

APPENDIX F: EVALUATION METHODOLOGY

Level 1 Evaluation Methodology

The initial screening analysis seeks to apply a few qualitative evaluation measures to all alternatives at the top of the pyramid in order to eliminate from further consideration those alternatives that are infeasible or do not adequately address the project's goals and issues. Sometimes referred to as a "Fatal Flaw" screening, this first level of analysis relies mainly on qualitative criteria. The focus of the analysis is a matrix designed to compare the alternatives in five key areas.

- **Implementation / Construction Feasibility** – How does an alternative compare to the other alternatives with regard to expected costs and constructability?
- **Project Goals** – How does the alternative compare to the other alternatives in terms of addressing the key project goals and issues identified by the public and in the technical analysis?
- **Community Impacts** – How does the alternative compare with regard to community impacts including anticipated property impacts, business impacts, environmental justice issues, traffic impacts, community facility impacts, etc.?
- **Environmental Impacts** - How does the alternative compare to other alternatives with regard to environmental impacts (i.e. does it cross wetlands, floodplains, or other sensitive areas)?
- **Public Support** - How does the alternative compare with regard to public and political support? This includes the results of the first public meeting as well as the Project Work Group and stakeholder meetings held for the project.

In each evaluation area, a qualitative assessment was completed for each alternative. This included answering the above questions qualitatively and comparing the alternatives to each other. The result of this assessment was the assignment of a rating of "Good", "Fair", or "Poor" to each alternative for each category. A rating of "Good" indicates that the alternative is expected to have more positive impacts and/or fewer negative impacts for that evaluation criterion, especially in comparison to the other alternatives. A rating of "Fair" indicates that an alternative will be about average in that category. A "Poor" rating indicates that the alternative is expected to have more negative impacts and/or fewer positive impacts for that evaluation criterion, especially in comparison to other alternatives.

Based on an alternative's ratings across the five categories, a recommendation was made regarding the need for further study in Level 2. The No-Build was used as the benchmark rating. If on average, across the categories, an alternative rated approximately as well as, or better than, the No-Build it was recommended for further study. If, when all five categories were considered it fell below the No-Build, then it was generally not recommended for further study in Level 2.

Level 2 Evaluation Methodology

The focus of this analysis is similar to that used in Level 1 since it uses the same basic analysis categories. However, many subcategories are introduced to provide a detailed comparison of the alternatives. The evaluation categories and subcategories include:

Traffic Operations

1. *Traffic Benefits* – How does the alternative compare to other alternatives with regard to improving traffic flow and travel time (none, low, medium, high)?
2. *2002 and 2030 Average Daily Traffic (ADT)* – How many vehicles per day will use the highway?
3. *Truck Traffic Benefits* – How does an alternative compare to other alternatives with regard to providing improvements for truck traffic flow on US 51 (none, low, medium, high)?
4. *Vehicle/Pedestrian/Bicycle Safety Benefits* – How does the alternative compare to other alternatives with regard to providing safety benefits (none, low, medium, high)?

Environment

1. *Natural Environment* – How many streams, wetlands, floodplains, threatened and endangered species are potentially impacted?
2. *Human Environment* – How many potential archeological sites, historic sites, agricultural districts/farmlands, and hazardous material sites are impacted?

Community

1. *Economic Development Impacts* – How does an alternative compare to the other alternatives in affecting the businesses located on the current US 51 and how does an alternative compare with regard to opportunities for new development (good, fair, poor)?
2. *Buildings Impacted* – How many homes, businesses, or other miscellaneous outbuildings will be removed for construction?
3. *Community Impacts* – How does the alternative compare to the other alternatives with regard to potential property impacts, parking impacts, mobility, and land use disruption (good, fair, poor)?
4. *Environmental Justice* – Does the alternative impact an environmental justice community?
5. *Community Character* – How does the alternative compare to other alternatives with regard to enhancing the community such as providing walking/bicycling paths, or preserving/enhancing community character (good, fair, poor)?

Public Support

1. *Public Support* – Based on input from the first public meeting, Project Work Group meetings, and stakeholder meetings, what percentage of the community favors an alternative or type of alternative?

Implementation / Construction

1. *Construction Feasibility* – For each alternative, what is the level of difficulty for construction (good, fair, poor)?
2. *Construction Length* – What is the total estimated length of construction (in miles) for both in-town and bypass alternatives?
3. *New Right-of-Way Required* – For each alternative, how much new right-of-way (in acres) will need to be acquired?
4. *Potential Utility Impacts* – For each alternative what is the level of potential impact to the existing utilities (good – minimal impact, fair – moderate impact, poor – major impact)?
5. *Cost Estimate* – For each alternative, how does the order of magnitude cost estimate compare to the other alternatives? For this evaluation criterion, two scales are used to compare the costs. Rankings assigned to the Alternative 2 Spot Improvements are: Low < \$500,000 ≤ Medium < \$1 million ≤ High. For the rest of the alternatives, the following scale is applied: Low < \$5 million ≤ Medium < \$8 million ≤ High.

Level 3 Evaluation Methodology

The purpose of the Level 3 evaluation is to complete a more detailed examination of the alternatives remaining after the Level 2 evaluation, leading to the recommendation of a preferred alternative or set of alternatives. Additional data is available at this level for a more definitive comparison of the alternatives. The Level 3 analysis uses the same basic analysis categories as the Level 1 and 2 evaluations, with some further refinement of the subcategories. The detailed Level 3 evaluation criteria include:

Traffic Operations

- Average Daily Traffic (ADT) on US 51 in Town
- Level of Service (LOS)
- Estimated Travel Time from KY 780 (South) to KY 1728 (in minutes)
- Truck Traffic Benefits
- Estimated 2030 Truck Volumes in Town
- Vehicle/Pedestrian/Bicycle Safety Benefits

Environment

- Number of Streams Impacted
- Wetlands Impacted
- Floodplain Impacts
- Threatened and Endangered Species Impacts
- Number of Potentially Historic Sites that May be Impacted

- Potential Agricultural District/Farmland Impacts
- Potential Hazardous Material Sites

Community

- Economic Development Impacts
- Distance (Miles) from Bypass to Center of Town (KY 58 / KY 123 / US 51)
- Buildings / Property Impacts
- Community Impacts
- Environmental Justice Issues
- Community Character
- Public Support

Implementation / Construction

- Construction Length
- Constructability Issues
- New Right-of-Way Required
- Cost Estimate