SOUTHWEST SHEPHERDSVILLE SMALL AREA TRANSPORTATION STUDY

Final Report
October 2008

Prepared for:
City of Shepherdsville, Kentucky

Prepared by:

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### Appendix A Exhibits:
- Exhibit 1: Project Location
- Exhibit 2: Existing Roadway Conditions
- Exhibit 3: Environmental Conditions
- Exhibit 4: Recommended Improvement Alternatives
- Exhibit 5: Conceptual Study Area Rezoning Master Plan
- Exhibit 6: Preliminary Design of Old Ford Road Extension

### Appendix B
- Steering Committee Meeting Minutes

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- Public Meeting Summary

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- KY 1494 (Beech Grove Road) Bypass, Categorical Exclusion
1.0 INTRODUCTION

This study was conducted for the City of Shepherdsville to identify transportation projects that can be implemented to address the current and future travel needs and safety concerns within the study area in southwest Shepherdsville. Qk4 was retained by the City of Shepherdsville as the project consultant. The focus on possible alternatives involves improvements to existing facilities and the construction of additional connections in the study area.

This report was produced in response to the acknowledgement of a collective need to reduce traffic congestion through an increase in connectivity in southwestern Shepherdsville. The complete planning process, including input from city officials as well as the public, was initiated by the local municipal leadership to determine the most effective alternative(s). This study sought to not only address current traffic control issues, but also to effectively plan for the future growth and development of the City of Shepherdsville.

1.1 Planning Process

The planning process included the following tasks:

- Review and evaluate the Kentucky Transportation Cabinet’s (KYTC’s) Highway Information System (H.I.S.) and Collision Reports Analysis for Safer Highways (CRASH) data.
- Collect traffic counts through tubes and conduct turning movements at KY 61/KY 1494.
- Establish a steering committee of local officials and engage the public. The following meetings were held:
  - September 2, 2008 – Steering Committee Meeting 1 to discuss existing conditions, project goals, and broad range of alternatives.
  - September 25, 2008 – Public Informational Meeting to present broad range of alternatives and obtain public comment.
  - October 14, 2008 – Steering Committee Meeting 2 to review input from the public meeting and establish final recommendations.
- Analyze alternatives in regard to public input, costs estimates, impacts, benefits and other issues.
- Develop recommendations and priorities.

1.2 Project Location

This project area is located in the southwest quadrant of the City of Shepherdsville in Bullitt County. The general study area includes the area shown at right, which is composed of the existing major road corridors: Beech Grove Road (KY 1494), Old Ford Road, Reichmuth Lane, Cundiff Lane, KY 61 (S. Preston Highway), and KY 480 (Cedar Grove Road).

![Figure 1: Project Study Area](image)
1.3 Project Goals and Objectives

After a review of the existing conditions during the public informational meeting, the steering committee and the public identified the following goals and objectives to be addressed by any of the proposed alternatives:

- **Goal 1: Improve Safety**
  - Reduce Crashes along KY 61 and KY 1494
  - Remove Stormwater Runoff Over KY 1494
- **Goal 2: Reduce Congestion**
  - Reduce Delay at the KY 61/KY 1494 Intersection and along KY 1494
- **Goal 3: Improve Road Width – Especially Regarding Emergency Vehicle Access**
- **Goal 4: Increase Roadway Interconnectivity**
  - Provide Additional Access Points to/from KY 61 and the Study Area
- **Goal 5: Minimize Environmental Impacts Issues**
  - Avoid Floodplain and Wetlands Impacts for New Roadway Alignments
- **Goal 6: Be Compatible with Future Development within the Study Area**
- **Goal 7: Improve Pedestrian Facilities \ Link Sidewalks**
2.0 EXISTING CONDITIONS

Data on the existing conditions of the three facilities (KY 61, KY 1494, and KY 480) in the study area were taken from the KYTC’s H.I.S. database. Data is illustrated on Table 1 and Exhibit 1 located in the back of this report. Conditions that are considered substandard on Table 1 are highlighted in yellow.

2.1 Average Daily Traffic and Lane Widths

Average daily traffic (ADT) on Beech Grove Road (KY 1494) is around 1,000 vehicles per day (vpd) at the western end of the study area, and increases to over 8,000 vpd just west of KY 61. The volume/capacity (v/c) ratio\(^1\) likewise changes from 0.03 to 0.29.

On KY 61, north of Beech Grove Road, the ADT is approximately 12,000 vpd, south of Beech Grove Road the volume is nearly half, at 6,200 vpd. The turning movements confirm that more southbound traffic moves from KY 61 to Beech Grove Road than continues south. The v/c ratio for KY 61 north and south of Beech Grove Road is 0.43 and 0.22, respectively.

The desirable lane width for the roads in this area is 11 feet, which is the lane width of both KY 61 and KY 480. Beech Grove Road currently has substandard, 9-foot-wide driving lanes with either no shoulders or shoulders no more than 1 foot wide.

2.2 Level of Service

Level of service (LOS\(^2\)) is an index to rate the driving experience, with A as free flowing and F as near total failure. An LOS of C is often considered the threshold for desirable traffic conditions in smaller cities such as Shepherdsville. The worst LOS in this study area is Beech Grove Road with an LOS E. Both KY 61 near KY 480 and KY 480 near I-65 have an LOS D.

2.3 Crash Analysis

Summaries of vehicle crashes occurring during the five-year period (January 1, 2002 – December 31, 2006) were reviewed. Within the study area, 475 crashes have occurred, of which 351 were property damage only occurrences and 124 resulted in one or more injuries. There were no fatalities.

There are 26 segments of KY 61, KY 1494, KY 480 with a Critical Rate Factor (CRF) in excess of 1.0 (illustrated on Table 1 and Exhibit 1). A CRF greater than 1.0 indicates that the segment of roadway has had a statistically significant number of crashes and they are likely not occurring at random. It should be noted that a number of locations along KY 1494 have a CRF well over 1.0, including some over 5.0 and 6.0.

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\(^1\) The v/c ratio is a calculation to determine when capacity is met for a typical road. On average, a two-lane road can adequately handle approximately 1,000 vehicles during the peak hour in each direction. Once the volume is greater than 1,000 the v/c ratio becomes greater than 1.0. The higher the v/c ratio, the more congested the road.

\(^2\) Level of service (LOS) is a qualitative measure of expected traffic conflicts, delay, driver discomfort, and congestion. Levels of service are described according to a letter rating system (similar to school grades) ranging from LOS A (free flow, minimal or no delays – best conditions) to LOS F (stop and go conditions, very long delays – worst conditions). For intersections the Highway Capacity Manual defines levels of service based on the average delay due to the signal or stop control. LOS C corresponds to less than 35 seconds of delay per vehicle at a signalized intersection and less than 25 seconds of delay at an unsignalized intersection.
2.4 KY 61/KY 1494 Intersection

The top traffic problem in the study area is the issue of congestion and safety at the intersection of KY 61 and KY 1494. As KY 1494 is the only access point to KY 61 in the study area, this connection is vital in the increasing population density in the southwest portion of Shepherdsville. Therefore, turning movements and analysis of this intersection was conducted.

The layout of the intersection is substandard because it is at a skew (rather than 90° perpendicular) and access to the commercial development in the northwest quadrant is uncontrolled. The proximity of the slightly skewed intersection of Old Beech Grove Road to the east also contributes to the substandard conditions.

The existing conditions (with substandard conditions highlighted) are tabulated in Table 1 below. The intersection is located at mile post (MP) 13.75 on KY 61 and (MP) 8.01 on KY 1494. In summary, approximately 80% of the traffic turns north from KY 1494 to KY 61, and more than half of the KY 61 traffic turns west onto KY 1494.

Table 1: H.I.S. Base Data Route Information

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<th>Route</th>
<th>Beginning MP</th>
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2.5 Summary

In summary, the traffic on Beech Grove Road has many substandard issues, as follows:

- Significantly high crash rates
- ADT over 8,000 vehicles per day
- LOS E
- 9-foot-wide lanes with no shoulders
- Substandard KY 61 intersection
3.0 STEERING COMMITTEE AND PUBLIC MEETING

3.1 Shepherdsville Steering Committee

A steering committee approach was used, consisting of representatives from the City of Shepherdsville, KYTC – District 5, Kentuckiana Regional Planning and Development Agency (KIPDA), and Qk4. Two steering committee meetings were held during the project at Shepherdsville City Hall, 634 Conestoga Parkway, Shepherdsville, KY, 40165 on September 2, 2008, and October 14, 2008. Each meeting was documented with meeting minutes, which are included in Appendix B. A summary of the major topics discussed at each meeting follows:

1. **September 2, 2008:** At the first steering committee meeting, the type of study was discussed, and the study’s scope and schedule were reviewed. Major topics of discussion included the projects purpose, the general existing conditions, members’ concerns about the area, and a range of improvements to consider. Also, public involvement and a tentative schedule of events were discussed.

2. **October 14, 2008:** At the second meeting, the summary of the public comments was reviewed as well as the project alternatives and recommendations. The major actions discussed included advancement of the short-term projects, and the identification of the next steps to be taken and meetings to be held.

3.2 Public Informational Meeting

A public informational meeting was held in an open house format at Shepherdsville City Hall on September 25, 2008. This meeting was conducted to (1) inform the public about the options for improving traffic in the southwest Shepherdsville study area, and (2) to receive public input/comments about which improvements they would prefer. Citizens were provided a handout consisting of a project fact sheet summarizing the study purpose, issues, and draft project goals; and a comment form to submit.

A staffed information table with a sign-in sheet was present at the entrance, and the handout/comment forms were distributed to attendees. The meeting began at 6:30 p.m. at the Shepherdsville City Hall. Several exhibits on display illustrated the alternative improvements including both short-term spot improvements and long-term new corridors. Staff members from the City of Shepherdsville, KIPDA, and Qk4 were available to answer questions and elicit comments and discussion.

Sixty (60) people attended the meeting and signed the sign-in sheet. Forty-four (44) of the pre-printed comment forms were returned representing fifty-two (52) people. A summary of the public input received at the meeting and afterwards is included in Appendix C.
4.0 ALTERNATIVES ANALYSIS AND RECOMMENDATIONS

Throughout the planning study the following types of projects were identified: Immediate, Short-Term, Mid-Term, and Long-Term, as follows. The recommended actions are described below, and the recommended short-, mid-, and long-term projects are illustrated on Exhibit 4 in Appendix A. Table 2 summarizes the recommended alternatives that are discussed below and are numbered according to prioritization as they are in the table.

4.1 All Alternatives Studied

4.1.1 Immediate Projects

Five immediate projects were identified and included herein. They are listed and described in Table 2 in Section 4.2, below. In summary they include:

1. A request that KYTC evaluate the installation of signage and raised pavement markings at the curve on KY 1494 near Old Ford Road.

2. The removal of vegetation to improve sight distance at the intersection of Reichmuth Lane and KY 1494.

3. A meeting with the owners of the commercial business (Pickles Convenience Store) at KY 1494 and KY 61 to discuss alternatives to roadside parking and obtrusive signage in front of the store at the intersection of Beech Grove Road (KY 1494) and KY 61.

4. The initiation of a speed enforcement “blitz” along KY 1494 by the City police to suppress speeding and reduce speed-related crashes that contribute to the high CRF at several locations.

5. The application by the City to rezone the land south of KY 1494, between Cundiff and KY 61, to a more intense land use. In the recent past, proposed developments of this land have occurred, which would require rezoning. As this area has many of the necessities for development—water and sewer service, access to KY 61, and is outside the floodplain—future proposals to develop the land are likely. A proactive rezoning would provide more guidance and marketability for any future development in this area.

A proactive approach to the future land use management could provide for a very favorable mixed use development. This area could consist of neighborhood-scale commercial development to serve the residential areas, light industrial for employment, and open space for recreation. The benefits of a mixed-use development are reduced trips, increased walking and bicycling opportunities, and increased property values. In the future, access would be provided via the new connector road (See Project 8 below) joining KY 61 with Cundiff Lane and the Lakes of Dogwood Subdivision. This could be complemented with a multi-use trail to join the various land uses. A possible conceptual suggestion is included below and in Appendix A, Exhibit 5.
4.1.2 Short-Term Projects

Short-Term Projects Advanced / Recommended

6. Rebuild and Extend Old Ford Road from KY 1494 to KY 61

In 2006 this 0.6-mile-long project was being advanced by the City. The design was completed and most of the right-of-way has been acquired. The design of this project is included in Appendix D and is shown below. This design would make this extension the through movement from farther west on KY 1494.

This project was selected to be advanced as the Short-Term priority because it would address several needs, as follows: It would provide for a second and signalized intersection with KY 61 for some (but not all) of the study area; it would move most of the traffic from the high crash and high congestion section of KY 1464 (between Old Ford Road and KY 61); it would provide a second access point to the Oak Grove Road Subdivision; it would provide access to the wastewater treatment plant. If the option to install a traffic signal at KY 61 and KY 1464 (as described below) were to be advanced instead of this option, Old Ford Road from KY 1494 to the wastewater treatment plant would still need to be reconstructed, as would KY 1494 between Old Ford Road and KY 61.

The cost estimate for this project is $1.95 million, which does not include the $300,000 that has already been spent by the City for design and right-of-way...
acquisition. It should be noted that on December 5, 2006, KYTC approved a Categorical Exclusion (Level-1) for this project, thereby satisfying the National Environmental Policy Act (NEPA) requirements, which is a major factor in enabling the project to qualify for federal funding. This document is included in Appendix D.

Short-Term Projects Not Advanced or Recommended

Install a Traffic Signal at KY 61/KY 1494

This project would include installing a traffic signal at this location, realigning the intersection (as shown), constructing turn lanes on both roads, and closing Old Beech Grove Road to the east.

As part of this planning study a Signal Warrant Analysis for this intersection was conducted. In summary, the intersection meets warrants for both Safety
Southwest Shepherdsville Small Area Transportation Study

and Traffic Volume. The analysis indicates that the capacity of this intersection would improve. The cost estimate for implementing this project is: $300,000, including right-of-way acquisition.

Despite the fact that most public comments supported this project, this project is not recommended to be advanced because it is less desirable than the reconstruction and extension of Old Ford Road to KY 61. Specifically, if this signal were installed, KY 1494 would still need to be reconstructed between KY 61 and Old Ford Road. Old Ford Road would also need to be reconstructed between KY 1494 and the wastewater treatment plant. The need to acquire right-of-way and relocate underground utilities would cause this project to take longer than anticipated. Further, this project would not meet the goal of providing a second access to KY 61.

Reopen Salt River Plant Drive Road as a One-Way Street from KY 1494 to KY 61

In the recent past the City closed Salt River Plant Drive. Public comments received during this planning study indicate that a benefit to overall traffic flow could be achieved by reopening this road as a one-way street to allow right-turning southbound traffic to exit KY 1494 and quickly access KY 61.

Because most of the traffic is turning north, and because the top priority is to reconstruct and extend Old Ford Road to KY 61, it is recommended that opening Salt River Plant Drive as a one-way southbound road should only be considered after the Old Ford Road is extended to KY 61, a traffic light and right-turn lanes are installed at the intersection, and follow-up traffic reconnaissance is conducted. It is anticipated that providing right-turn lanes on Old Ford Road and retaining existing KY 1494 for local access would offer the same benefit as opening Salt River Plant Drive—i.e., the ability to turn south onto KY 61.

4.1.3 Mid-Term Projects

Mid-Term Projects Advanced / Recommended

7. Construct Sidewalks along South Side of KY 1494

Sidewalks currently exist along more than half of the south side of KY 1494, but they are not continuous. When the City implemented sidewalks in the recent past, some landowners would not allow an easement for construction. Pedestrians “bridging” the gaps have worn dirt paths across several private properties. It is recommended that sidewalk construction be continued to close the gaps and provide pedestrians with continuous, safe, and legal access. The two largest segments that have the highest need for sidewalks are from South Shore Drive approximately 1,400 feet east; and between Cundiff Lane west approximately 1,600 feet to Dogwood Run. The sidewalk construction would include piping and filling in ditches in some places. The total estimated project cost is $731,000. There would be additional costs to construct shorter sidewalk segments needed at several locations.
8. **Construct a Connector Road on New Alignment Joining KY 61 to the Lakes of Dogwood Boulevard and Reconstruct Cundiff Lane to KY 1494**

   This option would create added interconnectivity for the residential areas to the west of KY 61, particularly the Lakes of Dogwood Subdivision. In addition, this option would remove traffic from Beech Grove Road by providing additional access to KY 61. It is compatible with future development in a predominantly agriculture area and is also out of the floodplain. However, there is concern that this alternative could present some significant right-of-way impacts, especially if it is extended to the Lakes of Dogwood Subdivision. Because of the relatively flat terrain and development interest in this land in the recent past, the potential exists for implementing this project via a public-private partnership. Specifically, should any development be proposed in this area, the City may require the developers to construct part or all of the road and then dedicate it to the City. The estimated construction cost for this 0.68-mile project is $1.19 million.

### 4.1.4 Long-Term Projects

**Long-Term Projects Advanced / Recommended**

9. **Rebuild Beech Grove Road from Shulthise Lane to Old Ford Road**

   To remedy the current safety and congestion deficiencies in Beech Grove Road, it should be reconstructed with wider shoulders and intersection improvements. After Project 6 is completed, this project would need to be constructed from the western terminus of Old Ford Road (MP 7.49) west to approximately Shulthise Lane (MP 6.17). The estimated project cost is $4.46 million. Some issues to be dealt with include traffic maintenance during construction, utility relocations, and right-of-way acquisitions. This project should not be advanced until Project 8 is implemented; otherwise, maintenance of traffic would be extremely complex.

10. **Conduct a Design and Feasibility Study of a New Shepherdsville Bypass Incorporating KY 480 with a Railroad Overpass.**

    Much discussion and consideration of an extension of KY 480 west from KY 61, including a railroad overpass, has occurred during this planning process. Because this would be a very expensive option with more long-term benefits than short-term, it is recommended that a Shepherdsville Bypass Study be advanced as Project 10. It is the recommendation of this plan, therefore, that a design and feasibility study of a bypass should be implemented to consider its overall costs, benefits, and alignment options.

    The scope of the bypass study should include traffic forecasting/modeling, environmental analysis, public involvement, and alignment analysis. The end product should identify the project goals and objectives / purpose and need, an analysis of alignments (including the best crossing of the Salt River), and cost estimates; and recommend priority sections of independent utility.
One such section could be from the KY 480/KY 61 intersection west to KY 1494 west of Reichmuth Lane, as shown on Exhibit 4 in Appendix A. Concerns with this segment are the high costs and vertical challenge of bridging the CSX railroad as well as floodplain impacts. A new interchange with KY 61 and I-65 is currently included in the KIPDA Long-Range Plan. This interchange concept should be included in the bypass study.
4.2 All Projects Recommended for Advancement:

<table>
<thead>
<tr>
<th>Project</th>
<th>IMMEDIATE PROJECTS</th>
<th>Type</th>
<th>Sponsor</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beech Grove Rd. and Old Ford Rd. Curve</td>
<td>Request KYTC evaluation for revised signage and raised pavement markings at the Beech Grove Road (KY 1494)/Old Ford Road Curve; examples below:</td>
<td>Signage and Pavement Markings</td>
<td>KYTC</td>
<td>&lt;$10,000</td>
</tr>
<tr>
<td>Beech Grove Rd. at Reichmuth Ln.</td>
<td>To improve sight distance, maintain vegetation at the intersection of Beech Grove Road (KY 1494) and Reichmuth Lane.</td>
<td>Maintenance</td>
<td>KYTC</td>
<td>N/A</td>
</tr>
<tr>
<td>Sign Removal</td>
<td>To improve sight distance, consult with Pickles convenience store regarding roadside parking and obtrusive signage in front of the store at the intersection of Beech Grove Road (KY 1494) and KY 61.</td>
<td>Signage</td>
<td>City</td>
<td>N/A</td>
</tr>
<tr>
<td>Speed Enforcement “Blitz”</td>
<td>To mitigate the dangerous effects of speeding on Beech Grove Road (KY 1494) and surrounding vicinity, initiate a speed enforcement “Blitz.”</td>
<td>Policy</td>
<td>City</td>
<td>N/A</td>
</tr>
</tbody>
</table>
**IMMEDIATE PROJECTS**

<table>
<thead>
<tr>
<th>Project</th>
<th>Type</th>
<th>Sponsor</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Rezoning</td>
<td>Policy</td>
<td>City/County</td>
<td>N/A</td>
</tr>
<tr>
<td>Notes/Activity Completed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Consider an area wide multi-use rezoning to provide a framework to guide future development of the land south of KY 1494, between Cundiff and KY 61; consisting of commercial, industrial, residential, and open space to be linked with a new connector road and a multi-use trail. See Exhibit 5 in Appendix A.

**SHORT-TERM PROJECTS**

<table>
<thead>
<tr>
<th>Project</th>
<th>Type</th>
<th>Sponsor</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Ford Rd. Connector Construction</td>
<td>Reconstruction</td>
<td>KYTC</td>
<td>D $150,000  R $100,000  U $200,000  C $1.5M  T $1.95M</td>
</tr>
<tr>
<td>Notes/Activity Completed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Reconstruct Old Ford Road from the curve at Beech Grove Road as a connector to KY 61 with signalized intersection at KY 61 intersection. See Exhibit 6 in Appendix A.
### MID-TERM PROJECTS

<table>
<thead>
<tr>
<th>Project</th>
<th>MIDTERM PROJECTS</th>
<th>Type</th>
<th>Sponsor</th>
<th>Cost</th>
</tr>
</thead>
</table>
| **7** Beech Grove Rd. Sidewalk Connections | Install sidewalk connections with drainage improvements on south side of Beech Grove Road: from near Overhead Door west to South Shore Drive (1,400 feet); from Cundiff west to Dogwood Run (1,600 feet); and other discontinuous areas (<500 feet) as needed. | Construction | City     | D $56,000  
R $85,000  
U $30,000  
C $560,000  
T $731,000 |
| **Notes/Activity Completed** |                                                                                  |            |         |            |
| **8** Cundiff Ln. Connector to KY 61 | Construct a connector from KY 61 to the Lakes of Dogwood Boulevard, and reconstruct Cundiff Lane to KY 1494; consider Public-Private partnership with future developer. | Construction | City     | D $84,000  
R $140,000  
U $50,000  
C $920,000  
T $1.19M |
| **Notes/Activity Completed** |                                                                                  |            |         |            |

### LONG-TERM PROJECTS

<table>
<thead>
<tr>
<th>Project</th>
<th>LONG-TERM PROJECTS</th>
<th>Type</th>
<th>Sponsor</th>
<th>Cost</th>
</tr>
</thead>
</table>
| **9** Beech Grove Rd. Reconstruction | Rebuild Beech Grove Road (KY 1494) from Shulthise Lane (MP 6.17) to Old Ford Road (MP 7.49) | Reconstruction | KYTC   | D $260,000  
R $1.3M  
U $300,000  
C $2.6M  
T $4.46M |
| **Notes/Activity Completed** |                                                                                  |            |         |            |
| **10** Shepherdsville Bypass with RR Bridge | Conduct preliminary design / feasibility study for a Shepherdsville Bypass that connects with KY 480 (with Bridge over RR), and identify sections of independent utility. | Study      | KYTC    | $100,000 to $300,000 |
| **Notes/Activity Completed** |                                                                                  |            |         |            |