departs from the current US 51 alignment north of town, but south of the Assembly of God Church. From there the bypass corridor turns southeast to cross over KY 123 and KY 58 a little over a mile east of US 51. After crossing KY 58, the proposed bypass corridor turns southwest to reconnect with the current US 51 alignment near KY 780 (South) in the south end of the study area. The remaining portion of US 51 from the southern connection of the bypass to the Bayou de Chien is to be reconstructed as proposed in Alternative 3. The estimated length of the bypass is 5.0 miles, and the portion of US 51 that would be reconstructed is 0.3 miles. For both the bypass and US 51 reconstruction, a two-lane rural typical section is to be used as shown in Figure 21.

Phased construction is a possibility for Alternative 6A since there are two distinct segments. The first phase (Phase 1) would be the construction of the bypass. The second and final phase (Phase 2) would be the reconstruction of US 51 from the southern bypass connection to the Bayou de Chien.

Alternative 9 – Western Bypass (West of Railroad)

Alternative 9 is a proposal for a western bypass. (Refer to Figure 28 in Appendix B) The Alternative 9 corridor departs from the current alignment of US 51 just north of town in the vicinity of KY 1728 (Farmers Gin Road) and continues south over the railroad tracks (grade-separated). From there, the proposed corridor runs southwest past the developed portions of Clinton before it turns east to cross back over the railroad and reconnect with US 51 south of town near KY 780 (North). The remaining portion of US 51 from the southern connection of the bypass to the Bayou de Chien is to be reconstructed as proposed in Alternative 3. The estimated length of the bypass is 3.0 miles, and the portion of US 51 that would be reconstructed is 2.1 miles. Because the bypass ties into US 51 where the construction of the center two-way left turn lane is proposed, Alternative 9 includes the construction of the turn lane as well as reconstruction of US 51 to the Bayou de Chien. For both the bypass and US 51 reconstruction, a two-lane rural typical section is to be used, and for the portion of US 51 that includes the turn lane, a two-lane urban with turn lane typical section is to be used. Both types of typical sections are shown in Figure 21.

Phased construction is a possibility for Alternative 9 since there are three distinct segments. The first phase (Phase 1) would be the construction of the bypass. The second phase (Phase 2) would be the construction of the center turn lane section, similar to Phase 2 of Alternative 3. The third and final phase (Phase 3) would consist of reconstruction of US 51 from the southern bypass connection to the Bayou de Chien.

14.3 Level 3 Analysis Summary

After refining each of the five alternatives advanced from Level 2, they were subjected to a detailed analysis to determine which alternative or combination of alternatives should be recommended for implementation. A discussion of the results of this analysis is included below for each alternative. An evaluation matrix for each of the four primary categories (Traffic Operations, Environment, Community, and Implementation / Construction) is included as Tables 24 – 27 in Appendix A. For reference, the traffic forecasts for each of the alternatives are included in Appendix G.

14.3.1 Alternative 1 – No-Build

Traffic Operations - Traffic volumes on US 51 in the study area are expected to increase between 2002 and the design year of 2030. The assumed growth rate used in this study was 1.5 percent per year. This increase is projected to cause the operating conditions at the two key intersections in town to fall below the desirable threshold.

Specifically, the US 51 / KY 58 / KY 123 (Clay Street) intersection is forecasted to fall to LOS D in 2020 and LOS E in 2030 as shown in Table 2 of Appendix G. The side street approaches to the US 51 / KY 58 (Mayfield Road) intersection are projected to degrade to LOS E in 2010 and LOS F in 2020 and 2030. (The northbound and southbound approaches on US 51 are projected to remain at a desirable LOS.) The No-Build alternative proposes no improvements to address these capacity deficiencies. There are also no truck traffic benefits or safety benefits associated with the No-Build alternative.

While future traffic growth is expected to cause intersection capacity problems, the two-lane highway segments north and south of town are expected to operate acceptably at LOS C or better through 2030 as shown in Table 24. Thus, there are no projected capacity deficiencies for the highway sections leading into or out of town.

Environment - Alternative 1 is not expected to have any significant impact to the environment other than increased noise from predicted increases of traffic in town.

Community - The No-Build alternative is not expected to impact the community in a negative way, nor is it expected to enhance the community. There is some community support for doing nothing (23 percent based on comment form responses at the first public meeting), but most people (55 percent of comment form respondents at the first public meeting) believe that doing nothing will lead to safety and operational problems in the community. This general consensus of a need to improve US 51 was repeated at the second public meeting where survey respondents gave the No-Build alternative an average rating of 2.2, which was the lowest rated alternative.

Implementation / Construction - There are no physical improvements with the No-Build, therefore no new right-of-way is required, and there are no capital costs.

Alternative 1 Conclusion: Overall, the No-Build alternative does not compare favorably with the build alternatives. In addition, it does not adequately address the project goals. The No-Build does not improve safety or address the issue of truck traffic (either by improving the existing road or providing an alternative route). It does not address the projected capacity and level of service problems at the two main intersections in town. It does not benefit the local community or spur economic development and it does not facilitate regional connections. Furthermore, it is not supported by the public or local decision makers. It simply minimizes impacts through inaction. Because the No-Build alternative does not adequately address the project goals it is not recommended as the preferred alternative.

14.3.2 Alternative 2A – US 51 in the Vicinity of Cresap Street

Traffic Operations - Alternative 2A is a proposal to improve safety on US 51 near Cresap Street by lowering the hill (to increase sight distance) and reconstructing the sidewalks. It will have no effect on traffic operations other than improved safety. One reason for pursuing the improvements is the proximity of the public schools located a

few blocks to the east. However, the crash data does not indicate that this is a problem area. Maintenance of traffic during construction could be difficult, and may cause delays on US 51.

Environment - As shown in Table 25, impacts to the natural environment are unlikely. With regard to the human environment, US 51 is constrained in this location by two sites (Marvin College and Marvin College's President's House) listed on the National Register of Historic Places (NRHP), and one potentially eligible site (1.5 Story Craftsman House). In order to minimize impacts to these sites, the earth embankments on the east side of the street could be replaced by small retaining walls. Due to the limited extent of construction, significant impacts to the four nearby hazardous material sites are unlikely.

Community - Alternative 2A is not expected to affect the community as a whole as the benefits and impacts are generally limited to the vicinity of US 51 and Cresap Street. Small retaining walls could be used to limit property acquisition on the east side of US 51 where the National Register properties are located. Similarly, small retaining walls could be used to limit property acquisition on the west side, which is the border of the Environmental Justice community. Overall, property acquisition would be minimal since the typical urban section to be used in town was designed to stay within the existing right-of-way as much as possible. Therefore, it is not anticipated that there would be any disproportionate negative impacts to the Environmental Justice community from Alternative 2B and there may be a beneficial impact, as it would improve safety between the community and the schools.

In general, there appears to be some community support for Alternative 2A. Local citizens suggested it. Comment form responses from the second public meeting indicated some support as well.

Implementation / Construction - Property acquisition could be kept to a minimum. The estimated construction cost for the project is $240,000. Including right-of-way, utilities, and design, the estimated total cost is $570,000.

Alternative 2A Conclusion: Alternative 2A is a spot improvement proposed by the community to improve pedestrian safety. The data however did not show this to be a high crash location, with only one crash reported near this location in the three year crash analysis period. Therefore, the potential benefits may not warrant pursuing it as a separate project. Consequently, it is not recommended as a stand-alone project, but is instead recommended as part of Alternative 3, which includes reconstructing US 51 through town.

14.3.3 Alternative 2B – US 51 (Washington Street) at KY 58 / KY 123 (Clay Street)

Traffic Operations - US 51 (Washington Street) at KY 58 / KY 123 (Clay Street) is the only signalized intersection in the study area. The LOS analysis indicates that it currently operates acceptably and is projected to continue to operate acceptably

through 2010. However, without improvements the design hour LOS drops to LOS D in 2020 and LOS E in 2030 as shown in Table 2 of Appendix G. To improve the intersection operating conditions, an eastbound right turn lane is proposed in 2020 and northbound and southbound left-turn lanes are proposed in 2030. The installation of an actuated traffic signal is also proposed to reduce the delay associated with the current pre-timed controller. These improvements will maintain LOS C or better through 2030.

In addition to providing improved traffic flow through the intersection, traffic safety and truck movements would be accommodated through improved turning radii and wider lanes. New sidewalks on the north and east sides of the courthouse could also provide pedestrians with a safe path to the courthouse (currently pedestrians must walk in the street for access to the courthouse entrance walkways). Pedestrian signal heads could also be included with the new signal for an additional safety measure.

Environment - Significant environmental impacts are unlikely. The major potential impact is to the Hickman County Courthouse, which is on the NRHP. However, improvements to the intersection are not likely to negatively impact the courthouse, but rather enhance it through the construction of new sidewalks.

Community - The proposed improvements would have a modest positive impact on the community. Larger benefits would accrue to those who use the intersection often such as courthouse area employees and residents. Parking spaces may however be relocated or eliminated due to the project.

Of the three proposed spot improvement alternatives, Alternative 2B had the most positive public response. 15-20 percent of comment form respondents at the first public meeting supported this alternative specifically. Comment form respondents at the second public meeting gave an average score of 3.4 to Alternative 2B, which was second only to Alternative 9. There is some opposition to removing parking around the courthouse. To address this concern, an option was developed to provide a new parking lot on the vacant northeast corner of the intersection.

Implementation / Construction – The intersection is constrained by existing development, but with the proposed on-street parking modifications it is anticipated that the improvements could be made by acquiring little new right-of-way. The estimated construction cost for upgrading the intersection is $420,000, with a total estimated cost (including right-of-way, utilities, and design) of $920,000.

Alternative 2B Conclusion: Alternative 2B directly addresses a number of the key project goals including safety, traffic flow, truck traffic operations, and highway geometrics. It is one of only two alternatives (Alternative 3 is the other) that improves the US 51 / KY 58 / KY 123 intersection to a desirable LOS in the design year. Therefore, to ensure adequate operating conditions, improved geometrics, and enhanced safety it is recommended that Alternative 2B be included as part of the recommended implementation package (either as a stand alone project or in conjunction with another project).

14.3.4 Alternative 2C – Vicinity of US 51 (Washington St.) and KY 58 (Mayfield Road)

Traffic Operations - The intersection of US 51 (Washington Street) and KY 58 (Mayfield Road) is projected to experience level of service deficiencies (LOS E) by 2010 for the side street approaches based upon the assumed annual growth rate of 1.5 percent. The eastbound and westbound side streets are projected to further degrade to LOS F by 2020 as shown in Table 2 of Appendix G. Improvements considered for the intersection include improving the signing and striping, upgrading the geometrics, installing a flashing beacon, and installing a traffic signal.

The appropriate level of improvement at this intersection was given considerable examination. The high delay movements are limited to the side streets and are only expected during peak periods. The intersection does not currently meet signal warrants. It may exceed the 70 percent threshold (used for isolated communities with populations <10,000) around 2010 assuming traffic grows at a rate of 1.5 percent per year. Installation of a traffic signal will yield LOS C or better for the intersection through the design year of 2030.

Therefore, it may be appropriate to pursue minor geometric and signing improvements in the short term to enhance truck operations and safety. Then if traffic continues to grow, a flashing beacon could be installed to increase safety for traffic turning onto US 51. Only when warranted, should a traffic signal be installed as this will increase delay for US 51 for through traffic as well as for side street traffic during off peak times. However, a signal may ultimately be necessary to provide adequate traffic flow, LOS, and safety.

Environment - Alternative 2C is not likely to impact the natural environment. On the intersection's northwest corner is the First United Methodist Church, which is potentially eligible for the NRHP. However, impacts to this site are also unlikely since the intersection improvements are limited in scope. Located on the northeast corner of the intersection is a service station that could be impacted. This service station has been identified as a potential hazardous material site. The proposed improvements could require acquiring a portion of this corner lot to increase the turning radius, however, it may be impossible to improve the corner radius without impacting access/egress to the gas station pumps (which would require acquisition of the entire parcel). If the cost of this impact is determined to outweigh the benefit of the improved geometrics then the scope of the improvements could be scaled back to maintain access to the gas station. (The district reached a similar decision previously when they improved the southeast corner of the intersection. At that time they decided not to improve the northeast corner because it would require acquisition of the gas station.)

Community - Similar to the other proposed spot improvement alternatives, Alternative 2C has no significant impacts to the community as a whole. The Alternative 2C improvements benefit traffic flow at this intersection only. The only property that is directly affected is the service station on the northeast corner of the intersection.

Alternative 2C has been mentioned by some citizens, with 4 percent of comment form respondents from the first public meeting specifically in favor of it. At the second public meeting, Alternative 2C received an average score of 3.3, similar to the other spot improvements. While public support is not particularly strong, there is no known opposition to this specific alternative.

Implementation / Construction - Right-of-way acquisition is expected to be limited to the service station if new right-of-way is required. The $40,000 construction cost and $100,000 total cost for this alternative is the least cost of the build alternatives. This does not include complete property acquisition for the service station, which is assumed to be avoided to the extent possible. An additional $80,000 to $100,000 should be included if a signal is to be installed.

Alternative 2C Conclusion: Alternative 2C addresses many of the same project goals as Alternative 2B including traffic flow, level of service, safety, truck turning movements, and geometric design. The costs associated with the operational improvements (signing, striping, beacon, and signal) are all very modest. Only the geometric improvements raise issues related to property acquisition. Therefore, it is recommended that some form of Alternative 2C (possibly phased as described) be included in the recommended implementation package either as a stand-alone project or in conjunction with another project.

14.3.5 Alternative 3 – Reconstruct US 51 as a Two-Lane Roadway with Center Two-Way Left Turn Lane

Traffic Operations - Based on the forecasted traffic volumes, the levels of service at the two key intersections in town are expected to drop below the desirable threshold of LOS C in the 2010 - 2020 time frame. Alternative 3 incorporates the improvements proposed for Alternatives 2B and 2C, which will provide LOS C or better at both locations through 2030. (This assumes all three turn lanes are installed at US 51 / KY 58 [W. Clay Street] / KY 123 and a signal is installed when appropriate at US 51/ KY 58 [Mayfield Road].)

No four-lane sections are proposed for US 51 in the study area, as the two-lane US 51 operates at LOS C or better through 2030 without widening to four lanes. However, a center two-way left turn lane with curbs to control access is proposed for south of town to improve traffic flow, safety, and access control in that area.

Reconstruction of US 51 through town is expected to facilitate improved truck operations with wider lanes and increased turning radii at major intersections. While truck traffic will remain on US 51 in town, it will operate on an upgraded facility.

Safety benefits are also expected with the new upgraded highway as a result of wider lanes, wider shoulders, improved sight distance (at Cresap Street), removal of some angled and parallel parking on US 51 and KY 58, continuous sidewalks, partial control access (especially south of town), and construction of shoulders that are safe for bicycle

use. Improving the existing US 51 in these ways will benefit all highway users in the study area, including both through and local traffic.

Environment – The current US 51 alignment passes through a floodplain area and near several ponds, but significant impacts to the natural environmental are unlikely. The only natural environmental concern is the possible widening of three existing stream crossings. However, there are potential issues associated with National Register of Historic Places listed or eligible sites and potentially eligible sites. Many of these were discussed with Alternatives 2A, 2B, and 2C, but there are additional sites located on Beeler Hill (on US 51 south of KY 58 [Mayfield Road]). However, the three potentially eligible sites (19, 20 and 24 shown on Figure 17) are all on the west side of US 51 on Beeler Hill. Therefore, it may be possible to avoid impacts to these properties by shifting the alignment slightly to the east and/or constructing new larger retaining walls on the west side of the street. It is useful to note that the Kentucky Heritage Council typically supports in-town improvement projects compared to bypass projects when the potential cultural historic impacts in town are minimal.

Community - Alternative 3 yields several potential benefits for the local community. Reconstructing US 51 instead of building a bypass maintains the visibility of existing businesses in town. Furthermore, new development is encouraged along the existing highway, including new development south of town where the center turn lane is proposed and where a core of development already exists. Reconstruction of US 51 in town also allows for continuous sidewalks and possible streetscape/landscape treatments to be pursued by the community.

Compared to the bypass alternatives, Alternative 3 requires much less new right-of-way, though any property acquired is likely to be more expensive per acre. Alternative 3 has a moderate amount of public support. Based on comment form responses from the first public meeting, Alternative 3 was rated higher than the bypass alternatives (27 percent versus 5 percent and 20 percent). Based on responses received at the second public meeting, Alternative 3 was given an average score of 2.7, similar to the score for bypass Alternative 6A, but lower than the score for bypass Alternative 9.

The drawbacks of Alternative 3 for the community include the reduction of parking around the courthouse (as with Alternative 2B), the potential for community disruption and traffic congestion during construction, and potential private utility impacts. The cost of the private utility impacts could be significant and these costs could be passed on to local residents through higher utility fees.

Implementation / Construction - For Alternative 3, there is some new right-of-way required for construction, but most of the acquisition would come from farmland and properties in the southern part of the study area – not through town. Utility impacts are expected to be substantial for this alternative since there are water, gas, sewer, and electric lines located close to or in the US 51 right-of-way. The estimated construction only cost for all phases of Alternative 3 is $6.4 million, with a total cost (including right-of-way, utilities, and design) of $13.9 million. These costs are both less than the costs

for the Alternative 6A and 9 bypasses. Alternative 3 also has the option of being divided into phases, thereby distributing the costs over a longer period of time, while still providing some nearer term results.

Alternative 3 Conclusion: Overall, Alternative 3 addresses all seven of the project goals in some manner. It improves safety on the existing highway (for all users); it improves truck operations through town; it directly addresses the level of service issues in town; it preserves downtown business, while still providing some new development opportunities; it improves the highway geometry; it limits property/community/and environmental impacts; and it facilitates connections through town to other regional highways.

Furthermore, it serves the most users (10,900 in the design year); has the lowest construction cost estimate of the three long-term alternatives (Alternatives 3, 6A, and 9); and could easily be phased over time. Alternative 3 is also compatible with the philosophy of maintaining the existing highway system.

Therefore, Alternative 3 is recommended at present as the most appropriate and cost-effective long-term option for improving US 51 in Clinton. Alternative 3 can meet the stated project goals more cost effectively than either Alternative 6A or 9.

14.3.6 Alternative 6A – Far Eastern Bypass Option A

Traffic Operations – As shown in Table 24, Alternative 6A is expected to carry 1,200 ADT in 2030 (with about 900 of these vehicles diverting from US 51). Alternative 6A is estimated to divert nearly 80% of the truck traffic from US 51 in town (560 trucks per day). However, most auto traffic and some truck traffic remains on US 51 because it is local in nature or has at least one local trip end. The peak volume of traffic remaining on US 51 in 2030 is 10,000 ADT, with about 150 trucks per day.

The intersection LOS analysis shows that the bypass alone will not address the LOS deficiencies at the US 51 / KY 58 / KY 123 and US 51 / KY 58 (Mayfield Road) intersections. These intersections both drop to undesirable levels of service in 2020 and 2010 respectively as shown in Table 2 of Appendix G. Therefore Alternatives 2B and 2C or 3 would still be required as part of the Alternative 6A package of improvements to achieve a desirable LOS in town.

Alternative 6A is expected to yield a travel-time savings of approximately one minute over the travel time on the existing US 51 route (from 4.8 minutes to 3.8 minutes). Even on an annual basis, this is a modest savings of approximately 7,300 hours in the design year (5,500 hours if only diverted traffic is considered). Even one of the region's larger shippers (WestVaco) stated, "Bypasses would provide some benefits to our wood fiber haulers in terms of speed and time, but at the distances from which most of our fiber comes, the time savings are not very significant."

From a regional access standpoint, a circulation benefit of Alternative 6A is that it provides a better connection from KY 58 (East) to US 51 both north and south.

Environment - The Alternative 6A corridor runs through primarily undeveloped farmland to the east of Clinton. Impacts to farms within the corridor could be high because several farms may be bisected with the construction of a new highway through the proposed corridor. There are no identified National Register of Historic Places eligible or potentially eligible sites within the corridor, and only one potential hazardous materials site, which could likely be avoided in final design. There are natural environmental features in the corridor such as several streams, farm ponds, and a minimal amount of floodplain. The proposed highway is not expected to significantly impact these features. There is however, the possibility of impacts to a potential Indiana Bat habitat located in the forested areas between KY 58 and US 51.

Community - The Alternative 6A corridor departs from US 51 north of Clinton, crosses KY 123 and KY 58 approximately 1.2 miles from town, and then rejoins US 51 south of town near KY 780 (South). Existing businesses in Clinton would be bypassed since most are located along US 51 in or near town. However, construction of a new highway through undeveloped land would open new parcels for future development. However, as mentioned previously, a new roadway does not necessarily mean new development. In fact, recent University of Kentucky research indicates that while a bypass may cause economic activities to relocate, it may not necessarily lead to economic growth. All that is known at this point is that the opportunity would exist for new development to take place. In addition to the economic changes, approximately 130 acres of new right-of-way is necessary to build the new highway. This represents the greatest amount of new right-of-way of the build alternatives; however the majority would come from farms and fields located well outside residential areas.

Alternative 6A provides an alternate route, avoiding deficiencies in town. However, most auto traffic and some truck traffic is still expected to use the old US 51 because only a small portion of the traffic in town is through traffic. Therefore, while traffic (especially truck traffic) will be reduced through town, in town traffic issues will still exist for the local community.

Some local leaders are in favor of the Alternative 6A bypass, but based on comment form responses there is only modest community support. At the first public meeting this concept received support from only 5 percent of respondents. Then at the second public meeting, comment form respondents gave Alternative 6A a score of 2.6, just below the score given to Alternative 3 and the lowest of all the build alternatives. However, about 23 percent of respondents rated it best as a long-term (20+ years) alternative (most chose Alternative 9).

Implementation / Construction - As mentioned previously, Alternative 6A requires the most new right-of-way of any of the build alternatives. The total construction cost for the entire project is $11.9 million, with a total estimated cost (including right-of-way, utilities, and design) of $19.3 million. This is of the same magnitude as Alternative 9. The cost

for the bypass only is $11.5 million for construction and $18.3 million total. Compared to Alternative 3, minimal utility impacts are expected and there is expected to be less overall disruption to the community since the construction is not focused on developed areas.

Alternative 6A Conclusion: Alternative 6A meets some of the key project goals. It significantly reduces truck traffic through town; it opens new land parcels to development; it provides a new highway meeting current design standards; and it limits impacts to the human environment. However, other aspects of Alternative 6A are in conflict with key project goals including the low traffic volume on the bypass (1,200 ADT in 2030), loss of visibility of businesses through town; a small reduction in travel times through Clinton; insufficient traffic improvements in town (without Alternative 2B); and no improvements benefiting the large volume of traffic that will remain on the old highway. In addition, the cost is high and public support for a far eastern bypass has been modest. For these various reasons Alternative 6A is not recommended for further study at this time. However, Alternative 6A does offer a very feasible bypass corridor. If traffic volumes, especially through traffic volumes increase in the study area, it would be reasonable to revisit the traffic projections and reassess this recommendation.

14.3.7 Alternative 9 – Western Bypass (West of Railroad)

Traffic Operations - Alternative 9 is predicted to carry approximately 2,400 ADT, of which about 2,100 are diverted from US 51. This is approximately double the volume predicted for Alternative 6A. Alternative 9 will also attract the vast majority of truck traffic to the bypass. However, most auto traffic and some truck traffic remains on US 51 because it has at least one local trip end. The peak volume of traffic remaining on US 51 in 2030 is 8,700 ADT, with about 150 trucks per day.

The intersection LOS analysis shows that Alternative 9 alone will not address the LOS deficiencies at the US 51 / KY 58 / KY 123 and US 51 / KY 58 (Mayfield Road) intersections. These intersections both drop to undesirable levels of service in 2020 and 2010 respectively as shown in Table 2 of Appendix G. Therefore Alternatives 2B and 2C or 3 would still be required along with Alternative 9 to achieve a desirable LOS in town.

The estimated travel-time savings for Alternative 9 is the same as for Alternative 6A, approximately one minute less than the travel time on the existing US 51 route (from 4.8 minutes to 3.8 minutes). On an annual basis, this is a savings of approximately 14,600 hours in the design year (12,800 hours if only diverted traffic is considered). As stated previously, the one-minute savings is not very significant from a shipper's viewpoint.

Environment - As shown in Table 25, the potential natural environment impacts associated with Alternative 9 are moderate. There are five streams and two farm ponds in the corridor. The roadway also crosses 1,500 feet of floodplain area for which a no-rise determination may be required. Lastly, there are possible threatened and endangered species habitats in and near the water resources, but there are no known

existing habitat locations in the corridor. With regards to the human environment, there are no known potentially eligible National Register of Historic Places properties. There are however a number of potential hazardous material sites located in the corridor including an industrial site, a photo shop, and the railroad.

Farmland impacts are possible, with some sectioning of fields likely. However, the magnitude of impact to the farming operations to the west of Clinton is expected to be less than for the Alternative 6A corridor east of Clinton.

Community - Alternative 9 bypasses the commercial development in the center of town, but it does not bypass the development south of town. It also serves a small development cluster at the intersection of KY 58 (West) and KY 123 and the development in the vicinity of KY 1728 (Farmers Gin Road). These development clusters and the development south of town could benefit from this alternative. Where the bypass ties into US 51 south of town, there is a local road that serves as an access road for the grocery store, laundromat, and several other businesses. The bypass could be designed to pass through or around this development area, improving access and visibility for these and other nearby establishments.

Compared to Alternative 6A, Alternative 9 is located closer to town (0.7 miles versus 1.2 miles). This proximity could reduce the potential for a decline in downtown business. However, the presence of the railroad could present a barrier.

Aside from providing increased access to southern and western businesses, a new highway west of Clinton may open some new land for development. The portion of this bypass that runs through undeveloped land is not as great as Alternative 6A, but the likelihood for new development may be greater due to the proximity to town, and the presence of other businesses in the vicinity.

Impacts to the community other than economic include the potential for acquisition of one home and approximately 80 acres of right-of-way, mostly from farms and fields west of Clinton. Similar to Alternative 6A, construction of a bypass provides an alternate route for through traffic, but leaves the old US 51 unimproved. Therefore, any geometric and traffic operational issues will remain in town. The proposed corridor for the bypass runs adjacent to an identified Environmental Justice community. While only a portion of the proposed corridor may impact this community, there is still the potential for disproportionate effects to these residents. Therefore, final designs would need to specifically address and minimize community impacts in this portion of the corridor.

Based on responses obtained from comment forms distributed at the second public meeting, Alternative 9 has the highest level of public support of any of the proposed alternatives (long or short-term). It received a score of 3.8, the highest score of any of the alternatives and was selected by a majority of respondents as the preferred long and short-term alternative.

Implementation / Construction - Right-of-way acquisition is expected to be less for Alternative 9 than Alternative 6A, but more than Alternative 3. Utility impacts are possible since this bypass is located closer to town and passes through some developed areas. The construction cost of Alternative 9 is $11.8 million, and the total estimated cost (including right-of-way, utilities, and design) is $20.6 million. This is comparable to Alternative 6, but higher than the other build alternatives. The cost for the bypass only is $8.8 million for construction and $12.9 million total. This is lower than the Alternative 6 bypass due to a shorter length. One aspect that affects the cost of Alternative 9 is the required grade separation railroad crossings. To the west of Clinton runs the Illinois Central railroad line, and in order to construct the proposed new highway in this corridor, two new bridges are required – one at the northern end and one at the southern end.

Alternative 9 Conclusion: Similar to Alternative 6A, Alternative 9 meets some of the project goals. It significantly reduces truck traffic through town; it opens new land parcels to development; it provides a new highway meeting current design standards; and it limits impacts to the human environment. In comparison to Alternative 6A, it also is located closer to town, is predicted to carry higher traffic volumes, and does not bypass all of the businesses in town but improves access to some of them. Alternative 9 also has the highest public support of any alternative. However, Alternative 9 still has low traffic volumes; yields insufficient traffic improvements in town (without Alternative 2B or 2C); has a similar modest per trip travel-time savings; offers no physical improvements for the large volume of traffic that will remain on the old highway; runs adjacent to an Environmental Justice community; involves construction of two bridges over the railroad (which could lead to higher future maintenance costs); and overall costs more to build when including improvements south of the study area boundary. Therefore, the Alternative 9 bypass is not recommended at this time.