Executive Summary – Danville SUA Study

Introduction and Study Area

The Kentucky Transportation Cabinet (KYTC) identified the need to perform a Small Urban Area (SUA) study for the City of Danville, Kentucky and a portion of the surrounding unincorporated area of Boyle County. SUA studies are performed for populations of 5,000 to 50,000. The purpose of an SUA study is to identify and examine transportation issues related to safety, congestion, and operations in the study area, and to develop a list of projects to improve those conditions in the study area.

In November 2011, a meeting was held with the KYTC and representatives from Danville / Boyle County to discuss a list of projects they had determined would be beneficial for the community. The KYTC decided to prepare a county-level travel demand model to test these projects and determine what the impact would be on traffic volumes with and without these projects. Following the completion of the model, it was noted by KYTC that a SUA study would be an appropriate follow-up to this project evaluation process with the model, and the model could be a resource to use for evaluating other projects. In May 2013, the KYTC contracted with the consulting firm of Parsons Brinckerhoff (PB) to perform the study through their Statewide Planning Services contract. The Project Development Team (PDT) consisted of: KYTC Central Office Division of Planning, KYTC District 7, the Bluegrass Area Development District (BGADD) and Parsons Brinckerhoff.

Existing Conditions

Existing highway characteristics and geometrics, traffic volumes, truck traffic, speed, levels of service (LOS) / capacity, and crash numbers, rates and types were evaluated as part of the existing conditions analysis. The key transportation issues identified from this analysis are summarized below:

- Major roadways in the study area, such as US 127, US 150, US 127 / 150B and KY 34 currently have high traffic volumes (15,000 to 20,000-plus average daily traffic volumes).
- Roadways such as US 127, US 127B, US 150 and US 150B have high truck percentages (sections with 16-19 percent trucks).
- Sections of US 150, KY 34, and KY 3366 currently operate at a LOS E or F.
- The majority of roadways in the study area have segments with a critical crash rate factor greater than one.
- Rear end crashes are the most common type of crash on seven of the thirteen US and KY routes in the study area.

Both human and natural environment overviews were performed as part of the existing conditions analysis. Aquatic resources such as rivers, creeks and floodplains exist in the study area. There is also the potential for karst topography. Several species of bats and mussels that are classified as threatened, rare and / or endangered occur in the study area. There are 31 locations listed on the National Register of Historic Places in Danville. Because the majority of project types under evaluation are improvements to

existing transportation facilities, it is unlikely that there will be many additional adverse impacts of significance to either the natural or human environments that would prevent one or more of the identified projects from proceeding in further project development phases.

The Environmental Justice (EJ) review showed that there are several areas within the study area with significant minority and/or low-income populations. At this time, the EJ populations are not expected to bear disproportionate adverse affects as a majority of the projects selected fall within the existing right of way. However, more in-depth study during the next phases of project implementation is necessary to confirm this.

The geotechnical review noted that karst features and sinkholes may be encountered in the study area, as well as faulted areas. These features could impact some of the identified projects, but are not so adverse as to preclude further project development stages.

Public Involvement

For the Danville SUA study, there was an active and engaged public involvement component. Two meetings were held with the local officials / stakeholders (LO/S). The first meeting solicited feedback regarding potential transportation issues in the study area. The second meeting was held to present the list of projects designed to address the transportation needs of the area and to gain feedback regarding prioritization of these projects. Both meetings were well-attended with an engaged group of representatives. Their input helped further the study and ensured that the needs of the community are represented in the outcomes.

Alternatives Development and Evaluation

A detailed, multi-step process was used to develop and evaluate potential projects for the Danville area. The process included technical analysis of the existing conditions review, input from the PDT, input from the LO/S, and field reviews.

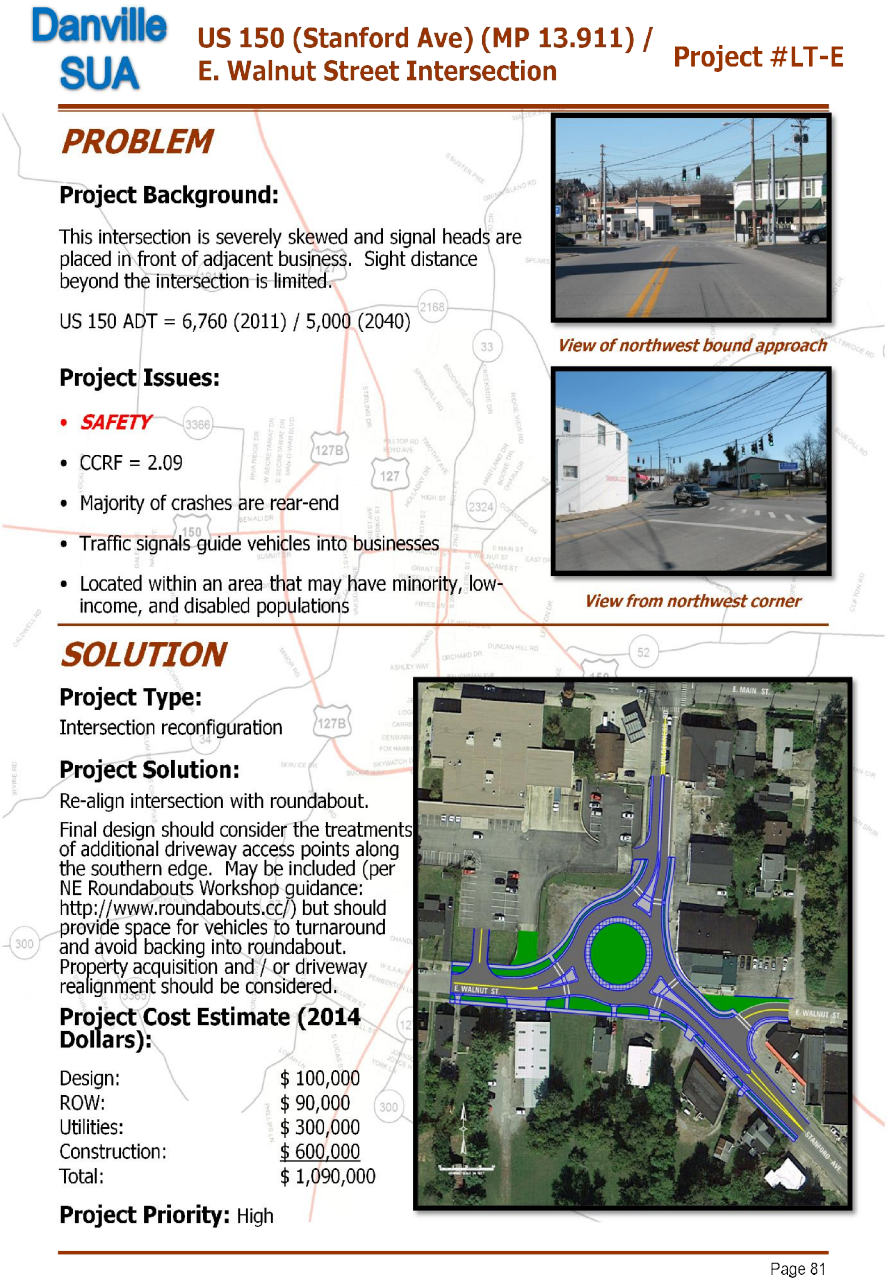
A range of area transportation issues were identified such as poor sight distance, difficulty entering the highway, driver unfamiliarity with the area, lack of or unclear signage, poor aesthetics, congestion, incomplete pedestrian network, high crash rate spots and segments, flooding, lack of turn lanes, poor lane utilization, awkward intersection geometrics and signal timings. Locations where these issues occurred were identified and a list of appropriate projects to address them were developed. Projects were classified as:

- L - Local (to be funded using local funds)
- ST - Short-Term (could be completed quickly with safety, maintenance, or other funds / combinations)
- LT - Long-Term (projects that could be considered for inclusion in the KYTC's Six Year Highway Plan or projects that may have significant impacts / future design complications).

These projects recommended geometric realignment / reconfiguration, aesthetic treatments, sidewalk / path network, traffic signal adjustment, signage, signal timing, additional study, safety improvements, major widening, new road construction, turn lanes, access management and / or community education / communication, as needed.

For each project, a stand-alone project sheet was developed to provide all necessary information for future project development. **Figure ES 1** shows an example project sheet.

Figure ES 1: Example Project Sheet



Prioritization

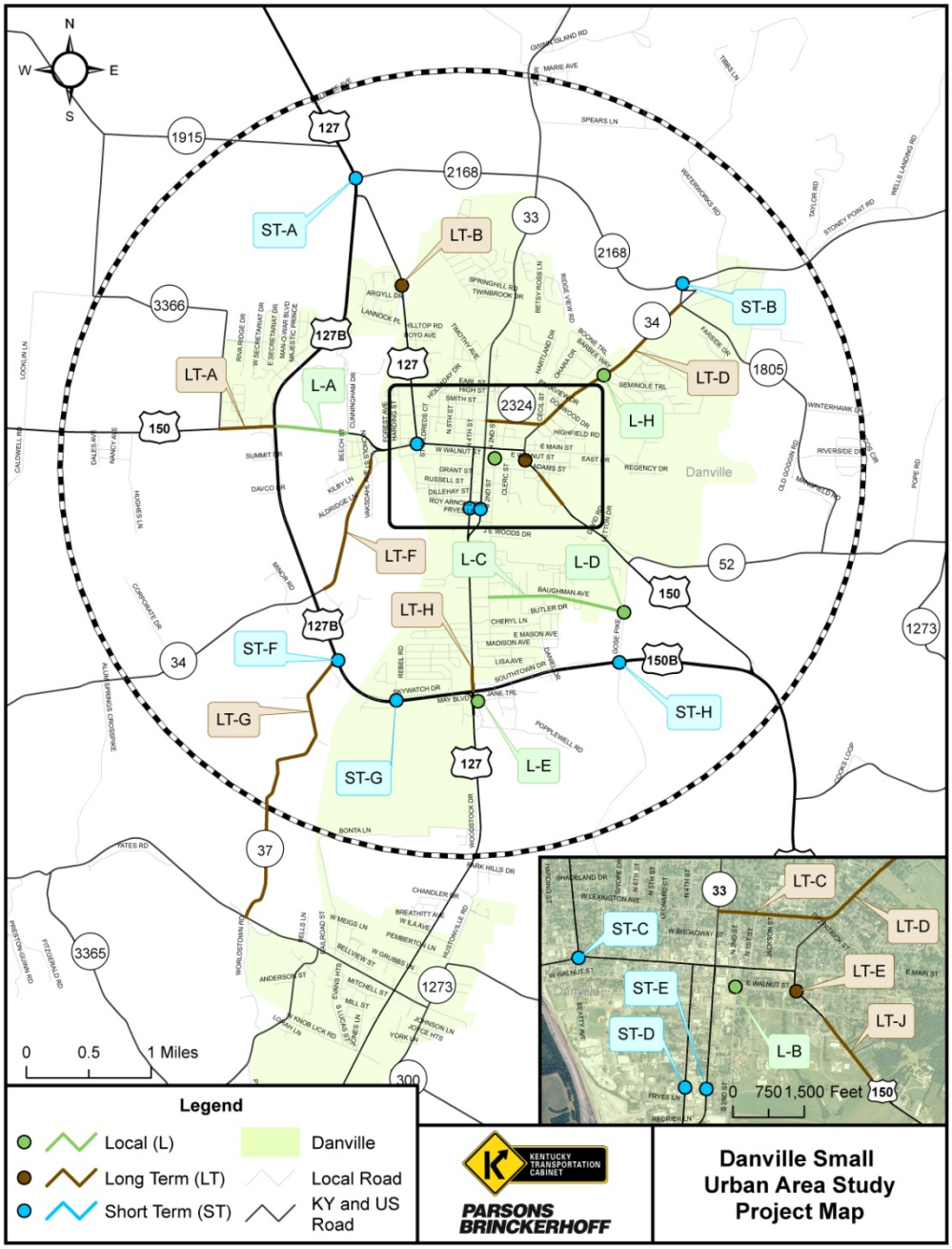
Based on the scoring exercise with the local LO/S and meetings with the PDT, the Local, Short-Term and Long-Term projects were prioritized as outlined in the following table and figure (**Table ES 1 and Figure ES 2**).

Table ES 1: Project Recommendation and Prioritization

Project Type	Project ID	Project Description	Cost Estimate* (2014 Dollars)	Priority
Local	L-C	Add sidewalk along north side of Baughman Ave	$395,000	High
	L-D	Gose Pike / Baughman Ave: NB left turn lane and new signage	$280,000	High
	L-A	10-foot multi-use path on north side of US 150	$174,000	Medium
	L-E	Crosswalk and sidewalk connectivity throughout Wal-Mart shopping area	$530,000	Medium
	L-F	New lighting FAQ and procedure to gain KYTC approval for install	Not Applicable	Medium
	L-H	KY 34 / Seminole Trail: Re-align Barbee Way and re-stripe for defined turn lanes on KY 34	$400,000	Medium
	L-B	2nd St / E. Walnut St: Extend curb lines on corners	$90,000	Low
	L-G	Bicycle Master Plan; map / brochure development	Study Only: $150,000	Low
Short-Term	ST-B	KY 34 / KY 2168 & KY 34 / KY 2168: Truck route signage	$3,000	High
	ST-A	KY 2168 / US 127: Signal warrant analysis	Not Applicable	Medium
	ST-C	US 127 / Maple Ave: Re-stripe and re-align WB approach	$52,000	Medium
	ST-D	US 127 (S 4th St) / Fackler St: Stop bars on side streets	$1,500	Low
	ST-E	US 127 (S 3rd St) / Fackler St: Stop bars on side streets	$1,500	Low
	ST-F	US 127B / KY 37: Review / revise traffic signal timing, phasing and signage	Not Applicable	Low
	ST-G	US 127B / Smoky Way: Signal warrant analysis and access management for Fireside Dr	$27,000	Low
	ST-H	US 150B / Gose Pike: Signal operation to coordinate with the Daniel Dr traffic signal	Not Applicable	Low
Long-Term	LT-E	US 150 / E. Walnut St: Re-align intersection with a roundabout	$1,090,000	High
	LT-H	US 127 Corridor: Turn lanes, access management, and median delineators	$440,000	High
	LT-J	KY 52 / Admiral Stadium: Lane markings and 12-foot ditch for drainage	$655,000	High
	LT-A	US 150 Corridor: Median, turn lanes, and signal warrant analysis	$685,000	Medium
	LT-B	US 127 / Argyll Dr: Upgrade drainage and clear ditch line	$345,000	Medium
	LT-C	KY 2324 Corridor: Turn lanes at KY 33 intersection and bicycle lanes along corridor	$104,000	Medium
	LT-F	KY 34 Corridor: Widen and re-align access to US 150 (KY 52)	$3,000,000	Medium
	LT-D	KY 34 Corridor: Median, limit turns, realign KY 2324 intersection, and improve sidewalks	$149,000	Low
	LT-G	KY 37 Corridor: High friction pavement applications, re-align curves and add pavement	$2,210,000	Low
	LT-I	Study additional feasible rail crossing locations in the City of Danville	Study Only: $250,000	Low

*Includes Design, Right-of-Way, Utilities, and Construction Costs as applicable for each project.

Figure ES 2: Project Recommendation



The City of Danville and / or Boyle County will be responsible for further project development for Local projects. Short-Term and Long-Term projects are candidates for inclusion in one or more programming and planning documents: unscheduled needs list, Transportation Improvement Programs, District Transportation Plan, and / or the KYTC's Six Year Highway Plan. More discussion among project participants and sponsors is needed, especially with regard to project funding and timing in order to advance one or more of these identified projects.