Appendix A -- Form A for SOQ

FORM A

WORK HISTORY FORM

List up to five projects completed by the Proposer's Lead Contractor or Sub-Contractors and up to five projects completed by the Proposer's Lead Designer or Sub-Consultants with a brief description of each project. Include work by firms or joint-venture members which best illustrates current qualifications relevant to this project. Projects listed should be completed or substantially completed. Specify if noted Cost of Project is Design Cost or Construction Cost. List not more than 10 projects. Note: Firms listed are subject to Section 13.1.2.1.

PROJECT NAME, LOCATION, AND DESCRIPTION	NAME OF FIRM AND NATURE OF FIRM'S RESPONSIBILITY	FIRM'S PROJECT MANAGER	PROJECT OWNER'S NAME AND ADRESS; OWNER'S PROJECT MANAGER'S NAME, PHONE NUMBER AND EMAIL	ACTUAL OR ESTIMATED COMPLETION DATE	COST OF PROJECT	COST OF WORK FOR WHICH FIRM WAS RESPONSIBLE

PROJECT NAME, LOCATION, AND DESCRIPTION	NAME OF FIRM AND NATURE OF FIRM'S RESPONSIBILITY	FIRM'S PROJECT MANAGER	PROJECT OWNER'S NAME AND ADRESS; OWNER'S PROJECT MANAGER'S NAME, PHONE NUMBER AND EMAIL	ACTUAL OR ESTIMATED COMPLETION DATE	COST OF PROJECT	COST OF WORK FOR WHICH FIRM WAS RESPONSIBLE

Appendix B -- DBE Conditions

Appendix B -- DBE Conditions

DBE PARTICIPATION PLAN

Lowest responsive bidders must submit the *DBE Plan/ Subcontractor Request*, form TC 14-35 DBE, within 5 days of the letting. This is necessary before the Awards Committee will review and make a recommendation. The project will not be considered for award prior to submission and approval of the apparent low bidder's DBE Plan/Subcontractor Request.

The DBE Participation Plan shall include the following:

- Name and address of DBE Subcontractor(s) and/or supplier(s) intended to be used in the proposed project;
- Description of the work each is to perform including the work item , unit, quantity, unit price and total amount of the work to be performed by the individual DBE. The Contract Identification Number (CID), Category Number, and the Project Line Number can be found in the "material listing" on the Construction Procurement website under the specific letting;
- The dollar value of each proposed DBE subcontract and the percentage of total project contract value this represents. DBE participation may be counted as follows;
 - If DBE suppliers and manufactures assume actual and contractual responsibility, the dollar value of materials to be furnished will be counted toward the goal as follows:
 - The entire expenditure paid to a DBE manufacturer;
 - 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to the public, maintain an inventory and own and operate distribution equipment; and
 - The amount of fees or commissions charged by the DBE firms for a bona fide service, such as professional, technical, consultant, or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, supplies, delivery of materials and supplies or for furnishing bonds, or insurance, providing such fees or commissions are determined to be reasonable and customary.
 - The dollar value of services provided by DBEs such as quality control testing, equipment repair and maintenance, engineering, staking, etc.;
 - The dollar value of joint ventures. DBE credit for joint ventures will be limited to the dollar amount of the work actually performed by the DBE in the joint venture;
- Written and signed documentation of the bidder's commitment to use a DBE contractor whose participation is being utilized to meet the DBE goal; and
- Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment.

UPON AWARD AND BEFORE A WORK ORDER WILL BE ISSUED

Contractors must submit the signed subcontract between the contractor and the DBE contractor, the DBE's certificate of insurance, and an affidavit for bidders, offerors, and contractors from the DBE to the Division of Construction Procurement. The affidavit can be found on the

Construction Procurement website. If the DBE is a supplier of materials for the project, a signed purchase order and an affidavit for bidders, offerors, and contractors must be submitted to the Division of Construction Procurement.

Changes to DBE Participation Plans must be approved by the Cabinet. The Cabinet may consider extenuating circumstances including, but not limited to, changes in the nature or scope of the project, the inability or unwillingness of a DBE to perform the work in accordance with the bid, and/or other circumstances beyond the control of the prime contractor.

CONSIDERATION OF GOOD FAITH EFFORTS REQUESTS

If the DBE participation submitted in the bid by the apparent lowest responsive bidder does not meet or exceed the DBE contract goal, the apparent lowest responsive bidder must submit a Good Faith Effort Package to satisfy the Cabinet that sufficient good faith efforts were made to meet the contract goals prior to submission of the bid. Efforts to increase the goal after bid submission will not be considered in justifying the good faith effort, unless the contractor can show that the proposed DBE was solicited prior to the letting date. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted. One complete set and nine (9) copies of this information must be received in the office of the Division of Contract Procurement no later than 12:00 noon of the tenth calendar day after receipt of notification that they are the apparent low bidder.

Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a sample representative letter along with a distribution list of the firms solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Cabinet considers in judging good faith efforts. This documentation may include written subcontractors' quotations telephone log notations of verbal quotations, or other types of quotation documentation.

The Good Faith Effort Package shall include, but may not be limited to information showing evidence of the following

- Whether the bidder attended any pre-bid meetings that were scheduled by the Cabinet to inform DBEs of subcontracting opportunities;
- Whether the bidder provided solicitations through all reasonable and available means;
- Whether the bidder provided written notice to all DBEs listed in the DBE directory at the time of the letting who are prequalified in the areas of work that the bidder will be subcontracting;
- Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainly whether they were interested. If a reasonable amount of DBEs within the targeted districts do not provide an intent to quote or no DBEs are prequalified in the subcontracted areas, the bidder must notify the DBE Liaison in the Office of Minority Affairs to give notification of the bidder's inability to get DBE quotes;
- Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise perform these work items with its own forces;

- Whether the bidder provided interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract;
- Whether the bidder negotiated in good faith with interested DBEs not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached;
- Whether quotations were received from interested DBE firms but were rejected as unacceptable without sound reasons why the quotations were considered unacceptable. The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in itself be considered as a sound reason for rejecting the quotation as unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a DBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE goals;
- Whether the bidder specifically negotiated with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be subcontracted includes potential DBE participation;
- Whether the bidder made any efforts and/or offered assistance to interested DBEs in obtaining the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal; and
- Any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include DBE participation.

FAILURE TO MEET GOOD FAITH REQUIREMENT

Where the apparent lowest responsive bidder fails to submit sufficient participation by DBE firms to meet the contract goal and upon a determination by the Good Faith Committee based upon the information submitted that the apparent lowest responsive bidder failed to make sufficient reasonable efforts to meet the contract goal, the bidder will be offered the opportunity to meet in person for administrative reconsideration. The bidder will be notified of the Committee's decision within 24 hours of its decision. The bidder will have 24 hours to request reconsideration of the Committee's decision. The reconsideration meeting will be held within two days of the receipt of a request by the bidder for reconsideration.

The request for reconsideration will be heard by the Office of the Secretary. The bidder will have the opportunity to present written documentation or argument concerning the issue of whether it met the goal or made an adequate good faith effort. The bidder will receive a written decision on the reconsideration explaining the basis for the finding that the bidder did or did not meet the goal or made adequate Good Faith efforts to do so.

The result of the reconsideration process is not administratively appealable to the Cabinet or to the United States Department of Transportation.

The Cabinet reserves the right to award the contract to the next lowest responsive bidder or to rebid the contract in the event that the contract is not awarded to the low bidder as the result of a failure to meet the good faith requirement.

SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT

Failure by the prime contractor to fulfill the DBE requirements of a project under contract or to demonstrate good faith efforts to meet the goal constitutes a breach of contract. When this occurs, the Cabinet will hold the prime contractor accountable, as would be the case with all other contract provisions. Therefore, the contractor's failure to carry out the DBE contract requirements shall constitute a breach of contract and as such the Cabinet reserves the right to exercise all administrative remedies at its disposal including, but not limited to the following:

- Disallow credit toward the DBE goal;
- Withholding progress payments;
- Withholding payment to the prime in an amount equal to the unmet portion of the contract goal; and/or
- Termination of the contract.

PROMPT PAYMENT

The prime contractor will be required to pay the DBE within seven (7) working days after he or she has received payment from the Kentucky Transportation Cabinet for work performed or materials furnished.

CONTRACTOR REPORTING

All contractors must keep detailed records and provide reports to the Cabinet on their progress in meeting the DBE requirement on any highway contract. These records may include, but shall not be limited to payroll, lease agreements, cancelled payroll checks, executed subcontracting agreements, etc. Prime contractors will be required to complete and submit a signed and notarized affidavit (TC 18-7) and copies of checks for any monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. These d o c u m e n t s must be submitted within 10 days of being paid by the Cabinet.

Payment information that needs to be reported includes date the payment is sent to the DBE, check number, Contract ID, amount of payment and the check date. Before Final Payment is made on this contract, the Prime Contractor will certify that all payments were made to the DBE subcontractor and/or DBE suppliers.

The Prime Contractor should supply the payment information at the time the DBE is compensated for their work. Form to use is located at: http://transportation.ky.gov/Construction/Pages/Subcontracts.aspx

The prime contractor should notify the KYTC Office of Civil Rights and Small Business Development seven (7) days prior to DBE contractors commencing work on the project. The contact is Melvin Bynes and the telephone number is (502) 564-3601.

Photocopied payments and completed, signed and notarized affidavit must be submitted by the Prime Contractor to:

Office of Civil Rights and Small Business Development 6th Floor West 200 Mero Street Frankfort, KY 40622

DEFAULT OR DECERTIFICATION OF THE DBE

If the DBE subcontractor or supplier is decertified or defaults in the performance of its work, and the overall goal cannot be credited for the uncompleted work, the prime contractor may utilize a substitute DBE or elect to fulfill the DBE goal with another DBE on a different work item. If after exerting good faith effort in accordance with the Cabinet's Good Faith Effort policies and procedures, the prime contractor is unable to replace the DBE, then the unmet portion of the goal may be waived at the discretion of the Cabinet.

Appendix C -- DBT Requirements

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IMPLEMENTATION OF Clean Air Act and Federal Water Pollution Control Act
 Compliance with Governmentwide Suspension and
- Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid designbuild contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-thejob training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

 Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and nonminority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on <u>Form FHWA-1391</u>. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-ofway of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federallyassisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency...

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract. (3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30. d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated

damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

 the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

T h is p r o v i s i o n i s applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

T h is p r o v i s i o n i s applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federalaid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

 Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

KENTUCKY TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS

EMPLOYMENT REQUIREMENTS RELATING TO NONDISCRIMINATION OF EMPLOYEES (APPLICABLE TO FEDERAL-AID SYSTEM CONTRACTS)

AN ACT OF THE KENTUCKY GENERAL ASSEMBLY TO PREVENT DISCRIMINATION IN EMPLOYMENT

KRS CHAPTER 344 EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training. 4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

Standard Title VI/Non-Discrimination Assurances

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

- 1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
- 2. Non-discrimination: The contractor, with regard to the work performed by it during the contract, will_not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
- 3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
- [4. Information and Reports: The contractor will_provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
- 5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
- 6. Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Standard Title VI/Non-Discrimination Statutes and Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 -- 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

1

EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (7) provides:

No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirtysix (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

- a) The date of leaving office or termination of employment; or
- b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

General Decision Number: KY190039 02/01/2019 KY39

Superseded General Decision Number: KY20180101

State: Kentucky

Construction Type: Highway

Counties: Boone, Campbell, Kenton and Pendleton Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification	Number	Publication	Date
0		01/04/2019	
1		02/01/2019	

BRKY0002-005 06/01/2017

	Rates	Fringes	
BRICKLAYER	\$ 27.81	13.01	
BROH0001-005 06/01/2008			
	Rates	Fringes	
CEMENT MASON/CONCRETE FINISHER	\$ 25.75	8.60	

_____ CARP0698-001 05/01/2014 BOONE, CAMPBELL, KENTON & PENDLETON COUNTIES: Rates Fringes Carpenter & Piledrivermen.....\$ 27.27 14.59 Diver....\$ 40.58 9.69 _____ ELEC0212-007 06/04/2018 Rates Fringes ELECTRICIAN.....\$ 28.39 18.98 _____ * ELEC0212-013 11/26/2018 Rates Fringes Sound & Communication Technician.....\$ 24.35 10.99 _____ ENGI0018-013 05/01/2018 Rates Fringes POWER EQUIPMENT OPERATOR GROUP 1.....\$ 36.14 14.90 GROUP 2....\$ 36.02 14.90 GROUP 3.....\$ 34.98 14.90 GROUP 4.....\$ 33.80 14.90 GROUP 5.....\$ 28.34 14.90 GROUP 6.....\$ 36.39 14.90 GROUP 7.....\$ 36.64 14.90

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24"

wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; & Wheel Excavator

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48"; Bulldozer; Endloader; Hydro Milling Machine; Horizontal Directional Drill (over 500,000 ft. lbs. thrust); Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24" wide & under); & Vermeer type Concrete Saw

GROUP 3 - A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer; Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4" & over discharge); Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); & Welding Machines

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway) except Masonry); Finishing Machine; Fireperson, Floating Equipment (all types); Fork Lift (highway); Form Trencher; Hydro Hammer; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); & Vibratory Compactor with Integral Power

GROUP 5 - Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt); Generator; Masonry Fork Lift; Inboard-Outboard Motor Boat Launch; Masonry Fork Lift; Oil Heater (asphalt plant); Oiler; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4" discharge); Signalperson; Tire Repairperson; & VAC/ALLS

GROUP 6 - Master Mechanic & Boom from 150 to 180

GROUP 7 - Boom from 180 and over

IRON0044-008 06/01/2018

Fringes

Ironworkers:		
Fence Erector	\$ 26.76	21.20
Structural	\$ 28.17	21.20
IRON0044-018 06/01/2018		
	Rates	Fringes
IRONWORKER, REINFORCING	\$ 28.17	21.20
LABO0189-004 07/01/2018		
PENDLETON COUNTY:		
	Rates	Fringes
LABORER		
GROUP 1	\$ 23.07	14.21

GROUP 2.....\$ 23.3214.21GROUP 3....\$ 23.3714.21GROUP 4....\$ 23.9714.21

LABORERS CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Driller (All Types); Powderman & Blaster; Troxler & Concrete Tester if Laborer is Utilized

LAB00265-009 05/01/2018

BOONE, CAMPBELL & KENTON COUNTIES:

	Ι	Rates	Fringes
LABORER			
GROUP	1\$	30.62	10.95
GROUP	2\$	30.79	10.95
GROUP	3\$	31.12	10.95
GROUP	4\$	31.57	10.95

LABORER CLASSIFICATIONS

GROUP 1 - Asphalt Laborer; Carpenter Tender; Concrete Curing Applicator; Dump Man (Batch Truck); Guardrail and Fence Installer; Joint Setter; Laborer (Construction); Landscape Laborer; Highway Lighting Worker; Signalization Worker; Mesh Handlers & Placer; Right-of-way Laborer; Riprap Laborer & Grouter; Scaffold Erector; Seal Coating; Surface Treatment or Road Mix Laborer; Sign Installer; Slurry Seal; Utility Man; Bridge Man; Handyman; Waterproofing Laborer; Flagperson; Hazardous Waste (level D); Diver Tender; Zone Person & Traffic Control

GROUP 2 - Skid Steer; Asphalt Raker; Concrete Puddler; Kettle
Man (Pipeline); Machine Driven Tools (Gas, Electric, Air);
Mason Tender; Brick Paver; Mortar Mixer; Power Buggy or
Power Wheelbarrow; Sheeting & Shoring Man; Surface Grinder
Man; Plastic Fusing Machine Operator; Pug Mill Operator; &
Vacuum Devices (wet or dry); Rodding Machine Operator;
Diver; Screwman or Paver; Screed Person; Water Blast, Hand
Held Wand; Pumps 4" & Under (Gas, Air or Electric) &
Hazardous Waste (level C); Air Track and Wagon Drill;
Bottom Person; Cofferdam (below 25 ft. deep); Concrete Saw
Person; Cutting with Burning Torch; Form Setter; Hand
Spiker (Railroad); Pipelayer; Tunnel Laborer (without air)
& Caisson; Underground Person (working in Sewer and
Waterline, Cleaning, Repairing & Reconditioning);
Sandblaster Nozzle Person; & Hazardous Waste (level B)

GROUP 3 - Blaster; Mucker; Powder Person; Top Lander; Wrencher (Mechanical Joints & Utility Pipeline); Yarner; Hazardous Waste (level A); Concrete Specialist; Concrete Crew in Tunnels (With Air-pressurized - \$1.00 premium); Curb Setter & Cutter; Grade Checker; Utility Pipeline Tapper; Waterline; and Caulker

GROUP 4 - Miner; & Gunite Nozzle Person

TUNNEL LABORER WITH AIR-PRESSURIZED ADD \$1.00 TO BASE RATE

SIGNAL PERSON WILL RECEIVE THE RATE EQUAL TO THE RATE PAID THE LABORER CLASSIFICATION FOR WHICH HE OR SHE IS SIGNALING.

PAIN0012-016 05/01/2015		
	Rates	Fringes
PAINTER		
Bridge	.\$ 24.39	9.06
and Containment Builder	.\$ 20.73	9.06
Brush & Roller	.\$ 23.39	9.06
Sandblasting & Water Blasting	.\$ 24.14	9.06
Spray	.\$ 23.89	9.06
PLUM0392-008 06/01/2018		
	Rates	Fringes
PLUMBER	.\$ 32.01	19.67
SUKY2010-161 02/05/1996		
	Rates	Fringes
Truck drivers:		
GROUP 1 GROUP 2	.\$ 15.85 .\$ 16.29	4.60 4.60
TRUCK DRIVER CLASSIFICATIONS		
GROUP 1 - Driver		
GROUP 2 - Euclid Wagon; End Du Equipment; Tractor-Trailer Com	mp; Lowboy; bination; &	Heavy Duty Drag
NELDERS - Receive rate prescribe operation to which welding is in	d for craft cidental.	performing
Note: Executive Order (EO) 13706 For Federal Contractors applies Davis-Bacon Act for which the co solicitation was issued) on or a	, Establish to all cont ntract is a fter Januar	ning Paid Sick Leave cracts subject to the warded (and any cy 1, 2017. If this for must provide

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

> Branch of Construction Wage Determinations Wage and Hour Division U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage

payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

No laborer, workman or mechanic shall be paid at a rate less than that of a Journeyman except those classified as bona fide apprentices.

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wages. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or the undersigned.

Director Division of Construction Procurement Frankfort, Kentucky 40622 502-564-3500
NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY	GOALS FOR FEMALE
PARTICIPATION	PARTICIPATION IN
IN EACH TRADE	EACH TRADE
11.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director Office of Federal Contract Compliance Programs 61 Forsyth Street, SW, Suite 7B75 Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is Boone County.

INSURANCE

INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

- Commercial General Liability-Occurrence form not less than \$2,000,000 General aggregate, \$2,000,000 Products & Completed Aggregate, \$1,000,000 Personal & Advertising, \$1,000,000 each occurrence.
- 2) Automobile Liability- \$1,000,000 per accident
- 3) Employers Liability:
 - a) \$100,000 Each Accident Bodily Injury
 - b) \$500,000 Policy limit Bodily Injury by Disease
 - c) \$100,000 Each Employee Bodily Injury by Disease
- 4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
 - a) "policy contains no deductible clauses."
 - b) "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."
- 5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

Appendix D -- Interchange Justification Study



INTERCHANGE JUSTIFICATION STUDY I-275 at Graves Road Boone County, KY

KYTC Item No. 6-8953



Introduction

The Federal Highway Administration (FHWA) has authority and responsibility for approving any request for new or revised access points to Interstate facilities. Such approval is gained through a positive review of substantiated information justifying and documenting that decision. The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following requirements:

- 1. An operational and safety analysis has concluded the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections.
- 2. The proposed access connects to a public road only and will provide for all traffic movements.

After a thorough analysis of the operational and safety impacts for a proposed interchange located in northern Boone County along I-275 at Graves Road, KYTC has determined that the new interchange will not significantly adversely impact I-275 or the local roadway network. The new interchange at Graves Road will serve as a "relief valve" for the existing KY 237 interchange (Exit 8), diverting more than 25,000 vehicles per day from the KY 237 interchange area and improving operational and safety characteristics at that location. Existing Graves Road will be widened to accommodate the diverted traffic and will serve as a much-needed alternative access to industrial areas and direct access to residential areas along the route.

The new interchange is proposed to be located approximately 8,000 feet west of KY 237 (Exit 8) and 15,300 feet east of Idlewild Bypass known as KY 3608 (Exit 11). Graves Road's proximity to Exits 8 and 11 is illustrated on the following page (Figure 1). Interstate 275, a circular route around Cincinnati, traverses east-west within the study area and carries between 42,000 and 60,000 vehicles daily. Current westbound mainline I-275 speeds are approximately 57 mph between Exits 8 and 11. Eastbound current mainline I-275 speeds are approximately 59 mph between Exits 11 and 8. The improvements planned as part of the Graves Road Interchange project will not appreciably affect I-275 mainline speeds in either direction. The proposed interchange would connect to an upgraded Graves Road (public road) and would provide access to KY 237 to the north and KY 20 to the south. It would also provide a second interstate access point to Park West International, home to several million square feet of distribution and warehousing space.

The need for additional access to I-275 is clearly demonstrated by the current traffic service and crash history of existing KY 237 both north and south of the existing I-275 Interchange. Simply adding more lanes to KY 237 will not solve existing operational and safety issues. Recent announced expansions of local businesses, and additional approved residential development plans, mean that traffic is expected to increase dramatically over the next 10 years throughout the study area. Without additional interstate access, local officials fear that the resulting increase in roadway congestion could choke the area's development potential.



Amazon has announced their new venture into air shipping, Amazon Prime Air, will be based at the Cincinnati/Northern Kentucky International Airport. Along with a planned increase in other Amazon product handling and shipping facilities, this expansion is anticipated to add approximately 6,000 new jobs to the area. Due to the numerous industrial/ warehousing facilities and freight components associated with the airport, freight traffic is significant throughout the study area. Along KY 237, truck percentages peak at 12.2 percent, with the largest percentages between Worldwide Boulevard and KY 20. This equates to more than 4,300 daily trucks along portions of KY 237 and is projected to increase to approximately 6,700 daily trucks by 2040.

The proposed interchange was included as one of eleven high priority projects in the 2005 *Boone County Transportation Study*. This project is one of six projects included for Boone County in the 2040 *OKI Regional Transportation Plan* (ID# 4656).

Project Purpose and Need

The purpose of this project is to improve mobility and safety in a rapidly growing area adjacent to I-275 between Interstate Exits 8 and 11 in northern Boone County.

I-275, a circular route around Cincinnati and northern Kentucky, traverses east-west in Boone County, Kentucky. Located just south of Exit 4 on I-275 and near the eastern border of Boone County is the Cincinnati/Northern Kentucky International Airport (CVG). This airport serves multiple cargo and passenger airlines carrying more than 6.8 million passengers yearly and considers itself one of the fastest-growing airports in North America. As the airport has grown, so has the development surrounding it, particularly in areas adjacent to I-275 to the west. Just west of the airport is the I-275 interchange with KY 237 (Exit 8) that serves multiple nearby warehouses and businesses and several residential neighborhoods including Cardinal Cove, Parlor Grove Estates, North Pointe and Treetops. KY 237 also provides access to several million square feet of distribution and warehousing space in the Park West International Industrial Park. More than 4,300 trucks travel KY 237 daily and is forecasted to increase to more than 6,700 in 2040. Further to the west is Exit 11 at KY 3608, an underutilized interchange serving primarily the Creation Museum and northwestern, rural Boone County. The study area included other significant routes in the area between Exits 8 and 11, including KY 20 and Graves Road. KY 20 is a major collector route running parallel to I-275 to the south. Graves Road runs north-south beginning at KY 237 north of I-275, bridging over the interstate, and ending at KY 20 to the south.

The growth in this area is a microcosm of the overall growth occurring in Boone County. The acreage used for industrial/business in Boone County increased from 6,866 acres in 2009 to 7,660 acres in 2016. There is an additional 6,564 acres zoned for industry/business that have not yet been built upon. The population of Boone County continues to grow as well. The population has increased from 118,811 in 2010 to an estimated 130,000 today. The increased population corresponds to an increase in housing units, from 45,053 in 2010 to 47,878 in 2016. Currently it is estimated these numbers are growing at a rate of 1,400 people per year and 530 new housing units a year.

This continual growth in Boone County and around the airport has put a strain on the existing roadways. Exit 8 is especially subject to lengthy delays because of truck traffic traveling to the cluster of industrial facilities and businesses along KY 237. This traffic congestion includes traffic backing up onto I-275 from the KY 237 westbound off-ramp. In addition to congestion, queue spillback onto the interstate during afternoon peak hours leads to an unwanted safety concern. Recent announced expansions of local businesses, and additional approved residential development plans, mean that traffic is expected to increase dramatically over the next 10 years in the study area.

I-275, east of KY 237, carries approximately 60,000 vehicles per day with approximately 22,000 trucks daily. Traffic is expected to grow to 90,000 in 2040 with over 30,000 trucks. West of KY 237, traffic decreases to 42,000 with a forecast of 63,000 vehicles per day. KY 237 ramp volumes also show an increased forecast, from existing 6,400-15,600 vehicles per day to a 2040 forecasted volume of 10,100-24,600 vehicles per day. This results in several LOS E conditions, including the westbound KY 237 diverge and westbound mainline west of KY 237. The latter occurs because of the westbound transition from three lanes to two lanes. Along KY 237, north and south of I-275, there are several intersections and/or movements experiencing LOS E and F conditions including: KY 20, Limaburg Road/Barbara Drive, Medical Arts Drive/Litton Drive, I-275 Westbound Ramps, I-275 Eastbound Ramps, Southpark Drive/Worldwide Boulevard, KY 2846/Global Way, Cardinal Way, and Graves Road/Old North Bend Road.

The traffic backups and delays caused by the increasing traffic demand is also posing more highway safety concerns for those who travel area roadways. Between 2012 and 2016, 1,267 crashes were reported along the 19.7 miles of roadways covering I-275 from Exit 4 to Exit 11 as well as portions of KY 237, KY 20, and Graves Road. Forty-three percent of these roadways were found to have critical rate factors greater than 1.00. Furthermore, 39 high crash spots (defined as 0.3 miles or less) were identified, including several along KY 237 in close proximity to I-275. Over 300 crashes occurred within a ½ mile radius of the I-275/KY 237 interchange, including a cluster at the eastbound on-ramp. Along Graves Road, the section south of I-275 has a critical rate factor of 2.04 and included a high number of single vehicle crashes. This section of Graves Road has 9 to 10-foot lanes, no shoulders and a tight s-curve.

These traffic concerns and their corresponding safety issues demonstrate the extreme pressure the local roadway system is under due to the unusually heavy traffic demand generated by intense local economic growth. Existing interstate access is insufficient to accommodate future traffic volumes and new access is critical to the area's ability to achieve its development plans. A new I-275 Interchange at Graves Road would enable the significant diversion of area trips and relieve traffic pressure at existing choke points, primarily along KY 237 and its approach roads.

Project Alternatives

As a part of the project development process, three interchange alternatives were evaluated along with two KY 237 improvements and the No Build alternative. The alignments and locations of the proposed alternatives have been developed by considering the project's purpose and need, traffic operations and safety, design considerations, and environmental constraints. They have been designed to meet all geometric requirements, accommodate forecasted traffic, and minimize residential relocations, right-of-way takings, and interference with existing businesses and community resources.

No Build Alternative

The No Build alternative would maintain all roadways on their present alignments and not involve any construction or work beyond routine maintenance and what has been already planned such as ongoing improvements to KY 237. The No Build Alternative would not satisfy the project's Purpose and Need because safety concerns would not be addressed, nor would regional mobility be improved. Congestion would worsen at the I-275/KY 237 interchange and along KY 237 due to continued economic and residential growth in the area. Spillback along eastbound I-275 would continue to occur and would increase over time.

Build Alternatives

Alternative 1 would remove the existing Graves Road overpass and construct a full diamond interchange approximately 650 feet west of the existing overpass. Graves Road would be realigned to tie into the interchange. Shifting the interchange to the west of the existing Graves Road overpass would provide approximately 8,000 feet between the Graves Road and KY 237 interchanges. North of I-275, Williams Road would be realigned and tied in opposite Worldwide Boulevard approximately 1,900 feet north of the westbound ramps. Limiting access along Graves Road north and south of the interchange will help maintain progression along the corridor. Graves Road would be realigned and widened to a five-lane urban section to handle the increased traffic. Graves Road and Bullittsville Road would be realigned to tie-in opposite one another and improve the existing safety concerns at both intersections. KY 20 between Graves Road and KY 237 would be widened to a five-lane section.

Similar to Alternative 1, Alternative 2 would remove the existing Graves Rd overpass and construct a new interchange approximately 650 feet west of the existing bridge. The interchange configuration adds a loop in the southwestern quadrant to allow Graves Road southbound traffic to use the entrance ramp onto I-275 eastbound eliminating a signalized left-turn resulting in a reduction in overall delay. North of I-275, Williams Road would be reconstructed to three lanes for approximately 0.9 miles between Traditions Golf Club and Worldwide Boulevard. Two roundabouts were proposed at the Williams Road/Worldwide Boulevard intersection and KY 20 intersection. Graves Road would tie into KY 20 continuing to KY 237 as a five-lane section.

Each alternative provides a secondary access to the Park West International Industrial Park providing freight traffic an alternative to KY 237. The new interchange also provides residents north of I-275 alternative access to the interstate. Diverting traffic from KY 237 to Graves Road

results in improved intersection delay and travel time along KY 237 as well as improving traffic safety concerns associated with stop-and-go traffic and over capacity conditions on KY 237.

Additionally, two improvements at the existing KY 237 interchange were evaluated. These improvements are recommended with or without the Graves Road interchange and help address existing safety concerns:

- The I-275 eastbound on-ramp merge was reconfigured to address existing safety concerns. The radius for right turning traffic was reduced to slow motorists down and create additional room to merge with traffic from the north.
- The I-275 westbound off-ramp for KY 237 northbound traffic is known to back up onto the interstate. The ramp would be lengthened 500 feet to provide additional storage space.

The combination of the safety improvements to the KY 237 Interchange ramps and the proposed new interchange at Graves Road would improve traffic flow to and from I-275 in the project area and better distribute I-275 entering and exiting traffic directly to the available roadway network.

Recommendations

The Recommended Alternative is a hybrid of Build Alternatives 1 and 2, using preliminary analysis and public input to help capture the best features of each option and address some deficiencies identified through the process. The Recommended Alternative's individual components are as follows:

- A new interchange at I-275 and Graves Road including the loop ramp design proposed in Alternative 2;
- The 5-lane widening of the Graves Road corridor from KY 20 and Bullittsville Road northward to KY 237, including signalized intersections at KY 20 and Worldwide Boulevard and the widening of the Graves Road/KY 237 roundabout;
- A modified Williams Road option;
- Extension of the westbound I-275 mainline, three-lane typical section from just west of the KY 237 Interchange to just west of the proposed Graves Road Interchange;
- Addition of an Eastbound auxiliary lane along I-275 between the Graves Road and KY 237 Interchanges;
- Minor adjustments to the I-275/KY 237 Interchange ramps as described in Section 3.2 of this study; and
- A dual left turning movement from northbound KY 237 to westbound I-275.

The Recommended Alternative proposes a modified diamond interchange configuration that replaces the southbound left turns from Graves Road onto eastbound I-275 with a free flow loop ramp as presented in Alternative 2. Both the Worldwide Boulevard and the KY 20 signalized intersections, as initially presented in Alternative 1, were favored by the public and recommended over roundabout options due to the reduced delay at each. The Recommended Alternative would widen the existing Graves Road roundabout and approaches at KY 237 north of I-275 would be widened to improve future year LOS. These improvements combined with a redistribution of traffic from KY 237 to Graves Road results in LOS A for the AM Peak and LOS D for the PM Peak for the existing Graves Road roundabout.

In 2040, with the addition of the Graves Road interchange, 25,400 daily vehicles are forecasted to be diverted from the KY 237 interchange. In addition, between 7,000 and 17,800 ADT are redirected from KY 237 and primarily diverted to Graves Road. Traffic along Graves Road is forecasted to range between 15,000 and 18,500 daily vehicles. To handle the increased traffic, Graves Road will be realigned and widened for each alternative. Additionally, 1,900 to 2,000 feet of access control will be maintained between I-275 and the immediate north and south intersections. This will be critical to ensuring long-term operational efficiency of both Graves Road and I-275 and will improve safety along Graves Road.

Extension of the third westbound I-275 travel lane from KY 237 to Graves Road was included in the Recommended Alternative to improve interstate LOS, safety, and travel time. As illustrated below, Alternatives 1 and 2 showed lower travel speed for the westbound direction, but with the extension of the third westbound lane, travel speed increased five miles per hour compared to the No Build. The additional capacity between ramps also provides an appreciable safety benefit.

Interstate Peak Hour Travel Speed Between KY 3608 Interchange and KY 237 Interchange – Recommended Alternative

Direction	2040 No Build (miles/hour)	Alternative 1Alternative 2Hybrid(miles/hour)(miles/hour)(miles/hour)		Hybrid Alternative (miles/hour)
Westbound	51	47	49	56
Eastbound	57	52	55	55

Traffic analysis and field observation showed the KY 237 westbound off-ramp is known to back up onto the interstate and the KY 237 signal must be controlled by a traffic cop during peak periods. For each alternative, which included the additional off-ramp storage, the simulation models revealed no queue spillback for this or other interstate ramps. The KY 237 ramps are helped due to proposed improvements along KY 237 at Worldwide Boulevard and the reduction in traffic volumes due to diversion to the Graves Road interchange. The traffic analysis revealed the KY 237 eastbound diverge changed from LOS D to E for Alternative 1 and 2. To address this deterioration, an auxiliary lane is proposed in the Recommended Alternative. With the new interchange, the KY 237 northbound left-turn at I-275 shows a small increase in traffic. As a result, the Recommended Alternative included a dual left for the KY 237 movement onto Westbound I-275.

The OKI Regional Travel Demand Model revealed systemwide travel time savings with the Graves Road interchange. As presented in the following table, overall vehicle hours of travel (VHT) were reduced by 163,189 hours. Furthermore, travel time along KY 237 was improved when compared to both the 2040 No Build and Existing Condition as illustrated below.

	2016 Existing	2040 No Build	2040 Build
	(hours)	(hours)	(hours)
Systemwide VHT	104,910,296	125,451,136	125,287,947

OKI Regional Model Vehicle Hours of Travel (VHT) Comparison

KY 237 Peak Hour Travel Time Between KY 20 and Graves Road

Direction	2016 Existing	2040 No Build	2040 Build
	(minutes/vehicle)	(minutes/vehicle)	(minutes/vehicle)
Northbound 11.3		15.6	10.1
Southbound 16.1		20.2	14.3

The redesigned Graves Road will address safety concerns along Graves Road by providing a modern, four-lane roadway through the interchange vicinity from KY 20 north to KY 237. The Graves Road interchange will lead to lower traffic volumes and safer conditions along KY 237, helping reduce intersection spillback and stop-and-go conditions, both contributing factors to the high number of crashes identified through the study process. The extended westbound off ramp and lengthened I-275 westbound third lane will also help address interstate spillback and associated safety concerns.

Improvements to KY 20 were considered as part of Alternatives 1 and 2; however, those were not included in the Recommended Alternative and were not recommended to move forward. 2040 traffic is expected to split between KY 20 and Bullittsville Road lessening the impact on either roadway. With projected traffic ranging between 13,500 and 15,600 daily vehicles along KY 20, the project team determined that the existing two-lane road could handle the increased demand.

The Base Year 2017 cost estimate for each alternative is shown below.

			Cost Estimate
Phase	Alternative 1	Alternative 2	Recommended Alternative
Design	\$5,063,000	\$5,190,000	\$3,747,000
Right of Way	\$29,931,000	\$26,706,000	\$12,880,000
Utilities	\$2,793,000	\$3,161,000	\$2,174,000
Construction	\$33,750,000	\$34,600,000	\$24,981,000
Total Project Cost	\$71,537,000	\$69,657,000	\$43,782,000

Cost Estimate – Build Alternatives

Policy Requirements

FHWA's "Policy on Access to the Interstate System" provides the requirements for the justification and documentation necessary to substantiate any purposed changes in access to the Interstate System. The policy has been reduced to two requirements and is summarized below:

Policy Requirement 1: An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility ...or on the local street network...

After a thorough analysis of the operational and safety impacts for a proposed interchange located in northern Boone County along I-275 at Graves Road, KYTC has determined that the new interchange will not significantly adversely impact I-275 or the local roadway network. The Recommended Alternative will result in 25,400 daily vehicles being diverted from the KY 237 interchange reducing congestion and improving safety along KY 237 and I-275. The analysis revealed systemwide travel time savings. Travel times along KY 237 will be reduced 54 percent in the northbound direction and 41 percent in the southbound direction. With the extension of the third I-275 westbound lane, travel speeds will increase by 10 percent in the westbound direction. Intersections along the improved Graves Road will all operate at LOS D or better. The redesigned Graves Road will address safety concerns along Graves Road by providing a modern four-lane roadway through the interchange vicinity from KY 20 north to KY 237.

Policy Requirement 2: The proposed access connects to a public road only and will provide for all traffic movements... The proposed access will be designed to meet or exceed current standards...

The Recommended Alternative is proposed as a full interchange connecting to a public road, will provide all movements to and from I-275 from Graves Road, and will be designed to meet current standards. Furthermore, logical termini were considered for the local network improvements. To the north, Graves Road will connect to an improved section of KY 237 and to the south, Graves Road will connect directly to KY 20 and Bullittsville Road providing critical eastern, western and southern connections. All improvements were designed to current roadway design standards. The interchange will be designed to meet interstate spacing requirements.

This IJS describes an existing transportation system unable to keep up with the rapid growth occurring in northern Boone County resulting in deteriorating mobility and increasing safety concerns. While no one project will address all the area's transportation needs, the Graves Road interchange has been recommended in various county, regional and KYTC plans and is shown in the IJS to offer substantial improvements in area traffic mobility and safety. Therefore, the new Graves Road Interchange and associated improvements are recommended for approval.



I-275 at Graves Road Interchange Justification Study

Table of Contents

1.0 Introduction	1
1.1 Purpose of the Interchange Justification Study	2
1.2 Study Area	2
1.3 Background	2
1.4 Literature Review	3
1.4.1 Boone County Transportation Plan 2030	3
1.4.2 OKI 2040 Regional Transportation Plan, 2016 Update	5
1.4.3 Kentucky's FY 2016-FY 2022 Highway Plan	5
1.4.4 2010 Boone County Comprehensive Plan	5
1.4.5 Additional Considerations	6
1.5 Existing Traffic Analysis	8
1.6 2040 No Build Traffic Analysis	9
1.7 Existing Safety Analysis	14
1.7.1 Segment Analysis	14
1.7.2 Spot Analysis	15
1.8 Environmental Overview	
1.8.1 Natural Environment	
1.8.2 Human Environment	
1.8.3 Summary of Environmental and Public Involvement Activities	23
2.0 Project Purpose and Need	24
3.0 Project Alternatives	
3.1 No Build Alternative	
3.2 Improvements to Existing KY 237	
3.3 Alternative 1	27
3.4 Alternative 2	31
3.5 Recommended Alternative	
3.6 Preliminary Cost Estimates	
4.0 Policy Requirements, Safety Considerations, and Recommended Alternative	
4.1 I-275 Build Traffic Operations	
4.2 Local Street Network	43
4.3 Safety Considerations	47
4.4 Conceptual Signing Plan	47

4.5 Recommended Alternative	
5.0 Policy Requirements Summary	<i>z</i>

List of Figures

Figure 1. Area of Influence	4
Figure 2. 2009 Existing Land Use vs. 2035 Future Land Use	7
Figure 3. 2016 PM Peak Queue Lengths	12
Figure 4. High Crash Spots and Segments	16
Figure 5. Alternative 1	28
Figure 6. North Graves Road	29
Figure 7. KY 20 Widening	30
Figure 8. Alternative 2	32
Figure 9. North Graves Road	33
Figure 10. KY 20 Widening	34
Figure 11. Recommended Alternative	36
Figure 12. Interchange Ramp Spacing	51

List of Tables

Table 1. 2016 Existing I-275 Traffic Operations	10
Table 2. 2016 Existing and 2040 No Build KY 237 Intersection Traffic Operations	11
Table 3. 2040 No Build I-275 Traffic Conditions	13
Table 4. Crash Statistics by Segment (2012-2016)	15
Table 5. Crash Statistics by Spot (2012-2016)	17
Table 6. Listed Species Near the Project Area	20
Table 7. Summary of Known Environmental Impacts	23
Table 8. Alternative Cost Estimates (Design, Right-of-Way, Utilities and Construction)	37
Table 9a. 2040 Build I-275 Traffic Conditions - Level of Service (LOS)	40
Table 9b. 2040 Build I-275 Traffic Conditions - Volume/Capacity Ratio (V/C)	41
Table 9c. 2040 Build I-275 Traffic Conditions - Density	42
Table 10. Interstate Peak Hour Travel Speed Between KY 3608 and KY 237	43
Table 11. OKI Regional Model Vehicle Hours of Travel (VHT) Comparison	43
Table 12. 2040 Build KY 237 Intersection Traffic Operations	44
Table 13. 2040 Build KY 237 Peak Hour Travel Time Between KY 20 and Graves Road	45
Table 14. 2040 Build Graves Road Intersection Traffic Operations	46

Appendix A Exhibits

Exhibit 1. Traffic Count Locations

Exhibit 2. I-275 Directional ADTs and Levels of Service - AM Peak Hour

Exhibit 3. I-275 Directional ADTs and Levels of Service - PM Peak Hour

Exhibit 4. KY 237 Directional ADTs and Levels of Service

Exhibit 5. Crash Data by Severity

Exhibit 6. Crash Data by Type

Exhibit 7. Environmental Overview

Exhibit 8. 2040 Build Graves Road Directional ADTs and Levels of Service

Exhibit 9. Conceptual Signing Plan

Exhibit 10. Recommended Alternative Directional ADTs and Levels of Service

Exhibit 11. Recommended Alternative I-275 Directional ADTs and Levels of Service

Exhibit 12. Recommended Alternative Typical Roadway Sections

1.0 Introduction

The Federal Highway Administration (FHWA) has authority and responsibility for approving any request for new or revised access points to Interstate facilities. Such approval is gained through a positive review of substantiated information justifying and documenting that decision. The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following requirements:

- 1. An operational and safety analysis has concluded the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections.
- 2. The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis.

After a thorough analysis of the operational and safety impacts for a proposed interchange located in northern Boone County along I-275 at Graves Road, KYTC has determined that the new interchange will not significantly adversely impact I-275 or the local roadway network. The new interchange at Graves Road will serve as a "relief valve" for the existing KY 237 interchange (Exit 8), diverting more than 25,000 vehicles per day from the KY 237 interchange area and improving operational and safety characteristics at that location. Existing Graves Road will be widened to accommodate the diverted traffic and will serve as a much-needed backside access to industrial and residential areas along the route.

The new interchange is proposed to be located approximately 8,000 feet west of KY 237 (Exit 8) and 15,300 feet east of Idlewild Bypass known as KY 3608 (Exit 11). Interstate 275, a circular route around Cincinnati, traverses east-west within the study area and carries between 42,000 and 60,000 vehicles daily. Current westbound mainline I-275 speeds are approximately 57 mph between Exits 8 and 11. Eastbound current mainline I-275 speeds are approximately 59 mph between Exits 11 and 8. The improvements planned as part of the Graves Road Interchange project will not appreciably affect I-275 mainline speeds in either direction. The proposed interchange would connect to an upgraded Graves Road (public road) and would provide access to KY 237 to the north and KY 20 to the south. It would also provide a second Interstate access point to Park West International, home to several million square feet of distribution and warehousing space.

The need for additional access to I-275 is clearly demonstrated by the current traffic service and crash history of existing KY 237 both north and south of the existing I-275 Interchange. Aggressive access management has enabled enhanced roadway throughput, and simply adding more lanes to KY 237 will not solve existing operational and safety issues. Recently announced expansions of local businesses, and additional approved residential development plans, mean that traffic is expected to increase dramatically over the next 10 years throughout the study area. Without additional interstate access, local officials fear that the resulting increase in roadway congestion could choke the area's development potential. The proposed interchange was included as one of eleven high priority projects in the 2005 *Boone County Transportation Study*. This project is one of six projects included for Boone County in the 2040 OKI Regional Transportation Plan (ID# 4656).

1.1 Purpose of the Interchange Justification Study

On May 22, 2017, The Federal Highway Administration's "Policy on Access to the Interstate System" was updated. This policy provides requirements for the justification and documentation necessary to substantiate any proposed changes in access to the Interstate System. The policy, "...requires that the transportation planning, conformity, congestion management process, and the National Environmental Policy Act procedures be followed and their requirements satisfied. The final FHWA approval of requests for new or revised access cannot proceed without the completion of these processes or necessary actions." The purpose of this Interchange Justification Study (IJS) is to meet the requirements of the updated FHWA policy in order to justify and document the proposed I-275 interchange at Graves Road. KYTC understands FHWA will review the document for a determination of safety, operational, and engineering acceptability; however, final approval will not be granted until the other planning and environmental requirements are met. The NEPA document is currently under development and a summary of the process and initial findings are provided in Section 1.8. The planning process is also underway and is described throughout this document.

1.2 Study Area

The project study area is along I-275 in northern Boone County and encompasses Graves Road, KY 20 and KY 237, among others. The study area, also referred to as the area of influence, was defined based on safety and operational concerns. At a minimum, the area of influence should include the first interchange on either side of the proposed new access and local roadways extending to the first major intersection and/or signalized intersection. Based on consultation with FHWA and KYTC, the project area of influence was extended to include Graves Road between KY 20 and KY 237, KY 20 between Graves Road and KY 237 and KY 237 between KY 20 and Graves Road. The area of influence is illustrated on **Figure 1**. While some data collection was conducted outside this area of influence, the focus of the analysis and project alternatives were within this primary area.

1.3 Background

Exit 4 on I-275 primarily serves the Cincinnati/Northern Kentucky International Airport (CVG) and associated passenger/cargo terminals. Exit 8 serves multiple nearby warehouses and businesses and several residential neighborhoods including Cardinal Cove, Parlor Grove Estates, North Pointe and Treetops. The KY 237 interchange handles significant traffic, especially during the months of November, December and January. As a result, the interchange experiences substantial traffic delays and requires police directing traffic during peak congestion to reduce spillback (traffic back-ups) onto I-275. Exit 8 is especially subject to lengthy delays and safety issues because of truck traffic traveling to the cluster of industrial facilities and businesses along KY 237. Exit 11 is currently an underutilized interchange serving primarily the Creation Museum and northwestern, rural Boone County.

Recent announced expansions of local businesses, and additional approved residential development plans, mean that traffic is expected to increase dramatically over the next 10 years

in the study area. Without additional interstate access, local officials fear that the resulting increase in roadway congestion could choke the area's development potential.

Boone County was recently identified as the county with the greatest improvement in employment rates in Kentucky (Value Penguin, 2017). The Kentucky State Data Center at the University of Louisville has also predicted Boone County will grow to be the state's 3rd most populous county by 2035. The Cincinnati/Northern Kentucky International Airport serves multiple cargo and passenger airlines carrying more than 6.8 million passengers yearly. A recent press release from the airport claimed that "cargo volume has increased more than 50 percent, and [the airport] continues to be the fastest-growing cargo airport in North America." (CVG 2017).

Amazon has announced their new venture into air shipping, Amazon Prime Air, will be based at CVG. Along with a planned increase in other Amazon product handling and shipping facilities, this expansion is anticipated to add approximately 6,000 new jobs, making Amazon the largest employer in the county.

Transit service is provided locally by the Transit Authority of Northern Kentucky (TANK). Two routes currently serve the project area: 1) Limaburg Express (39X) -- the area south of I-275 between KY 237 and CVG from downtown Cincinnati and Covington, and 2) North Bend Express-the distribution centers north of I-275 from downtown Cincinnati and Covington. The North Bend Park and Ride lot located in the northwest quadrant of KY 237 and Cardinal Way provides access to the North Bend Express route.

Pedestrians enjoy sidewalks within many of the residential neighborhoods but connecting roads KY 20, Graves Road and KY 237 do not have sidewalks or bike lanes except for KY 237 from Northside Drive to Kara Lane.

1.4 Literature Review

Several plans were reviewed for their relevance to this IJS. Key findings from each plan are described in the following subsections.

1.4.1 Boone County Transportation Plan 2030

The *Boone County Transportation Plan 2030 (Plan 2030)* was prepared for the Ohio-Kentucky-Indiana (OKI) Regional Council of Governments and Boone County Fiscal Court and was finalized on November 30, 2005. The Boone County Fiscal Court is currently working to update its Transportation Plan, but findings were not available prior to publication of this document. *Plan 2030* recommended 29 projects. The projects' objectives were to 1) improve mobility and 2) accommodate travel demand from future growth. Projects were identified as high priority (completed within 10 years), medium priority (completed in 11 to 20 years, and low priority (completed in more than 20 years). The recommendations included several projects within the study area:

Figure 1. Area of Influence



New I-275 Interchange at Graves Road - one of 11 high priority projects

- Graves Road realignment with Bullittsville Road and widen/improve from Petersburg Road (KY 20) to North Bend Road (KY 237) one of nine medium priority projects
- Petersburg Road (KY 20) widening from Idlewild Bypass (KY 3608) to KY 237 one of nine medium priority projects
- Petersburg Road (KY 20) widening from KY 237 to KY 212 one of nine medium priority projects
- Bullittsville Road realignment with Graves Road and widen/improve from Petersburg Road (KY 20) to Burlington one of nine low priority projects

It is anticipated that economic growth commitments from Amazon and others will elevate the priority of some, if not all of these identified roadway improvements as *Plan 2030* is updated.

1.4.2 OKI 2040 Regional Transportation Plan, 2016 Update

The OKI 2040 Regional Transportation Plan, 2016 Update, serves as The OKI metropolitan transportation plan. A total of 132 projects are contained in the Plan, including 92 roadway, two ITS, 20 transit, 17 bicycle/pedestrian and one freight project. Six projects were specifically identified for Boone County and the Graves Road interchange was among those.

1.4.3 Kentucky's FY 2016-FY 2022 Highway Plan

Kentucky's FY 2016-FY 2022 Highway Plan was adopted in June 2016. More than 20 projects were identified for Boone County. Within the study area two were identified. The first project was to add a turn lane onto Worldwide Boulevard from KY 237 and an additional lane along KY 237 north of Tanners Lane. This is meant to help address congestion along KY 237 at the I-275 interchange and queue backups onto I-275 that occur from the westbound off-ramp. The second project was the funding for this IJS. No additional phases of the potential I-275/Graves Road Interchange were funded as part of the KYTC Highway Plan.

1.4.4 2010 Boone County Comprehensive Plan

The 2010 Boone County Comprehensive Plan (2010 BCCP) was reviewed to determine growth trends, future land use, development trends, and specific transportation needs. The overall goal is as follows: "Proper planning is achieved through accepted land use management tools and coordination with public infrastructure." Specific to transportation, three goals were identified:

- Boone County shall continue as a vital member of an evolving, regional transportation system that needs active cooperation between the private and public sectors to enable the transition to an economically and energy efficient yet environmentally sound and equitable multi-modal (automobile, rail, air, river, bus, bicycles, pedestrian) transportation system.
- The local transportation system in Boone County shall be maintained and improved so that overall safety and level of service will be enhanced. Inefficiencies in the system will be identified and addressed. New land development shall be closely coordinated with the local transportation system to assure efficiency and continuity with the regional multi-modal transportation system.

• The interdependence between transportation systems and land use patterns is recognized and used to assure future development and redevelopment is planned with multi-modal transportation facilities.

Chapter 2 focused on existing and forecasted populations. OKI estimates a 2030 Boone County population to be approximately 189,000 compared to a 2010 population of approximately 119,000. While the 2010 BCCP acknowledges the forecasts may be adjusted down due to the economic downturn, this still represents significant county growth. 2010 BCCP goes on to say Boone County's greatest area of growth is anticipated to occur along KY 237 north of I-275, among other areas.

Chapter 11 specifically addressed transportation. The concluding statement noted the county had outgrown the current road system due to population and business growth. Further noted was the lack of timely funding over the last decade to address programmed transportation projects.

Chapter 12 addressed evolving land use patterns. In the project area, land use has shifted from rural/residential to industrial/business park and suburban development. Over the past approximately 25 years, the area has shifted from almost entirely rural, low intensity residential land use to being much more urbanized, with warehouses, high density subdivisions, and commercial buildings along the KY 20 and KY 237 corridors. The 2035 Future Land Use map illustrates additional business park, industrial, and suburban density residential land uses filling presently zoned agriculture, woodlands and rural density residential land uses throughout the study area. A comparison of the 2009 Existing Land Use map and 2035 Future Land Use map are illustrated on **Figure 2**.

1.4.5 Additional Considerations

The Cincinnati/Northern Kentucky International Airport is adjacent to the study area and has had three recent announcements that will continue its forward momentum for both passengers and freight.

- 1. In January 2017, Southwest Airlines announced they were moving their operations from Dayton to CVG and providing daily flight service to Baltimore and Chicago at start-up. While not a considerable number of flights, this illustrates continued interest in expanding passenger service at CVG after a decade of decline between 2005 and 2015 following Delta Airlines moving its regional hub service from CVG to Detroit.
- 2. In August 2017, WOW Air announced new international flight service to Europe from CVG. They plan to begin flights in May 2018.
- 3. Also in 2017, Amazon announced it would create a new centralized air hub at CVG and is expected to invest approximately \$1.5 billion and initially generate 6,000 jobs. The air hub will be developed on 400 acres and Amazon has leased an additional 500 acres for future expansion pushing potential employment to approximately 12,000 jobs.

Figure 2. 2009 Existing Land Use vs. 2035 Future Land Use



Source: Boone County

1.5 Existing Traffic Analysis

A major component of the Purpose and Need statement for this project seeks to find solutions to the congestion at the KY 237 interchange with I-275 (Exit 8). Traffic is known to back up onto the interstate during peak periods, especially during the holiday season from early November through January. The KY 237/Worldwide Boulevard intersection is regulated by police officers to reduce interstate spillback. Providing priority to traffic from the Interstate and into the warehousing areas during this peak causes southbound traffic on KY 237 to back past the Graves Road roundabout at times.

Traffic data collection was conducted the week of November 8, 2016. Count locations are illustrated on **Exhibit 1** in **Appendix A**. This provided updated data along I-275, KY 237, KY 20, KY 3608 and Graves Road.

I-275 east of KY 237, carries approximately 60,000 vehicles per day,



Illustrated above is the queue along KY 237 during the PM Peak. It commonly backs up through the Cardinal Way roundabout as illustrated below.



while west of KY 237, traffic decreases to 42,000 vehicles per day. East of KY 237, truck percentages along I-275 are 36.0 percent (approximately 22,000 trucks) and decrease to 19.3 percent west of KY 237. I-275, east of KY 237, is a 6-lane urban interstate and transitions to 4-lane rural interstate west of KY 237. KY 237 ramp volumes range from 6,400 to 15,600 vehicles per day.

KY 237 is a 4-lane divided roadway south of I-275 and transitions to a 2-lane divided roadway north of I-275. Between Graves Road and KY 20, there are seven signalized intersections, two roundabouts and five unsignalized intersections. Along KY 237, truck percentages range from 2.0 percent to 12.2 percent, with the largest percentages between Worldwide Boulevard and KY 20. This equates to more than 4,300 daily trucks along portions of KY 237, which are serving the airport and numerous industrial facilities throughout the study area. Graves Road is a 2-lane roadway with traffic ranging from 1,800 to 2,700 vehicles. Outside of Worldwide Boulevard, Graves Road primarily serves local homes, residential neighborhoods and farmland. Worldwide Boulevard is a three-lane urban roadway traveling through the Park West International Business Park connecting to KY 237 to the east and Graves Road to the west.

Along I-275, all mainline, weave, merge and diverge segments were analyzed using *Highway Capacity Manual* methodologies and simulated using VISSIM. Based on this analysis, all interstate movements currently operate at LOS C or better and volume to capacity ratios are less than one. These results are shown on **Table 1**. However, based on field investigation and simulation modeling of the study area, traffic is regularly observed to back up onto I-275 during peak times.

Table 2 illustrates the HCS LOS and delay at key KY 237 intersections between KY 20 and Graves Road. As highlighted in red, several approaches and/or overall intersections experience LOS E or F conditions. Several also experience a queue storage ratio over one, meaning spillback is occurring into the through lanes. These intersection approaches are noted with an asterisk (*) in Table 2. The results are illustrated on **Exhibits 2** through **4** in **Appendix A**. Observed queues were also noted during the data collection process. The PM Peak queues were approximated and illustrated on **Figure 3**.

1.6 2040 No Build Traffic Analysis

Through coordination with OKI Regional Council of Governments (OKI), future year (2040) daily volumes were developed for the area of influence. In addition, the population and employment assumptions within the OKI model were reviewed with Boone County Planning staff. As a result of this meeting and review of the model, three existing traffic analysis zones (TAZs) were split for the proposed project, populations and employment adjusted and reassigned. Considering these changes, the model was run to determine future year daily volumes and growth rates. This data was then reviewed and a recommended set of traffic volumes developed.

Along I-275, a growth rate of 1.8 percent was applied, while a 2 percent growth rate was used for KY 237. This resulted in 2040 projected daily traffic along I-275 between 63,000 west of KY 237 to 90,800 east of KY 237. KY 237 ramp volumes ranged from 10,100 to 24,600 daily users.

Under "No-Build" conditions, Interstate 275 level of service degraded to LOS E in the PM peak hour for four segments, while several others dropped to LOS D (acceptable in urban areas). As with the existing conditions, this doesn't show a complete picture because eight KY 237 intersections are expected to experience poor levels of service and six of those eight have spillback of queues and associated safety concerns. The future year analysis included the additional turn lane onto Worldwide Boulevard from KY 237 and the additional northbound lane along KY 237 north of Tanners Lane. However, the KY 237/Worldwide Boulevard intersection will still operate at LOS F during the PM Peak if nothing more is done. **Table 3** illustrates the interstate traffic operations, while **Table 2**, previously shown, highlights 2040 intersection LOS and delay at key KY 237 intersections.

	Eastbound		LC)S	v/c		Density		
SEGMENT	FROM	то	AM	РМ	АМ	РМ	АМ	РМ	
Mainline	West of KY 3608	KY 3608 diverge	В	В	0.45	0.47	16.4	17.1	
Off Ramp	KY 3608 diverge		С	С	0.45	0.47	18.8	19.8	
Mainline	Between KY 3608 ramps	KY 3608 merge	В	В	0.44	0.43	16.1	16.0	
On Ramp	KY 3608 merge		В	В	0.47	0.46	18.8	18.6	
Mainline	KY 3608 merge	KY 237 diverge	В	В	0.47	0.46	17.0	16.8	
Off Ramp	KY 237 diverge		С	С	0.47	0.46	20.0	19.9	
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	В	А	0.32	0.29	11.8	10.7	
On Ramp	KY 237 merge (lane addition)		В	В	0.48	0.45	17.8	16.3	
Mainline	KY 237 merge	East of KY 237	В	В	0.48	0.45	17.4	16.3	
-	Westbound		LC)S	V/C		Density		
SEGMENT	FROM	то	AM	PM	AM	PM	AM	РМ	
Mainline	East of KY 237	KY 237 diverge	В	С	0.32	0.55	11.6	19.8	
Off Ramp	KY 237 diverge		В	с	0.32	0.55	12.9	22.1	
Mainline	KY 237 first diverge	KY 237 second diverge	А	В	0.23	0.42	8.5	15.8	
Off Ramp	KY 237 second diverge		В	с	0.23	0.42	9.3	16.9	
Mainline	KY 237 second diverge	KY 237 merge	А	А	0.10	0.28	3.8	10.4	
On Ramp	KY 237 merge		А	В	0.19	0.31	6.3	11.9	
Mainline	KY 237 merge	I-275 lane drop	А	В	0.19	0.31	6.8	11.4	
Mainline	I-275 lane drop	KY 3608 diverge	А	В	0.28	0.47	10.2	17.0	
Off Ramp	KY 3608 diverge		В	С	0.28	0.47	11.7	19.6	
Mainline	KY 3608 diverge	KY 3608 merge	А	В	0.25	0.44	9.5	16.6	
On Ramp	KY 3608 merge		А	В	0.28	0.49	11.3	19.6	
Mainline	KY 3608 merge	West of KY 3608	A	В	0.28	0.49	10.3	17.7	

Table 1. 2016 Existing I-275 Traffic Operations

Density is measured in passenger cars per mile per lane.

	2016 Existing			2040 No Build				
	А	М	P	М	A	М	P	М
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
KY 237 at KY 20 (MP 9.41	8)							
Intersection	40.5	D	80.7	F	186.4	F	497.7	F
Eastbound	64.7*	E	81.8*	F	178.1*	F	126.8*	F
Westbound	55.6*	E	67.8*	F	90.1*	F	89.1*	F
Northbound	32.7	С	51.4*	D	270.1	F	657.1*	F
Southbound	31.5	С	116.8	F	100.2*	F	640.8*	F
KY 237 at Limaburg Rd/B	arbara Dr (MP	9.698)			-			
Intersection	12.9	В	23.7	С	25.8	С	92.2	F
Eastbound	50.7	D	214.6	F	95.0	F	663.3	F
Westbound	61.2	E	77.7	E	115.5	F	222.9	F
Northbound	10.2	В	11.5	В	16.9	В	14.7	В
Southbound	5.7	A	8.5	A	13.3*	В	52.0	D
KY 237 at Medical Arts D	r/Litton Ln (M	P 10.309)						
Intersection	25.1	С	59.5	E	51.9	D	86.4	F
Eastbound	67.4*	E	65.4*	E	196.1*	F	107.4*	F
Westbound	89.8	F	132.0*	F	214.1	F	436.0*	F
Northbound	20.5	С	86.0	F	40.6	D	63.2	E
Southbound	17.8	В	26.0	С	20.1	С	54.0*	D
KY 237 at I-275 EB Ramps	s (MP 10.450)				. <u></u>			
Intersection	19.6	В	46.5	D	28.4	С	87.1	F
Eastbound	87.4	F	405.6	F	199.3	F	835.2	F
Northbound	14.4	В	24.1	С	25.1	С	31.8	С
Southbound Left	40.0	D	66.5	E	40.7	D	78.7	F
Southbound Thru	2.0	A	2.3	A	2.9	A	3.0	А
KY 237 at I-275 WB Ram	os (MP 10.704)		•	•	•			
Intersection	22.2	С	20.3	C	34.2	С	18.0	В
Northbound Left	85.8*	F	67.6*	F	143.7*	F	43.0*	F
Northbound Thru	0.1	A	0.4	A	0.1	A	0.3	A
Southbound	10.0	A	12.5	В	12.8	В	18.7	В
KY 237 at Southpark Dr/	Worldwide Blv	d (MP 11.023)	1	I	-			
Intersection	62.3	E	185.6	F	51.1	D	304.5	F
Eastbound	75.9*	E	333.9*	F	95.6*	F	516.9*	F
Westbound	64.5	E	63.5*	E	79.1*	E	82.6*	F
Northbound	56.8	E	128.4	F	37.4	D	278.3	F
Southbound	64.4	E	230.0*	F	45.0	D	292.0*	F
KY 237 at KY 2846/Globa	il Way (MP 11.)	207)	1		1		1	
Intersection	12.1	В	27.9	C	13.1	В	198.0	F
Eastbound	52.2	D	54.7	D	47.1	D	106.9	F
Westbound	55.5*	E	160.2*	F	52.6*	D	1470.0*	F
Northbound	5.7	A	6.4	A	9.4	A	10.5	В
Southbound	10.9	В	12.0	В	10.5	В	10.4	В
KY 237 at Cardinal Way (MP 11.412)	_		_		-		
Intersection	65.7	F	44.4	E .	282.8	F	223.9	F
Eastbound	65.7	F	7.4	A	23.5	C	11.7	B
Westbound	5.8	A	11.2	В	8.3	A	25.2	D
Northbound	7.2	A	64.8	F	11.1	В	320.6	F
Southbound	88.7	F	14.3	В	389.1	F	79.7	F

Table 2. 2016 Existing and 2040 No Build KY 237 Intersection Traffic Operations

Movements approaching or at capacity in either the AM or PM peak hour are highlighted in red. Queue Storage Ratio greater than 1 is noted with an (*).

Figure 3. 2016 PM Peak Queue Lengths



Table 3. 2040 No Build I-275 Traffic Conditions

	<u>Eastbound</u>		LC)S	v/c		Density		
SEGMENT	FROM	то	AM	РМ	AM	РМ	АМ	РМ	
Mainline	West of KY 3608	KY 3608 diverge	С	D	0.68	0.71	25.0	26.3	
Off Ramp	KY 3608 diverge		D	D	0.68	0.71	28.6	30.2	
Mainline	Between KY 3608 ramps	KY 3608 merge	С	С	0.64	0.62	23.6	22.7	
On Ramp	KY 3608 merge		С	С	0.72	0.69	29.8	28.2	
Mainline	KY 3608 merge	KY 237 diverge	D	С	0.72	0.69	26.6	25.1	
Off Ramp	KY 237 diverge		D	D	0.72	0.69	31.1	29.9	
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	В	В	0.49	0.42	18.0	15.2	
On Ramp	KY 237 merge (lane addition)		С	С	0.70	0.68	27.4	25.5	
Mainline	KY 237 merge	East of KY 237	С	С	0.70	0.68	25.8	24.9	
	Westbound		LC)S	V/C		Density		
SEGMENT	FROM	то	AM	РМ	AM	РМ	AM	РМ	
Mainline	East of KY 237	KY 237 diverge	с	D	0.50	0.83	18.2	31.9	
Off Ramp	KY 237 diverge		с	Е	0.50	0.83	20.7	34.2	
Mainline	KY 237 first diverge	KY 237 second diverge	В	с	0.35	0.62	13.5	23.8	
Off Ramp	KY 237 second diverge		В	D	0.35	0.62	14.8	25.7	
Mainline	KY 237 second diverge	KY 237 merge	А	В	0.16	0.40	6.0	15.1	
On Ramp	KY 237 merge		В	с	0.30	0.59	10.1	22.2	
Mainline	KY 237 merge	I-275 lane drop	А	с	0.30	0.59	10.8	21.0	
Mainline	I-275 lane drop	KY 3608 diverge	В	Е	0.45	0.88	16.2	35.2	
Off Ramp	KY 3608 diverge		С	Е	0.45	0.88	18.8	36.8	
Mainline	KY 3608 diverge	KY 3608 merge	В	D	0.37	0.83	14.0	31.9	
On Ramp	KY 3608 merge		В	D	0.45	0.94	18.0	42.0	
Mainline	KY 3608 merge	West of KY 3608	В	F	0.45	0.94	16.3	39.6	

Red lettering signifies either AM or PM peak hour at a LOS E (breakdown). A density of 34.0 passenger cars per mile per lane is the breakover point from LOS D to E.

1.7 Existing Safety Analysis

To identify safety concerns, a crash analysis was conducted along study area roadways. Crash records were obtained from the Kentucky State Police database. The data was acquired for a five-year period (January 1, 2012 through December 31, 2016). Using the latest analysis procedures and statewide statistics detailed in the *Analysis of Traffic Crash Data in Kentucky* (2011-2015) research report published by the Kentucky Transportation Center, high crash segments and spots were identified.

Along 19.7 miles of study area roadways, 1,267 crashes were reported. These included two fatalities and 173 injury crashes. Both fatalities occurred along I-275. The crash data by severity is illustrated on **Exhibit 5** in **Appendix A**. Overall, 481 crashes (38%) were single vehicle followed by 384 rear end (30%) crashes. The crash data illustrated by crash type in shown on **Exhibit 6** in **Appendix A**.

1.7.1 Segment Analysis

Critical rate factors are a measure of roadway safety expressed as a ratio of the local crash rate to the average crash rate for roadways with similar characteristics. Segments will vary in length and are divided along roadways where geometric conditions and/or traffic volumes change. For each segment, the 2016 average daily traffic, type of facility, number of lanes, and area type (rural/urban) were noted. This provided the data needed to identify the corresponding crash rate. If the critical rate factor is 1.00 or greater, it is concluded that crashes are not happening due to random occurrence. Therefore, more detailed study is needed to determine if there are geometric design deficiencies that could be addressed in order to improve the overall safety of the roadway.

The crash analysis for this IJS evaluated I-275, KY 237, Graves Road, and KY 20 in detail. Twelve segments were analyzed and five were determined to have a critical rate factor (CRF) greater than 1.00. The segments are illustrated on **Figure 4** and summarized in **Table 4**. I-275 between Graves Road and KY 3608 (Exit 11) has a CRF of 1.14. Graves Road, south of I-275, has a CRF of 2.04 and included a high number of single vehicle crashes. This section of Graves Road has 9 to 10-foot lanes, no shoulders and a tight s-curve. KY 20 has two segments with CRFs greater than 1.00. The first segment runs from KY 3608 to Graves Road, while the second segment runs from Bullock Lane to KY 237. Like Graves Road, KY 20 has 9 to 10-foot lanes and no shoulders.

KY 237 has a CRF of 2.24 between I-275 and Global Way. This section of KY 237 is highly congested as indicated by the lengthy queues and spillback that occurs onto I-275, particularly during the holiday season between November and January. A minor widening project is underway to add a turn lane onto Worldwide Boulevard from KY 237 and an additional lane along KY 237 north of Tanners Lane. This project is currently in the right-of-way phase and is scheduled to go to construction in FY 2018. The Worldwide Boulevard turn lane and the additional lane on KY 237 north of Tanners Lane will offer improvements to traffic flow and have a corresponding positive effect on crash rates in that area.

Segment Number	Location				Crashes				Critical
	Roadway	Begin Milepoint	End Milepoint	ADT	Fatal	Injury	PDO	Total	Rate Factor (CRF)
1	Graves Road	0.000	0.680	2,300	0	2	44	46	2.04
2	Graves Road	0.680	2.076	2,300	0	4	28	32	0.80
3	KY 20	10.873	14.525	1,300	0	10	64	74	1.90
4	KY 20	14.525	16.078	5,100	0	8	49	57	0.66
5	KY 20	16.078	16.620	7,800	0	11	46	57	1.13
6	KY 20	16.620	18.696	8,000	0	6	84	90	0.54
7	KY 237	9.418	10.542	24,900	0	26	176	202	0.87
8	KY 237	10.542	11.200	15,400	0	25	183	208	2.24
9	KY 237	11.200	11.897	15,400	0	7	59	66	0.58
10	I-275	4.133	7.138	54,500	0	34	171	205	0.54
11	I-275	7.138	8.500	33,500	1	15	49	65	0.91
12	I-275	8.500	11.509	33,500	1	25	139	165	1.14

Table 4. Crash Statistics by Segment (2012-2016)

1.7.2 Spot Analysis

A spot crash analysis was conducted along the same study area routes. For this analysis, spots are defined as 0.3-mile sections where crashes were concentrated. Like the segment analysis, crash spots were compared to statewide data to identify spot locations experiencing above average crash rates. The spots are illustrated on **Figure 4** and summarized in **Table 5**.

Along the study routes, 39 spots were identified with CRFs above one. They ranged between 1.18 and 8.73. These spots were spread throughout the study area, many falling within the boundaries of the segments described in the previous section. The location with the highest number of crashes and highest critical rate factor was along KY 237 north of I-275. Again, the proposed improvement project at Worldwide Boulevard will provide some improvement, but congestion along KY 237 will likely remain a concern as traffic continues to build. Another location with a high CRF is Graves Road in the s-curve previously noted.

Figure 4. High Crash Spots and Segments



	Location		ADT	Crashes				Critical
Spot Number	Roadway	Milepoint (Midpoint)		Fatal	Injury	PDO	Total	Rate Factor (CRF)
1	Graves Road	0.150	2,300	0	1	17	18	3.24
2	Graves Road	0.458	2,300	0	1	27	28	5.04
3	Graves Road	1.391	2,300	0	1	8	9	1.62
4	Graves Road	1.702	2,300	0	2	9	11	1.98
5	KY 20	11.480	700	0	0	8	8	3.73
6	KY 20	11.979	700	0	2	4	6	2.80
7	KY 20	12.886	700	0	1	6	7	3.27
8	KY 20	13.343	2,400	0	0	6	6	1.51
9	KY 20	13.700	2,400	0	2	8	10	2.51
10	KY 20	14.012	2,400	0	1	9	10	2.51
11	KY 20	14.342	2,400	0	1	16	17	4.27
12	KY 20	15.486	5,100	0	2	17	19	2.05
13	KY 20	15.937	5,100	0	4	17	21	2.27
14	KY 20	16.461	7,800	0	9	40	49	3.94
15	KY 20	16.770	8,000	0	1	53	54	4.26
16	KY 20	18.334	8,000	0	1	14	15	1.18
17	KY 237	9.568	24,900	0	10	63	73	2.77
18	KY 237	10.273	24,900	0	9	54	63	2.39
19	KY 237	10.574	24,900	0	6	30	36	1.36
20	KY 237	10.887	15,400	0	19	140	159	8.73
21	KY 237	11.191	15,400	0	5	42	47	2.58
22	I-275	4.550	54,500	0	3	22	25	1.36
23	I-275	4.960	54,500	0	4	24	28	1.52
24	I-275	5.919	54,500	0	6	17	23	1.25
25	I-275	6.235	54,500	0	2	23	25	1.36
26	I-275	6.561	54,500	0	8	33	41	2.22
27	I-275	7.376	33,500	0	2	8	10	1.33
28	I-275	7.744	33,500	0	4	17	21	2.79
29	I-275	8.056	33,500	1	5	10	16	2.13
30	I-275	8.387	33,500	0	4	14	18	2.39
31	I-275	8.704	33,500	0	2	18	20	2.66
32	I-275	9.045	33,500	0	3	14	17	2.26
33	I-275	9.346	33,500	0	0	14	14	1.86
34	I-275	9.683	33,500	0	0	14	14	1.86
35	I-275	9.991	33,500	1	5	12	18	2.39
36	I-275	10.302	33,500	0	5	18	23	3.06
37	I-275	10.613	33,500	0	3	10	13	1.73
38	I-275	10.957	33,500	0	1	22	23	3.06
39	I-275	11.259	33,500	0	5	11	16	2.13

Table 5. Crash Statistics by Spot (2012-2016)

1.8 Environmental Overview

The proposed project, a new interchange to the Interstate System, is considered a federal action and therefore must follow the processes outlined in the National Environmental Policy Act (NEPA). This policy requires that environmental, social, and economic effects be assessed and considered in the decision-making process. This environmental process, culminating in an approved environmental document, must be completed before this IJS receives final FHWA approval. The NEPA process for this project is well underway and the following sections provide a brief summary of the environmental, social, and economic effects that have been or will be assessed within the NEPA document.

1.8.1 Natural Environment

Farmland

The limits of the IJS have been submitted to the Natural Resources Conservation Service (NRCS) office in Boone County to identify Prime and Unique Soils and a Land Evaluation Site Assessment (LESA). The response from NRCS showed that just over 100 acres of Prime and Unique Farmland would be impacted by both alternatives. Both alternatives had a LESA score in the 80's, much lower than the 160-score threshold where mitigation measures must be considered. Also, a review of the National Conservation Easement (part of the KY Farmland Preservation Program) database showed that no easements have been purchased in the project area.

Water Quality & Streams

Early coordination with the Kentucky Division of Water (KDOW) noted that the proposed project has the potential to impact Sand Creek and Woolper Creek. The section of Woolper Creek along KY 20 is identified as "impaired" by KDOW for warm water aquatic habitat use. Records from KDOW also indicated that domestic groundwater well users are present within the study area. Neither of the two streams mentioned, nor any other stream in the study area, is considered an Exceptional Water, Special Use Water, Reference Reach Water, or Outstanding State Resource Water.

Sand Run and Woolper Creek are both relatively disturbed from transportation activities and are only partially supportive of aquatic life. During a visual search for mussels, no live mussels were found and two relict shells were identified in Woolper Creek. Fish sampling also occurred in project streams. The most commonly encountered fish were from the Cyprinidae family, which are known to be fairly tolerant of pollution.

Field analysis indicated that the larger, second, third, and fourth order streams tended to have higher conductivity but better habitat quality, while the headwater streams, often with drainages of less than 15 acres, had much lower habitat quality, but somewhat lower conductivity. Alternative 1 impacted approximately 4,540 linear feet of stream while Alternative impacted approximately 5,125 linear feet.

Analysis of the streams in the study area will be provided in the Terrestrial-Aquatic Impact Analysis and the final NEPA document. A U.S. Army Corps of Engineers (USACE) Section 404 permit and a KDOW Section 401 permit will also be required before project construction.
Floodplains and Wetlands

The Federal Emergency Management Act's (FEMA) Digital Flood Insurance Rate Maps (DFIRM) were used to identify any regulatory floodplains that would be crossed by the proposed project. There currently are no direct impacts to floodplains as part of this project.

Three wetlands, one emergent and two ponds, were identified through field investigations and a review of the National Wetland Inventory (NWI). Two of the wetlands were delineated but access was not granted to the third by the property owner. Its size was estimated using the NWI mapping. The three wetlands are shown in the Environmental Overview Map, **Exhibit 7** of **Appendix A**. Impacts to Alternative 1 are estimated at 3 wetlands and 0.282 acres. Impacts to Alternative 2 are estimated at 2 wetlands and 0.203 acres. Additional details and analysis will be included in the Terrestrial-Aquatic Impact Analysis and the final NEPA document. Further delineation and survey of impacted wetlands will be completed in conjunction with the KDOW 401 Water Quality Certification and 404 USACE permit application for the selected alternative.

Threatened and Endangered Species

KYTC maintains a master list of threatened and endangered species throughout the state. The list is a cumulation of species list developed by the US Fish and Wildlife Service (USFWS), the Kentucky Department of Fish and Wildlife Resources (KDFWR), and the Kentucky State Nature Preserves Commission (KSNPC). **Table 6** below lists the species listed by the three agencies for Boone County.

Two habitat assessments, one during the winter and one in the spring of 2017, were performed to identify species, unique ecological areas, and potential habitat for the listed mussels and running buffalo clover. The spring assessment was performed during the known blooming season for running buffalo clover. Limited habitat existed for running buffalo clover within the project area and no running buffalo clover was discovered during field survey efforts. The areas of potential habitat are shown on the Environmental Overview Map in **Appendix A**.

As mentioned, field investigations included a visual search of Sand Run and Woolper Creek for mussels. Two relict shells were identified and neither was a T&E species. A finding of no effect for the listed mussel species is expected for the project.

For federally listed bats, early coordination with Kentucky Speleological Survey (KSS) showed no recorded caves in Boone County. Coordination was followed by a 1.5-km portal survey searching for the presence of bats in caves, rock shelters, and cliff lines. None were found, and therefore no evidence of bats was discovered. No presence/absence studies were conducted. Both alternatives will result in clearing approximately 23 acres of potential habitat, though, so a Biological Assessment will be required prior to construction. The Biological Assessment will make formal effect determination for the federally-listed species of bats and identify any mitigation measures required of the project (i.e., tree cutting restrictions, erosion control measures, etc.).

Table 6. Listed Species Near the Project Area

Name	Scientific Name	Agency	Federal Status
Fishes			
Diamond Darter	Crystallaria cincotta	KSNPC	Endangered, CH
Mammals			
Gray Bat	Myotis grisescens	USFWS	Endangered
Indiana Bat	Myotis sodalis	USFWS, KDFWR	Endangered
Northern Long-eared Bat	Myotis septentrionalis	USFWS	Threatened w/ the 4(d) Rule
Mussels			
Catspaw	Epioblasma obliquata obliquata	KSNPC	Endangered
Clubshell	Pleurobema clava	USFWS, KSNPC	Endangered
Fanshell	Cyprogenia stegaria	USFWS, KSNPC	Endangered
Northern Riffleshell	Epioblasma torulosa rangiana	KSNPC	Endangered
Orangefoot Pimpleback	Plethobasus cooperianus	USFWS, KSNPC	Endangered
Pink Mucket	Lampsilis abrupta	USFWS, KSNPC, KDFWR	Endangered
Rayed Bean	Villosa fabalis	KSNPC	Endangered
Ring Pink	Obovaria retusa	USFWS, KSNPC, KDFWR	Endangered
Rough Pigtoe	Pleurobema plenum	USFWS, KSNPC	Endangered
Scaleshell	Leptodea leptodon	KSNPC	Endangered
Sheepnose	Plethobasus cyphyus	USFWS, KSNPC	Endangered
Spectaclecase	Cumberlandia Monodon	KDFWR, KSNPC	Endangered
Plants			
Running Buffalo Clover	Trifolium stoloniferum	USFWS, KSNPC	Endangered

1.8.2 Human Environment

Communities & Community Resources

The project is situated across the communities of Hebron and Francisville, KY. The public resources in the area include schools, parks, a post office, public safety/fire services and a library. The private community resources include grocery stores, multiple retail stores, gas stations, child care centers, banks, and a popular local barbershop. The religious institutions in and around the project area are all Christian churches of various denominations. Most of the resources are clustered near the KY 20 / KY 237 intersection or near the I-275 at KY 237 interchange. Only a few resources are located along the proposed project corridor.

A city fire station located on Graves Road just north of Worldwide Boulevard is being impacted by the project and would be relocated by both build alternatives. The impact to the fire station was reduced by the shift west of the Recommended Alternative and relocation may not be necessary. There is also one commercial relocation with both build alternatives. The property, formally known as Pennington Market, is now empty and available for rent as office space.

Right-of-Way, Relocations and Environmental Justice

The project team has worked and continues to work to minimize the number of relocations, but construction of a new roadway typically results in unavoidable right-of-way acquisitions and relocations.

Each alternative will impact just over 100 acres of farmlands. Up to 22 residences could be relocated by the proposed project. The improvements to KY 20 considered early in the design process would have resulted in an additional 22 home relocations.

No 6(f) resources were identified in the project area and therefore, no impacts to 6(f) resources are anticipated. There are no parks or other publicly owned property within the study area. The only 4(f) resources in the project area are privately owned historic homes as described below. No impact to 4(f) resources is anticipated by the project.

An environmental justice analysis has not yet been initiated but will be begin during the NEPA process to identify and address impacts which disproportionately adversely affect minority or low-income populations in the project area.

Cultural & Archaeological Resources

An Archaeology Overview has been completed for the project and was submitted to KYTC. The review of the Office of State Archaeology records found six previously recorded sites in the study area. One has been destroyed by construction and the other five were inventory sites considered not eligible for the National Register of Historic Places (NRHP) and no further work was recommended. It was also noted that although portions of the study area have previously been surveyed, most of the project area along Graves Road has not. With un-surveyed areas and historic maps suggesting the potential for historic archaeological sites in the project area, a more formal intensive survey of the project area will be required.

A Cultural Historic Resource Baseline Survey was completed for the project and identified one resource eligible for inclusion on the NHRP within the study area. The Allie Corn Farmstead has been listed on the NRHP since 1989 and is located along Graves Road just south of I-275. In the baseline survey, it was recommended that the boundary be expanded to include all the property on the west side of Graves Road and a larger portion of the property on the east side of the road. This property was identified early in the project development and the alternatives were purposely designed to the west of the property. Each alternative was designed to the west with an existing tree line meant to serve as a buffer between the new Graves Road and the historic resource.

The baseline survey was reviewed by the State Historic Preservation Office (SHPO) and a response was received on February 7, 2018. SHPO agreed with the expanding the boundary of the Allie Corn Farmstead. They also believe that an additional site within the study area, a home along Williams Road, appears to be eligible for inclusion on the NHP. This home is not impacted by either proposed Alternative. SHPO agreed that the remaining sites appear to not be eligible for inclusion on the NRHP.

The location of the NRHP listed site and the additional site eligible for inclusion on the NRHP are shown on the Environmental Overview Map in **Appendix A**.

Highway Traffic Noise & Air Quality

The new interchange of I-275 and Graves Road in Boone County, Kentucky would be classified as a Type I project in accordance with 23 CFR Part 772.5. Since the project is a Type I project under 23 CFR Part 772, a highway traffic noise study is necessary. The traffic noise study will occur as a part of the NEPA process to assess the potential for noise impacts from the improved roadways in the project area. Existing noise levels will be measured or predicted for noise sensitive receptors in the project area and future noise levels will be modeled using the FHWA approved TNM 2.5 noise model. For area receptors where noise impacts are predicted to occur, mitigation through structural noise barriers will be evaluated in accordance with the KYTC Noise Policy. The assessment noise levels, impacts and structural noise barrier feasibility and reasonableness will be completed in the near future and results will be included in the NEPA document.

Hazardous Materials

Coordination with Environmental Data Resources, Inc. (EDR) identified over 160 known hazmat sites of environmental concern within a one-mile buffer surrounding the project area. A site reconnaissance of the project area found an additional 6 potential sites of concern. After further analysis of over 166 sites, three were identified as sites of concern and potentially impacted by each alternative of the project. Two of the three are outside of the limits of each alternative and will not require a Phase II Site Investigation (SI). The third, located near the Graves Road and KY 20 intersection, is impacted by each build alternatives and is recommended for a Phase II SI. The three sites identified are shown on the Environmental Overview Map in **Appendix A**.

Coordination

Early and ongoing coordination has occurred with local, state, and federal agencies, including several Boone County officials. All agency comments are being considered during the project development process.

Public Involvement

A public meeting was held on November 16, 2017 in Boone County to present and gather input on the proposed interchange design and to survey the public's preference on the two Williams Road alternatives. Prior to the meeting, multiples media sources were used to spread the word to the public. KYTC advertised the meeting through message board in the project area, advertisements in the local paper, and posts on their webpage and social media accounts. They also coordinated with Boone County officials to send a text notification through the counties Smart911 system to citizens who have opt-in to the service. The local TV station and newspaper ran stories on the public meeting

Approximately 215 members of the community signed in to the public meeting. An information handout, large boards showing the proposed project on aerial imagery, and a flyover video of the proposed project were all used to inform the public. Also, over twenty KYTC representatives were on hand to help explain the project and answer questions. Over 60 comment forms were returned from the public. All comments were reviewed and considered by KYTC. The comments were generally positive, with most of responses saying that the project is needed. The majority of responses also indicated that the Red alternative was the preferred Williams Road alternative.

1.8.3 Summary of Environmental and Public Involvement Activities

To date, field investigations and office research for cultural resources, socioeconomics, ecology, and hazardous materials have taken place. Coordination with regulatory agencies has also occurred. A public meeting was held with over 200 attendees and over 60 comments sheets were received.

Although further investigations and analysis is required to determine impacts and complete the NEPA process, the work performed to-date has not presented any critical environmental impacts that could arise from this project. **Table 7** below summarizes the impacts of Alternative 1 and 2 identified in the writing of the impact analysis. As the project progresses and design continues to evolve, the environmental impacts will continue to be evaluated, shared with the project team, and taken into consideration during the decision-making process. This is evident by shift of the Recommended Alternative to the west that reduced impacts to residential and community resources. Further analysis of the Recommended Alternative will be performed, documented, and provided in the final NEPA document.

	Alternative 1	Alternative 2
Streams (If)	4,536.22	2,572.26
Ephemeral	691.67	801.42
Intermittent	2,142.56	2,572.26
Perennial	1,701.99	1,897.16
Wetlands (# / acres)	3 / 0.282	2 / 0.203
Forested Habitat (acres)	22.81	23.30
Farmland (acres)	106	108
Residential Relocations	22	15
Commercial Relocations	0	0
Community Resource Relocations	1	1
UST/Hazmat Sites Requiring A Phase II Site Investigation	1	1
Impacts to NHRP Eligible Sites	None	None
4(f) or 6(f) Resource Impact	None	None

Table 7. Summary of Known Environmental Impacts

*This summary table does not include the improvements to KY 20 considered early in the design phase. As discussed later in this report, the KY 20 improvements had been dismissed before most of the environmental analysis was concluded, and therefore impacts were not assessed.

2.0 Project Purpose and Need

The purpose of this project is to improve traffic mobility and safety in a rapidly growing area adjacent to I-275 between Interstate Exits 8 and 11 in northern Boone County.

I-275, a circular route around Cincinnati and northern Kentucky, traverses east-west in Boone Co., KY and carries between 42,000 and 60,000 vehicles daily within the study area and as many as 21,700 trucks daily. Located just south of Exit 4 on I-275 and near the eastern border of Boone County is the Cincinnati/Northern Kentucky International Airport (CVG). This airport serves multiple cargo and passenger airlines carrying more than 6.8 million passengers yearly and considers itself one of the fastest-growing airports in North America. As the airport has grown, so has the development surrounding it, particularly in areas adjacent to I-275 to the west. Just west of the airport is the I-275 interchange with KY 237 (Exit 8) that serves multiple nearby warehouses and businesses and several residential neighborhoods including Cardinal Cove, Parlor Grove Estates, North Pointe and Treetops. KY 237 also provides access to several million square feet of distribution and warehousing space in the Park West International Industrial Park. More than 4,300 trucks travel KY 237 daily and is forecasted to increase to more than 6,700 in 2040. Further to the west is Exit 11 at KY 3608, an underutilized interchange serving primarily the Creation Museum and northwestern, rural Boone County. The study area included other significant routes in the area between Exit 8 and 11, including KY 20 and Graves Road. KY 20 is a major collector route running parallel to I-275 to the south. Graves Road runs north south beginning at KY 237 north of I-275, bridging over the interstate, and ending at KY 20 to the south.

The growth in this area is a microcosm of the overall growth occurring in Boone County. The acreage used for industrial/business in Boone County increased from 6,866 acres in 2009 to 7,660 acres in 2016. There is an additional 6,564 acres zoned for industry/business that have not yet been built upon. The population of Boone County continues to grow as well. The population has increased from 118,811 in 2010 to an estimated 130,000 today. The increased population corresponds to an increase in housing units, from 45,053 in 2010 to 47,878 in 2016. Currently it is estimated these numbers are growing at a rate of 1,400 people per year and 530 new housing units a year.

This continual growth in Boone County and around the airport has put a strain on the existing roadways. Exit 8 is especially subject to lengthy delays because of truck traffic traveling to the cluster of industrial facilities and businesses along KY 237. This traffic congestion includes traffic backing up onto I-275 from the KY 237 westbound off-ramp. Recent announced expansions of local businesses, and additional approved residential development plans, mean that traffic is expected to increase dramatically over the next 10 years in the study area.

I-275, east of KY 237, carries approximately 60,000 vehicles per day and is expected to grow to 90,000 in 2040. West of KY 237, traffic decreases to 42,000 with a forecast of 63,000 vehicles per day. KY 237 ramp volumes also show an increased forecast, from existing 6,400-15,600 vehicles per day to a 2040 forecasted volume of 10,100-24,600 vehicles per day. This results in

several LOS E conditions, including the westbound KY 237 diverge and westbound mainline west of KY 237. The latter occurs because of the westbound transition from three lanes to two lanes. Along KY 237, north and south of I-275, there are several intersections and/or movements experiencing LOS E and F conditions including: KY 20, Limaburg Road/Barbara Drive, Medical Arts Drive/Litton Drive, I-275 Westbound Ramps, I-275 Eastbound Ramps, Southpark Drive/Worldwide Boulevard, KY 2846/Global Way, Cardinal Way, and Graves Road/Old North Bend Road.

The traffic backups and delays caused by the increasing traffic demand are also posing more highway safety concerns for those who travel area roadways. Between 2012 and 2016, 1,267 crashes were reported along the 19.7 miles of roadways covering I-275 from Exit 4 to Exit 11 as well as portions of KY 237, KY 20, and Graves Road. Forty-three percent of these roadways were found to have critical rate factors greater than 1.00. Furthermore, 39 high crash spots (defined as 0.3 miles or less) were identified, including several along KY 237 in close proximity to I-275. Over 300 crashes occurred within a ½ mile radius of the I-275/KY 237 interchange, including a cluster at the eastbound on-ramp. Along Graves Road, the section south of I-275 has a critical rate factor of 2.04 and included a high number of single vehicle crashes. This section of Graves Road has 9 to 10-foot lanes, no shoulders and a tight s-curve.

These traffic concerns and their corresponding safety issues demonstrate the extreme pressure the local roadway system is under due to the unusually heavy traffic demand generated by intense local economic growth. Existing interstate access is insufficient to accommodate future traffic volumes and new access is critical to the area's ability to achieve its development plans. A new I-275 Interchange at Graves Road would enable the significant diversion of area trips and relieve traffic pressure at existing choke points, primarily along KY 237 and its approach roads.

3.0 Project Alternatives

As a part of the project development process, two interchange alternatives were initially evaluated. A third "hybrid" interchange was developed later in the process to address the deficiencies with the two initial alternatives. This is referred to as the Recommended Alternative. In addition, two KY 237 improvements were recommended. The No Build Alternative was also analyzed and considered to provide a basis of comparison for the potential benefits and impacts that might result from the implementation of the build alternatives. The following sections describe the alternatives related to this project.

The alignments and locations of the proposed alternatives and options have been developed by considering the project's purpose and need, traffic operations and safety, design considerations, and environmental constraints. They have been designed to meet all geometric requirements, accommodate forecasted traffic as safely as possible, and minimize residential relocations, right-of-way takings, and interference with existing businesses and community resources.

3.1 No Build Alternative

This alternative would maintain all roadways on their present alignments and not involve any construction or work beyond routine maintenance and what has been already planned such as the KY 237 turn lanes described in Section 1.4. No relocations would be required, nor would any right of way acquisition take place. The No Build Alternative would not satisfy the project's Purpose and Need because safety concerns would not be addressed nor would regional mobility be improved. Congestion and crash numbers would worsen at the I-275/KY 237 interchange and along KY 237 due to continued economic and residential growth in the area. Spillback along eastbound I-275 would likely occur as traffic increases in the KY 237 corridor.

3.2 Improvements to Existing KY 237

Two improvements at the existing KY 237 interchange were evaluated as described below. These improvements are recommended with or without the Graves Road interchange and help address existing safety concerns.

- The eastbound on-ramp merge was reconfigured to address existing safety concerns. A high crash spot exists where KY 237 from the north and south merge onto the eastbound on-ramp. The radius for right turning traffic was reduced to slow motorists down and create additional room to merge with traffic from the north.
- The westbound off-ramp for KY 237 northbound traffic is known to back up



I-275 at KY 237 proposed improvements

onto the interstate. The ramp would be lengthened to provide additional storage space and reduce the likelihood of spillback onto the interstate.

3.3 Alternative 1

Alternative 1 would remove the existing Graves Rd overpass and construct a full diamond interchange approximately 650 feet west of the existing overpass. South of I-275, Graves Road has a tight s-curve that doesn't meet design standards and is surrounded on both sides by a historic property. Given these factors, Graves Road couldn't be widened in place. Given the proximity of Graves Road to KY 237, it was more desirable to move the interchange to west creating approximately an 8,000-foot spacing between Graves Road and KY 237. The Alternative 1 interchange is illustrated on **Figure 5**.

North of I-275, Williams Road would be realigned and widened to three lanes for approximately 0.45 miles. Williams Road will be a curb and gutter section and include six-foot sidewalks on both sides of the road. This improvement is also illustrated on **Figure 5**. It will be tied in opposite Worldwide Boulevard, approximately 1,900 feet north of the westbound ramps. Limiting access along Graves Road north and south of the interchange will help maintain progression along the corridor.

Graves Road would be realigned and widened to a four-lane divided urban section between the proposed interchange and KY 237 and is shown on **Figure 6**. The existing minimal shoulders would be replaced with curb and gutter and six-foot sidewalks. A raised median would be provided. Some minor realignment to the interior of the curves may be needed for proper design. To the south, a new connection to Watts Road and Old Graves Road would be provided approximately 2,000 feet south of the eastbound ramps. Graves Road and Bullittsville Road would be realigned to tie-in opposite one another.

In order to provide a connection to KY 237 to the south, Alternative 1 proposes to widen Petersburg Road (KY 20) from the intersection of Graves Road to approximately 0.5 miles east of KY 237. The typical section from Graves Road to KY 237 would be similar to that of the improved Graves Road described above, a five-lane urban roadway. The roadway would be widened primarily to the south of the existing roadway, to avoid impacts to identified historic properties. The typical section east of KY 237 would be a three-lane urban section. This option is illustrated on **Figure 7**.

Alternative 1 would also include the two improvements proposed for the existing I-275/KY 237 Interchange ramps mentioned earlier in Section 3.2 and include dual left turn lanes along KY 237 at the I-275 Westbound ramps to accommodate increased traffic between the two interchanges.





I-275 at Graves Road Interchange Justification Study



I-275 at Graves Road Interchange Justification Study

3.4 Alternative 2

Like Alternative 1, Alternative 2 would remove the existing Graves Road overpass and construct a new interchange approximately 650 feet west of the existing Graves Road Bridge. The interchange configuration adds a loop in the southwestern quadrant to allow Graves Road southbound traffic to use the entrance ramp onto I-275 eastbound without stopping. The eastbound off-ramp and westbound on-ramps would be like Alternative 1 and would be signalized. The Alternative 2 interchange is illustrated on **Figure 8**.

North of I-275, Williams Road would be reconstructed to three lanes for approximately 0.9 miles between Traditions Golf Club and Worldwide Boulevard. The intersection was analyzed as a roundabout for comparison to the signalized intersection in Alternative 1. Williams Road will be curb and gutter section and include six-foot sidewalks on both sides of the road.

Graves Road would be realigned and widened to a five-lane urban section between the interchange and KY 237nd is illustrated in **Figure 9**. Graves Road will also be curb and gutter with six-foot sidewalks. To the south, a roundabout would be constructed connecting Petersburg Road and Graves Road. Bullitsville Road would connect east of the roundabout.

Alternative 2 would include widening Petersburg Road (KY 20) from the intersection of Graves Road to approximately 0.5 miles east of KY 237. The typical section for Petersburg Road from Graves Road to KY 237 would be like that of the improved Graves Road described above, a five-lane urban roadway. The typical section east of KY 237 would be a three-lane urban section. This component is illustrated on **Figure 10**.

Similar to Alternative 1, Alternative 2 would also include the two improvements proposed for the existing I-275/KY 237 Interchange ramps mentioned earlier in Section 3.2 and include dual left turn lanes along KY 237 at the I-275 Westbound ramps to accommodate increased traffic between the two interchanges.





I-275 at Graves Road Interchange Justification Study



I-275 at Graves Road Interchange Justification Study

3.5 Recommended Alternative

The Recommended Alternative is a hybrid of Build Alternatives 1 and 2, using preliminary analysis and public input to help capture the best features of each option and address some deficiencies identified through the process. The individual project components are as follows:

- A new interchange at I-275 and Graves Road including the loop ramp design proposed in Alternative 2;
- The 5-lane widening of the Graves Road corridor from KY 20 and Bullittsville Road northward to KY 237, including signalized intersections at KY 20 and Worldwide Boulevard and the widening of the Graves Road/KY 237 roundabout;
- A modified Williams Road option;
- Extension of the westbound I-275 three-lane typical section from just west of the KY 237 Interchange to just west of the proposed Graves Road Interchange;
- Eastbound auxiliary lane along I-275 between Graves Road and KY 237;
- Minor adjustments to the I-275/KY 237 Interchange ramps as described in Section 3.2 of this study; and
- A dual left turning movement from northbound KY 237 to westbound I-275.

The Recommended Alternative is illustrated on **Figure 11**.

3.6 Preliminary Cost Estimates

Table 8 presents the preliminary cost estimates per phase for each build alternative. Alternatives 1 and 2 contain costs for a new Graves Road Interchange at I-275, widening along Graves Road from KY 20 north to KY 237, the widening of KY 20 (Petersburg Road) from Graves Road to east of KY 237, and the Williams Road realignment. The Recommended Alternative combines all the components described in the previous section and is shown alongside Alternatives 1 and 2 for comparison.



I-275 at Graves Road Interchange Justification Study

		Altern	ative 1			Altern	ative 2		Recommended
	Interchange	Williams Rd	North Graves Rd	KY 20	Interchange	Williams Rd	North Graves Rd	KY 20	Alternative ¹
Project Length	15,000 ft	3,800 ft	4,550 ft	13,520 ft	18,500 ft	5,150 ft	4,550 ft	13,520 ft	28,700 ft
DESIGN									
Cost (15% of Construction)		\$5,06	53,000			\$5,19	0,000		\$3,747,000
RIGHT OF WAY									
Parcels Affects	70	7	12	142	69	8	12	142	73
Cost (\$5,000/Parcel)	\$350,000	\$35,000	\$60,000	\$710,000	\$345,000	\$40,000	\$60,000	\$710,000	\$365,000
Perm ROW (Acres)	62.02	10.52	12.45	16.67	51.87	7.95	12.45	16.67	80.01
Cost (\$75,000/Acre)	\$4,652,000	\$789,000	\$934,000	\$1,251,000	\$3,890,000	\$596,000	\$934,000	\$1,251,000	\$6,001,000
Temp ROW (Acres)	6.18	4.19	3.14	14.77	9.94	7.27	3.14	14.77	11.54
Cost (\$7,500/Acre)	\$46,000	\$31,000	\$24,000	\$110,000	\$75,000	\$55,000	\$24,000	\$110,000	\$87,000
Relocations									
House (\$225,000 Each)	19	2	1	22	14	0	1	22	16
Business (\$500,000 Each)	0	0	0	10	0	0	0	10	0
Garage / Barn (\$50,000 Each)	12	0	0	5	8	0	0	5	12
Outbuilding (\$10,000 Each)	10	1	3	6	10	0	3	6	8
Total Relocations	41	3	4	43	32	0	4	43	36
Relocation Cost	\$4,975,000	\$460,000	\$255,000	\$10,260,000	\$3,650,000	\$0	\$255,000	\$10,260,000	\$4,280,000
Administrative Costs (20%)	\$2,005,000	\$263,000	\$255,000	\$2,466,000	\$1,592,000	\$138,000	\$255,000	\$2,466,000	\$2,147,000
RIGHT OF WAY SUBTOTAL	\$12,028,000	\$1,578,000	\$1,528,000	\$14,797,000	\$9,552,000	\$829,000	\$1,528,000	\$14,797,000	\$12,880,000
RIGHT OF WAY TOTAL		\$29,9	31,000			\$26,7	06,000		\$12,880,000
UTILITIES									
Cost (\$400,000/mile)	\$1,136,000	\$288,000	\$345,000	\$1,024,000	\$1,402,000	\$390,000	\$345,000	\$1,024,000	\$2,174,000
UTILITIES TOTAL		\$2,79	93,000			\$3,16	61,000		\$2,174,000
CONSTRUCTION									
Earthwork	\$2,120,000	\$420,000	\$720,000	\$930,000	\$2,920,000	\$520,000	\$720,000	\$930,000	\$4,000,000
Pavement/Misc.	\$7,250,000	\$1,265,000	\$2,725,000	\$7,225,000	\$7,090,000	\$1,785,000	\$2,725,000	\$7,225,000	\$12,260,000
Preliminary Structures	\$4,350,000	\$0	\$0	\$0	\$3,725,000	\$0	\$0	\$0	\$3,725,000
Contingency (25%)	\$3,430,000	\$421,000	\$861,000	\$2,039,000	\$3,434,000	\$576,000	\$861,000	\$2,039,000	\$4,996,000
Cost Subtotal	\$17,150,000	\$2,100,000	\$4,300,000	\$10,200,000	\$17,200,000	\$2,900,000	\$4,300,000	\$10,200,000	\$24,981,000
CONSTRUCTION TOTAL		\$33,7	50,000			\$34,6	00,000		\$24,981,000
TOTAL PROJECT COST		\$71,5	37,000			\$69,6	57,000		\$43,782,000

Table 8. Alternative Cost Estimates (Design, Right-of-Way, Utilities, and Construction)

1) Interstate widening excluded from project length.

4.0 Policy Requirements, Safety Considerations, and Recommended Alternative

As discussed in Section 1.1, FHWA's "Policy on Access to the Interstate System" was updated in May 2017. This policy provides the requirements for the justification and documentation necessary to substantiate any purposed changes in access to the Interstate System. The policy has been reduced to two policy requirements. Each is described in more detail below.

Policy Requirement 1

An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

To address this policy requirement, a comprehensive traffic operations analysis was conducted for each build alternative along I-275 and the local street network and is described in the following sections.

4.1 I-275 Build Traffic Operations

With the addition of the proposed Graves Road interchange, minor changes occur to I-275 for Alternatives 1 and 2. For the AM peak hour:

- West of KY 237, westbound traffic continues to operate at LOS C or better for each alternative.
- Eastbound operations, when compared to the 2040 No Build, stay LOS E between KY 237 and KY 3608 with two exceptions.
 - Between the Graves Road off- and on-ramps, LOS improves to C,
 - The eastbound off-ramp diverge at KY 237 changes from LOS D to LOS E. This change is similar for both Alternatives 1 and 2. Both densities are just over or near the breakover point between LOS D and E. Volume to capacity ratios (v/c) still remain less than 1.0. To address this LOS change, the

Recommended Alternative includes an auxiliary lane between the Graves Road and KY 237 ramps for the eastbound direction. This results in LOS C for this merge section.

During the PM peak hour:

- Westbound traffic between Graves Road and KY 3608 improves from LOS E to D for each alternative when compared to the 2040 No Build. This is primarily due to the extension of the I-275 westbound three-lane typical section through the Graves Road Interchange.
- Eastbound traffic increases between the proposed Graves Road interchange and KY 237 interchange and, as a result, mainline LOS changes from LOS C to LOS D and the KY 237 diverge changes from LOS D to LOS E. As described above roadway traffic densities are just at the breakover point for LOS E in the Year 2040. This is addressed in the Recommended Alternative through the addition of an auxiliary lane between Graves Road and KY 237.
- Westbound I-275 after the three lanes transition to two lanes approaching Graves Road, the v/c ratio is at 1.0. This will be cured for the Recommended Alternative by extending the existing I-275 westbound three-lane section through the Graves Road Interchange.
- I-275 westbound Graves Road diverge v/c ratio is at 1.0. This will also be helped dramatically by extending the I-275 westbound three-lane section through the Graves Road Interchange.

I-275 traffic operations are summarized in **Tables** 9**a**, 9**b**, **and** 9**c** and illustrated on **Exhibits 2** and **3 in Appendix A**.

To supplement the Highway Capacity methodology analysis, a worst case peak hour VISSIM model (simulation) was developed for each alternative and compared to the existing 2016 existing and 2040 No Build. For Alternatives 1 and 2, peak hour interstate travel speeds increased over the No Build alternative as illustrated in **Table 10**. Two factors contribute to this change. First, I-275 between Graves Road and KY 237 experiences more traffic as motorists proceed to and from the east to the proposed interchange. While reducing traffic traveling through the KY 237 interchange and reducing systemwide travel times, congestion increases for a short distance between the Graves Road and KY 237 interchanges. This is intensified in the westbound direction due to the third through lane dropping between KY 237 and Graves Road. The Recommended Alternative adds two project components that helps address the lower travel speeds. The third westbound travel lane is extended to beyond Graves Road resulting in travel speed increasing to 56 mph, five mph higher than the No Build. For eastbound I-275, an auxiliary lane is proposed. Travel speed only drops two miles per hour while handling 6,600 more daily westbound vehicles. Additionally, as noted above, LOS, V/C and Density all improve.

			2040 N	o Build	Altern	ative 1	Altern	ative 2	Recom	mended
	Eastbound		LC	os	LC	os	LC	os	LC	os
SEGMENT	FROM	то	АМ	РМ	АМ	РМ	АМ	РМ	АМ	РМ
Mainline	West of KY 3608	KY 3608 diverge	С	D	с	D	С	D	С	D
Off Ramp	KY 3608 diverge		D	D	D	D	D	D	D	D
Mainline	Between KY 3608 ramps	KY 3608 merge	С	С	С	с	С	с	С	С
On Ramp	KY 3608 merge		С	С	С	С	С	С	С	С
Mainline	KY 3608 merge	KY 237 diverge	D	С						
Mainline	KY 3608 merge	Graves Road diverge			D	с	D	С	D	с
Off Ramp	Graves Road diverge				D	С	D	С	D	С
Mainline	Graves Road diverge	Graves Road merge			С	С			С	С
Mainline	Graves Road diverge	Graves Road first merge					С	С		
On Ramp	Graves Road first merge						С	С		
Mainline	Graves Road first merge	Graves Road second merge					D	С		
On Ramp	Graves Road merge				С	С				
On Ramp	Graves Road second merge						D	С		
Mainline	Graves Road merge	KY 237 diverge			D	D	D	D		
Off Ramp	KY 237 diverge		D	D	Е	E	E	E		
Merge	Graves Road on-ramp	KY 237 off-ramp							С	С
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	В	В	С	С	D	С	D	С
On Ramp	KY 237 merge (lane addition)		С	С	С	С	С	С	С	С
Mainline	KY 237 merge	East of KY 237	С	С	с	С	D	с	D	С
									_	
			2040 N	o Build	Altern	ative 1	Altern	ative 2	Recom	mended
	Westbound		2040 N	o Build DS	Altern	otive 1	Altern	ative 2	Recom	mended DS
SEGMENT	<u>Westbound</u> FROM	то	2040 N LC AM	o Build DS PM	Altern LC AM	DS PM	Altern LC AM	ative 2 DS PM	Recom LC AM	mended DS PM
SEGMENT Mainline	Westbound FROM East of KY 237	TO KY 237 diverge	2040 N LC AM C	o Build DS PM D	Altern LC AM C	ative 1 DS PM D	Altern LC AM C	D D	C Recommendation	DS PM
SEGMENT Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge	TO KY 237 diverge	2040 N LC AM C C	o Build DS PM D E	Altern LC AM C C	ative 1 DS DM D E	Altern LC AM C C	DS DE	AM C C	PM D E
SEGMENT Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge	TO KY 237 diverge KY 237 second diverge	2040 N LC AM C C B	o Build DS PM D E C	Altern LC AM C C B	PM D E D	Altern LC AM C C B	PM D E D	Recomin LC AM C C B	PM D E D
SEGMENT Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge	2040 N C C B B	o Build DS PM D E C D	Altern LC AM C C B C	PM D E D D D D	Altern LC AM C C B C	PM D E D D D D	Recomin AM C C B C	PM PM D E D D D D
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N C C B B A	o Build D D C D B	Altern LC AM C C B C A	PM D E D D C	Altern C C B C A	PM D E D D C	Recomin AM C C B C A	PM PM D D E D D D C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge	C C C B B A B B	o Build D C D C D B C	Altern C C C B C A B B	PM D E D D C C	Altern LC AM C C B C A B B	PM D E D D C C	Recomin AM C C B C A B B	PM D D D D D D D D C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge	LC AM C C B B B A B	o Build os PM D E C D B C	Altern LC AM C C B C A B B	PM D E D D C C	Altern LC AM C C B C A B B	PM D E D D C C	Recomm C C C B C A B B B	PM D D E D D D D C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop	C C B B A B A A A	o Build os PM D E C D B C C	Altern LC AM C C B C A B B B B	PM D E D C C C	Altern LC AM C C B C C A B B B B	PM D E D C C C	Recomm LC AM C C B C C A B B B B	PM D D D D D C C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge	C C C B B A A B A B	o Build os PM D E C D B C C E	Altern LC AM C C B C C A B B B B	PM D E D C C C	Altern LC AM C C B C C A B B B B	PM D E D C C C	Recomm LC AM C C B C A B B B	PM D E D C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeL275 lane dropI-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	LC AM C C B B B A B A B B	o Build os PM D E C D B C C E	Altern LC AM C C B C A B B B C C	PM D E D D C C C E	Altern LC AM C C B C A B B B B C C	PM D E D D C C C E	Recomm LC AM C C B C A B B B B	PM D E D D C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Off Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	C C B B A B A B A B	o Build os PM D E C D B C C E	Altern LC AM C C B C A B B B B C C C C	PM D E D C C C C E E	Altern LC AM C C B C C A B B B B C C C C C	PM D E D C C C E E	Recomm LC AM C C B C A B B B B B B	PM D E D D C C C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeFY 237 mergeFY 237 mergeGraves Road divergeGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	C C B B A A B A A B	o Build ps PM D E C D B C C E	Altern LC AM C C B C A B B B C C C C B	PM D E D D C C C C E E E	Altern LC AM C C B C A B B C C C B	PM D E D D C C C C E E E D	Recomm LC AM C C B C A B B B A	PM D E D D C C C C C
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeFY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge	LC AM C C B B B A B A B B	o Build os PM D E C D B C C E	Altern LC AM C C B C A B B B C C C C B B B	ative 1 D PM D E D C C C C E E D D D D C C C C C C C	Altern LC AM C C B C A B B B C C C C B B B	PM D D D D C C C C E E D D D	Recomm LC AM C C B C A B B B A A A	PM D D D C C C C C D C B
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge Graves Road diverge I-275 lane drop Logar Road diverge I-275 lane drop	C C C B B A B A B C C C C C C C C C C C	o Build ps PM D E C D B C C E	Altern LC AM C C B B B B C C C B B B	ative 1 D PM D E D C C C C E E D D D D C C C C C C C	Altern LC AM C C B C A B B B C C C C B B B	PM D E D C C C C E E D D	Recomm LC AM C C B C A B B B B A A A A	PM D D D C C C C C D C B B B
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop Graves Road diverge Graves Road diverge Graves Road merge Graves Road merge I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge KY 3608 diverge	C C B B A A B A A B	o Build ps PM D E C D B C C E	Altern LC AM C C B B C C C B B B	ative 1 D PM D E D C C C C E E D D D D C C C C C C C	Altern LC AM C C B C C A B C C C B B C C B B C C C C B C C C C C C C C C C C C C	PM D E D C C C C E E E D D	Recomm C AM C C B C A B B B A A A A B	PM D E D C C C C C C B B B B E
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane drop	TO KY 237 diverge KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge KY 3608 diverge KY 3608 diverge KY 3608 diverge KY 3608 diverge	C C C B B A A B C C C C C C C C C C C C	o Build ps PM D E C D B C C E	Altern LC AM C C B C A B B C C C B B B B B B B	ative 1 D D C C C C C D D D	Altern C AM C C B C C C B B C C C B B B B B B	PM D E D C C C C E E E D D D D D D	Recomm LC AM C C B C A B B B A A A A B B	mended D PM D E D C C C C C B B B E
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeKraves Road mergeI-275 lane dropGraves Road mergeI-275 lane dropI-275 lane drop <td>TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge</td> <td>C C C C C C C C C C C C C C C C C C C</td> <td>o Build ps PM D E C C E C E C E</td> <td>Altern LC AM C C B B B C C C C B B B B C C</td> <td>ative 1 D PM D E D C C C C E D D D C E E D D D E D E</td> <td>Altern LC AM C C B C C C B B C C C B B C C C B C C C B C C C C C C C C C C C C C</td> <td>ative 2 D PM D E D C C C C E E D D D C E E E D D D E E E D D E E E E</td> <td>Recomm LC AM C C B C A B B B A A A A B C C</td> <td>PM D E D C C C C C B B B E E</td>	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge	C C C C C C C C C C C C C C C C C C C	o Build ps PM D E C C E C E C E	Altern LC AM C C B B B C C C C B B B B C C	ative 1 D PM D E D C C C C E D D D C E E D D D E D E	Altern LC AM C C B C C C B B C C C B B C C C B C C C B C C C C C C C C C C C C C	ative 2 D PM D E D C C C C E E D D D C E E E D D D E E E D D E E E E	Recomm LC AM C C B C A B B B A A A A B C C	PM D E D C C C C C B B B E E
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeFZ 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropKraves Road mergeKraves Road mergeI-275 lane dropGraves Road mergeKY 3608 divergeKY 3608 divergeKY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 merge	LCC AM C C B B B A B B A B B A B C C C B B	o Build ps PM D E C D B C C E C E D C E D D D D D D D D D D D D D	Altern LC AM C C B B B C C C B B B C C B B B C C B B B C C B B C C B B B C C B B C C C B B C C C B C C B C C C B C C C B C C C B C C C B C C C C B C C C C B C C C C C C B C C C C C B C C C C C C C C B C	ative 1 D PM D E D C C C E E D D E E D D E D C C C C C C C C C	Altern LC AM C C B C C C B B C C B B C C B B C C B B C C B C C B C C C B C C C C C C C C C C C C C	PM D E D C C C C E E E D D D E D D E E D D D E	Recomm C AM C C B C A B B A A A A B C B C B C B C C B C C C C C C C C C C C C C	PM D E D C C C C C C C B B B E E D
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop Graves Road diverge Graves Road diverge Graves Road merge I-275 lane drop Graves Road merge Graves Road merge KY 3608 diverge KY 3608 diverge KY 3608 merge KY 3608 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge KY 3608 merge KY 3608 merge	C C B B B C C C B B B C C C B B B C C C B B C C C C B C	o Build ps PM D E C D B C C E C E D D D D D D D D D D D D D	Altern LC AM C C B B B C C C B B B C C B B B C C B B B C C B B B C C B B B C C C C C B C	ative 1 D P M D E D C C C C E E D D D E D D E D D D E D D D E D D D E D D D E D D D E D D D E D D D D E D D D D E D D D D E D D D D D E D D D D D E D D D D D E D D D D D E D D D D E D D D D E D D D D D E D D D D D E D D D D D E D	Altern LC AM C C B C C C B B C C B B C C B B C C B B C C C B C C C C C C C C C C C C C	PM D E D D C C C C C C C C C C C C C C C C	Recomm LC AM C C B C A B B A A A A A B C C B B C C B B C C C C C C C C C C C C C	PM D D D C C C C C C B B B E E D D D C C D C C D C C D C C C C C C

Table 9a. 2040 Build I-275 Traffic Conditions – Level of Service (LOS)

			2040 N	o Build	Altern	ative 1	Altern	ative 2	Recom	mended
	Eastbound		v	/c	v,	/c	v,	/c	v,	/c
SEGMENT	FROM	то	АМ	РМ	АМ	РМ	АМ	РМ	АМ	РМ
Mainline	West of KY 3608	KY 3608 diverge	0.68	0.71	0.68	0.71	0.68	0.71	0.68	0.71
Off Ramp	KY 3608 diverge		0.68	0.71	0.68	0.71	0.68	0.71	0.68	0.71
Mainline	Between KY 3608 ramps	KY 3608 merge	0.64	0.62	0.65	0.63	0.65	0.63	0.65	0.63
On Ramp	KY 3608 merge		0.72	0.69	0.72	0.69	0.72	0.69	0.72	0.69
Mainline	KY 3608 merge	KY 237 diverge	0.72	0.69						
Mainline	KY 3608 merge	Graves Road diverge			0.72	0.69	0.72	0.69	0.72	0.69
Off Ramp	Graves Road diverge				0.72	0.69	0.72	0.69	0.72	0.69
Mainline	Graves Road diverge	Graves Road merge			0.60	0.55			0.60	0.55
Mainline	Graves Road diverge	Graves Road first merge					0.60	0.55		
On Ramp	Graves Road first merge						0.75	0.72		
Mainline	Graves Road first merge	Graves Road second merge					0.75	0.55		
On Ramp	Graves Road merge				0.84	0.81			0.86	0.81
On Ramp	Graves Road 2nd merge						0.86	0.63		
Mainline	Graves Road merge	KY 237 diverge			0.84	0.81	0.86	0.81	0.86	0.81
Off Ramp	KY 237 diverge		0.72	0.69	0.84	0.81	0.86	0.81	0.86	0.81
Merge	Graves Road on-ramp	KY 237 off-ramp							0.57	0.54
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	0.49	0.42	0.70	0.67	0.72	0.67	0.72	0.67
On Ramp	KY 237 merge (lane addition)		0.70	0.68	0.71	0.68	0.72	0.68	0.72	0.68
Mainline	KY 237 merge	East of KY 237	0.70	0.68	0.71	0.68	0.72	0.68	0.72	0.68
			r		1		1		I	
			2040 N	o Build	Altern	ative 1	Altern	ative 2	Recom	mended
	Westbound		2040 N V	o Build /C	Altern V/	ative 1 /C	Altern V,	ative 2 /C	Recom V	mended /C
SEGMENT	<u>Westbound</u> FROM	то	2040 N V AM	o Build /C PM	Altern V/ AM	ative 1 /C PM	Altern V, AM	ative 2 /C PM	Recomi V, AM	mended /C PM
SEGMENT Mainline	Westbound FROM East of KY 237	TO KY 237 diverge	2040 N V AM 0.50	o Build /C 0.83	Altern V/ AM 0.50	ative 1 /C 0.83	Altern V, AM 0.50	ative 2 /C 0.83	Recomm V/ AM 0.50	PM 0.87
SEGMENT Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge	TO KY 237 diverge	2040 N V AM 0.50 0.50	o Build /C 0.83 0.83	Altern V/ AM 0.50 0.50	ative 1 /C 0.83 0.83	Altern V, AM 0.50 0.50	ative 2 /C 0.83 0.83	Recomm V/ AM 0.50 0.50	PM 0.87 0.87
SEGMENT Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge	TO KY 237 diverge KY 237 second diverge	2040 N V AM 0.50 0.50 0.35	o Build /C 0.83 0.83 0.62	Altern V/ AM 0.50 0.50 0.45	ative 1 /C 0.83 0.83 0.75	Altern V/ AM 0.50 0.50 0.45	ative 2 /C 0.83 0.83 0.75	Recomm V/ AM 0.50 0.50 0.45	PM 0.87 0.87 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge	2040 N V AM 0.50 0.50 0.35 0.35	PM 0.83 0.83 0.62 0.62	Altern V/ AM 0.50 0.50 0.45 0.45	ative 1 /C PM 0.83 0.83 0.75 0.75	Altern V, AM 0.50 0.50 0.45 0.45	PM 0.83 0.83 0.75	Recomm V/ AM 0.50 0.50 0.45 0.45	PM 0.87 0.87 0.79 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N AM 0.50 0.35 0.35 0.16	PM 0.83 0.62 0.62 0.40	Altern V, AM 0.50 0.45 0.45 0.28	ative 1 /C 0.83 0.83 0.75 0.75 0.55	Altern V, AM 0.50 0.50 0.45 0.45 0.28	PM 0.83 0.75 0.75	Recomm AM 0.50 0.50 0.45 0.45	PM 0.87 0.79 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N V AM 0.50 0.35 0.35 0.16 0.30	PM 0.83 0.62 0.62 0.40	Altern V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.83 0.83 0.75 0.75 0.55 0.66	Altern V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.83 0.83 0.75 0.75 0.75	Recomm V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.87 0.79 0.79 0.59
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge	2040 N AM 0.50 0.35 0.35 0.16 0.30	o Build // PM 0.83 0.83 0.62 0.62 0.62 0.40 0.59	Altern V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	ative 1 /C 0.83 0.83 0.75 0.75 0.55 0.66	Altern V, AM 0.50 0.50 0.45 0.45 0.28 0.39	ative 2 /C 0.83 0.83 0.75 0.75 0.55 0.66	Recomm V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.87 0.79 0.79 0.79 0.79 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop	2040 N V AM 0.50 0.35 0.35 0.35 0.16 0.30	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59	Altern V/ AM 0.50 0.45 0.45 0.28 0.39	PM 0.83 0.75 0.75 0.55 0.66	Altern V, AM 0.50 0.45 0.45 0.28 0.39	PM 0.83 0.75 0.75 0.55 0.66	Recomm V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.87 0.79 0.79 0.79 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge	2040 N AM 0.50 0.50 0.35 0.35 0.16 0.30 0.30 0.30 0.45	o Build // PM 0.83 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.59 0.88	Altern V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	ative 1 /C 0.83 0.83 0.75 0.75 0.55 0.66 0.66	Altern V, AM 0.50 0.50 0.45 0.45 0.28 0.39 0.39	PM 0.83 0.75 0.75 0.55 0.66	Recomm V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.79 0.79 0.79 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N AM 0.50 0.35 0.35 0.16 0.30 0.30 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88	Altern V/ AM 0.50 0.50 0.45 0.45 0.28 0.39 0.39 0.59	ative 1 /C 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39	Ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00	Recomm V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.87 0.79 0.79 0.79 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop Graves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N V AM 0.50 0.35 0.35 0.35 0.16 0.30 0.30 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88	Altern V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59	ative 1 /C 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59	Ative 2 /C PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00	Recomm V/ AM 0.50 0.50 0.45 0.45 0.39 0.39 0.39 0.39	PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeFY 237 mergeF	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road merge	2040 N AM 0.50 0.35 0.35 0.16 0.30 0.30 0.45 0.45	o Build // PM 0.83 0.83 0.62 0.62 0.40 0.59 0.59 0.59 0.88	Altern V/ AM 0.50 0.50 0.45 0.45 0.45 0.28 0.39 0.39 0.59 0.59 0.41	Ative 1 /C PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78	Altern V, AM 0.50 0.45 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41	ative 2 /C PM 0.83 0.83 0.75 0.75 0.75 0.55 0.66 0.66 0.66 1.00 1.00 0.78	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39	PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71 0.71
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeFY 237 mergeFY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge	2040 N V AM 0.50 0.35 0.35 0.16 0.30 0.30 0.45	o Build // PM 0.83 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88	Altern V/ AM 0.50 0.50 0.45 0.45 0.28 0.39 0.59 0.59 0.41 0.45	ative 1 /C 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45	ative 2 // PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Recomm V/ AM 0.50 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.27 0.30	PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71 0.56 0.62
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop	2040 N V AM 0.50 0.35 0.35 0.35 0.16 0.30 0.30 0.45 V 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88	Altern V/ AM 0.50 0.45 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45	ative 1 /C 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Altern V, AM 0.50 0.45 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45	ative 2 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Recomm V/ AM 0.50 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.27 0.30 0.22	PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeF237 mergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge I-275 lane drop KY 3608 diverge Kraves Road diverge KY 3608 diverge KY 3608 diverge KY 3608 diverge	2040 N V AM 0.50 0.35 0.35 0.35 0.16 0.30 0.30 0.45 V 0.45	o Build /C PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88	Altern V/ AM 0.50 0.45 0.45 0.45 0.28 0.39 0.39 0.59 0.59 0.41 0.45	ative 1 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 0.66 1.00 1.00 0.78 0.87	Altern V/ AM 0.50 0.45 0.45 0.45 0.39 0.59 0.41 0.45	ative 2 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.39 0.27 0.30 0.22 0.45	PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge KY 3608 diverge	2040 N AM 0.50 0.35 0.35 0.16 0.30 0.30 0.45 0.45	o Build // PM 0.83 0.83 0.62 0.62 0.40 0.59 0.59 0.88	Altern V/ AM 0.50 0.50 0.45 0.45 0.45 0.39 0.59 0.41 0.45 0.45	ative 1 /C 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45	ative 2 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87	Recomm V/ AM 0.50 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.39 0.27 0.30 0.22 0.45	PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeKy 255 lane dropGraves Road mergeKy 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge	2040 N V AM 0.50 0.35 0.35 0.35 0.36 0.30 0.45 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.62 0.59 0.59 0.88 / 0.88 / 0.88	Altern V/ AM 0.50 0.45 0.45 0.45 0.39 0.39 0.39 0.59 0.59 0.41 0.45 0.45 0.45	ative 1 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87	Altern V, AM 0.50 0.45 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45 0.45	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87	Recomm V/ AM 0.50 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.45 0.45	PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeKy 3608 divergeKY 3608 divergeKY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 merge	2040 N V AM 0.50 0.35 0.35 0.35 0.35 0.35 0.35 0.30 0.30 0.45 0.45 0.45 0.37	o Build /C PM 0.83 0.62 0.62 0.62 0.62 0.59 0.59 0.59 0.59 0.88 0.88 0.88 0.88 0.83	Altern V/ AM 0.50 0.45 0.45 0.45 0.28 0.39 0.39 0.59 0.59 0.41 0.45 0.45 0.45 0.45 0.45 0.45 0.45	ative 1 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.87 0.80	Altern V, AM 0.50 0.45 0.45 0.45 0.28 0.39 0.59 0.59 0.59 0.41 0.45 0.45 0.45 0.45 0.38	ative 2 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.87 0.80	Recomm V/ AM 0.50 0.45 0.45 0.45 0.39 0.39 0.39 0.39 0.39 0.22 0.45 0.45	PM 0.87 0.87 0.79 0.79 0.79 0.71 </td
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop Graves Road diverge Graves Road diverge Graves Road merge I-275 lane drop Graves Road merge Graves Road merge KY 3608 diverge KY 3608 diverge KY 3608 merge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge KY 3608 merge	2040 N V AM 0.50 0.35 0.35 0.35 0.35 0.30 0.45 0.30 0.45 0.37 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88 0.88 0.83 0.94	Altern V/ AM 0.50 0.50 0.45 0.45 0.45 0.39 0.39 0.59 0.41 0.45 0.45 0.41 0.45 0.45 0.45	ative 1 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.80 0.91	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45 0.45 0.45 0.45	ative 2 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.80 0.91	Recomm V/ AM 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.30 0.22 0.45 0.38 0.45	PM /C PM 0.87 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.56 0.62 0.93 0.87 0.93

Table 9b. 2040 Build I-275 Traffic Conditions – Volume/Capacity Ratio (V/C)

			2040 N	o Build	Altern	ative 1	Altern	ative 2	Recom	mended
	Eastbound_		Den	sity	Den	sity	Den	sity	Den	sity
SEGMENT	FROM	то	AM	РМ	AM	РМ	AM	РМ	AM	PM
Mainline	West of KY 3608	KY 3608 diverge	25	26.3	25.0	26.3	25.0	26.3	25.0	26.3
Off Ramp	KY 3608 diverge		28.6	30.2	28.6	30.1	28.6	30.1	28.6	30.1
Mainline	Between KY 3608 ramps	KY 3608 merge	23.6	22.7	23.8	23.1	23.8	23.1	23.8	23.1
On Ramp	KY 3608 merge		29.8	28.2	29.8	28.4	29.8	28.4	29.8	28.4
Mainline	KY 3608 merge	KY 237 diverge	26.6	25.1						
Mainline	KY 3608 merge	Graves Road diverge			26.6	25.3	26.6	25.3	26.6	25.3
Off Ramp	Graves Road diverge				30.6	29.4	30.6	29.4	30.6	29.4
Mainline	Graves Road diverge	Graves Road merge			21.9	20.1			21.8	20.0
Mainline	Graves Road diverge	Graves Road first merge					22.3	20.4		
On Ramp	Graves Road first merge						30.6	28.8		
Mainline	Graves Road first merge	Graves Road second merge					29.0	21.0		
On Ramp	Graves Road merge				34.1	32.4			34.7	32.9
On Ramp	Graves Road 2nd merge						36.0	25.6		
Mainline	Graves Road merge	KY 237 diverge			32.7	31.0	33.7	31.0	33.7	31.0
Off Ramp	KY 237 diverge		31.1	29.9	35.7	34.4	36.3	34.4	36.3	34.4
Merge	Graves Road on-ramp	KY 237 off-ramp							20.7	19.6
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	18	15.2	25.7	24.6	26.4	24.6	26.4	24.6
On Ramp	KY 237 merge (lane addition)		27.4	25.5	27.8	26.6	28.4	26.6	28.1	26.3
Mainline	KY 237 merge	East of KY 237	25.8	24.9	26.0	24.9	26.5	24.9	26.5	24.9
					T		T		r	
			2040 N	o Build	Altern	ative 1	Altern	ative 2	Recom	mended
	Westbound		2040 N Den	o Build sity	Altern Den	ative 1 sity	Altern Den	ative 2 sity	Recomi Den	mended sity
SEGMENT	<u>Westbound</u> FROM	то	2040 N Den AM	o Build sity PM	Altern Den AM	ative 1 sity PM	Altern Den AM	ative 2 sity PM	Recomi Den AM	sity PM
SEGMENT Mainline	Westbound FROM East of KY 237	TO KY 237 diverge	2040 N Den AM 18.2	o Build sity PM 31.9	Altern Den AM 18.2	sity PM 31.9	Altern Den AM 18.2	ative 2 sity PM 31.9	Recomi Den AM 18.2	PM 34.4
SEGMENT Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge	TO KY 237 diverge	2040 N Den AM 18.2 20.7	o Build sity 9M 31.9 34.2	Altern Den AM 18.2 19.9	ative 1 sity 9M 31.9 33.0	Altern Den AM 18.2 19.9	ative 2 sity 9M 31.9 33.0	Recomm Den AM 18.2 19.9	PM 34.4 34.7
SEGMENT Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge	TO KY 237 diverge KY 237 second diverge	2040 N Den AM 18.2 20.7 13.5	o Build sity PM 31.9 34.2 23.8	Altern Den AM 18.2 19.9 16.8	PM 31.9 33.0 28.4	Altern Den AM 18.2 19.9 16.8	ative 2 sity PM 31.9 33.0 8.4	AM 18.2 19.9 16.8	PM 34.4 34.7 30.1
SEGMENT Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge	2040 N Den 18.2 20.7 13.5 14.8	o Build sity PM 31.9 34.2 23.8 25.7	Altern Den 18.2 19.9 16.8 18.3	ative 1 sity 9M 31.9 33.0 28.4 30.8	Altern Den AM 18.2 19.9 16.8 18.3	ative 2 sity 9M 31.9 33.0 8.4 30.8	Recomm Den AM 18.2 19.9 16.8 18.3	PM 34.4 34.7 30.1 32.4
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N Den 18.2 20.7 13.5 14.8 6.0	PM 31.9 34.2 23.8 25.7 15.1	Altern Den AM 18.2 19.9 16.8 18.3 10.3	PM 31.9 33.0 28.4 30.8 20.4	Altern Den AM 18.2 19.9 16.8 18.3 10.3	ative 2 sity 9M 31.9 33.0 8.4 30.8 20.4	AM 18.2 19.9 16.8 18.3 10.3	PM 34.4 34.7 30.1 32.4 21.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1	o Build sity 7PM 31.9 34.2 23.8 25.7 15.1 22.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	PM 31.9 33.0 28.4 30.8 20.4 25.6	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 44.6	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6	Recomm Den AIM 18.2 19.9 16.8 18.3 10.3 14.2	mended sity 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 16.1	mended sity 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 28.4
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 25.6 24.2 24.2 25.6 24.2 25.6	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 44.6 42.9 29.5	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 16.1 9.9	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Off Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road divergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road merge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.3 25.6 24.3 25.6 26.4 26.5	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 36.8	Recomm Den AIM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 16.1 9.9 11.3	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 28.4 20.5 24.1
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road merge I-275 lane drop	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 44.6 42.9 29.5 36.8	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 44.6 42.9 29.5 36.8	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 16.1 9.9 11.3 8.1	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 25.9 28.4 20.5 28.4 20.5 24.1 17.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Off Ramp Mainline Off Ramp Mainline On Ramp Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge I-275 lane drop KY 3608 diverge I-275 lane drop KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.5 36.8	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.5 36.8	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 16.1 9.9 11.3 8.1 16.1	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 24.1 17.9 38.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6 16.1	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9 29.5 36.8 34.5	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6 16.1	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 36.8 36.8 34.5	Recomm Den AIM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 14.3 8.1 16.1 9.9 11.3 8.1	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 24.1 17.9 38.9
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeKY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9 29.5 36.8 34.5 36.4	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9 29.5 36.8 34.5 36.4	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 16.1 9.9 11.3 8.1 16.1 18.7	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 28.4 20.5 24.1 17.9 38.9 39.0
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 second diverge KY 237 merge I-275 lane drop Graves Road diverge Graves Road diverge Graves Road merge I-275 lane drop Graves Road merge Graves Road merge I-275 lane drop Graves Road merge KY 3608 diverge KY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge I-275 lane drop KY 3608 diverge KY 3608 diverge KY 3608 diverge KY 3608 diverge KY 3608 merge KY 3608 merge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2 10.8 16.2 18.8 14.0	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0 35.2 36.8 31.9	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7 14.4	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.5 36.8 34.5 36.4 30.7 24.5 36.4 30.7 24.5 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.7 30.8 30.7 30.8 30.7 30.7 30.7 30.8 30.7 30.7 30.8 30.7 30.8 30.7 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.7 30.8 30.7 30.8 30.7 30.8 30.7 30.8 30.8 30.8 30.8 30.7 30.8 30.	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6 16.1 18.7 14.4	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 24.5 36.8 34.5 36.4 30.7	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 16.1 9.9 11.3 8.1 16.1 18.7 14.4	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 24.1 17.9 38.9 39.0 34.4
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge I-275 lane drop Graves Road diverge Graves Road diverge Graves Road merge I-275 lane drop Graves Road merge Graves Road merge KY 3608 diverge KY 3608 diverge KY 3608 merge KY 3608 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 merge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2 10.8 16.2 10.8 16.2 10.8 16.2 10.8 16.2 10.8 16.2 10.1 10.8 16.2 10.1 10.8 16.2 10.1 10.8 16.2 10.1 10.8 16.2 10.1 10.8 16.2 10.1 10.1 10.8 16.2 10.1 10.1 10.8 16.2 10.1 10.1 10.8 16.2 10.1 10.1 10.8 16.2 10.1 10.1 10.8 16.2 10.1 10.1 10.1 10.1 10.1 10.1 10.1 10	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 36.2 36.2 36.2 36.2 21.0 35.2 36.2 21.0 35.2 36.2 37.2 36.2 37.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6 16.1 18.7 14.4	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9 29.5 36.8 34.5 36.4 30.7 40.5	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6 16.1 18.7 14.4	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 36.8 36.8 34.5 36.4 30.7 40.5	Recomm Den AIM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 14.2 14.1 9.9 11.3 8.1 16.1 9.9 11.3 8.1 16.1 18.7 14.4 18.3	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 28.4 20.5 24.1 17.9 38.9 39.0 34.4 45.9

Table 9c. 2040 Build I-275 Traffic Conditions – Density

Direction	2016 Existing (miles/hour)	2040 No Build (miles/hour)	Alternative 1 (miles/hour)	Alternative 2 (miles/hour)	Recommended Alternative (miles/hour)
Westbound	57	51	47	49	56
Eastbound	59	57	52	55	55

Table 10. Interstate Peak Hour Travel Speed Between KY 3608 Interchange and KY 237 Interchange

As noted in Section 1.5, the KY 237 westbound off-ramp is known to back up onto the interstate. All build alternatives include the additional off-ramp storage described in Section 3.2 and the simulation models revealed no queue spillback onto I-275 for this or other interstate ramps at the I-275/KY 237 Interchange. The KY 237 ramps are helped due to proposed improvements along KY 237 and reduced traffic volumes due to diversion to the Graves Road interchange.

While interstate travel speeds increased for Alternatives 1 and 2, the OKI Regional Model shows systemwide travel time savings. Three scenarios were evaluated: 1) 2016 Existing 2) 2040 No Build and 3) 2040 Build. For this analysis, all build alternatives were evaluated as the same basic build scenario. As presented in **Table 11**, overall vehicle hours of travel (VHT) were reduced by 163,189 hours with a build alternative in place.

Table 11. OKI Regional Model Vehicle Hours of Travel (VHT) Comparison

	2016 Existing	2040 No Build	2040 Build
	(hours)	(hours)	(hours)
Systemwide VHT	104,910,296	125,451,136	125,287,947

4.2 Local Street Network

With the addition of the Graves Road interchange, 25,400 daily vehicles are forecasted to be diverted from the KY 237 interchange. In 2040 with any Build Alternative, between 7,000 and 17,800 ADT are redirected from KY 237 and primarily diverted to Graves Road, KY 20 and/or Worldwide Boulevard. The following describes changes in LOS:

- LOS at the KY 237/I-275 Eastbound intersection will improve to LOS A (AM Peak) and LOS B (PM Peak) compared to LOS C and LOS F, respectively, for the No Build.
- Traffic decreases for the KY 237 westbound ramps and LOS improves from C to B for the AM Peak and remains LOS B for the PM Peak.
- Other intersections along KY 237 are either improved or have similar LOS when compared to the No Build. LOS analysis for Alternatives 1 and 2 are illustrated on **Exhibit 4** in **Appendix A** and **Exhibit 11** in **Appendix A** for the Recommended Alternative. More detailed results are presented in **Table 12**.

		2040 N	lo Build			040 Build	۵lternative	2
	A	M	P	м		M	P	M
	Delav		Delav		Delav		Delav	
	(sec/veh)	LOS	(sec/veh)	LOS	(sec/veh)	LOS	(sec/veh)	LOS
KY 237 at KY 20 (MP 9.41	8)							
Intersection	186.4	F	497.7	F	160.9	F	503.5	F
Eastbound	178.1	F	126.8	F	190.1	E	58.5	E
Westbound	90.1	F	89.1	F	51.6	D	79.7	E
Northbound	270.1	F	657.1	F	237.6	F	487.0	F
Southbound	100.2	F	640.8	F	47.4	D	835.7	F
KY 237 at Limaburg Rd/B	arbara Dr (MP	9.698)						
Intersection	25.8	C	92.2	F	24.4	С	88.3	F
Eastbound	95.0	F	663.3	F	95.0	F	663.3	F
Westbound	115.5	F	222.9	F	115.5	F	222.9	F
Northbound	16.9	В	14.7	В	11.7	В	12.4	В
Southbound	13.3	В	52.0	D	9.2	А	44.4	D
KY 237 at Medical Arts D	r/Litton Ln (M	P 10.309)						
Intersection	51.9	D	86.4	F	53.3	D	74.0	E
Eastbound	196.1	F	107.4	F	240.3	F	107.4	F
Westbound	214.1	F	436.0	F	157.3	F	294.8	F
Northbound	40.6	D	63.2	E	25.0	С	49.6	D
Southbound	20.1	С	54.0	D	24.7	С	54.1	D
KY 237 at I-275 EB Ramps	s (MP 10.450)							
Intersection	28.4	С	87.1	F	5.7	А	17.5	В
Eastbound	199.3	F	835.2	F	75.1	E	137.6	F
Northbound	25.1	С	31.8	С	8.2	А	15.2	В
Southbound Left	40.7	D	78.7	F	1.8	А	67.5	Е
Southbound Thru	2.9	А	3.0	А	1.5	А	3.2	А
KY 237 at I-275 WB Ram	os (MP 10.704)							
Intersection	34.2	С	18.0	В	17.9	В	16.4	В
Northbound Left	143.7	F	43.0	F	48.0	D	49.8	D
Northbound Thru	0.1	А	0.3	А	0.4	А	0.4	А
Southbound	12.8	В	18.7	В	14.6	В	13.5	В
KY 237 at Southpark Dr/	Worldwide Blv	d (MP 11.023)						
Intersection	51.1	D	304.5	F	35.7	D	91.6	F
Eastbound	95.6	F	516.9	F	62.0	Е	190.9	F
Westbound	79.1	Е	82.6	F	79.1	Е	82.6	F
Northbound	37.4	D	278.3	F	21.3	С	68.0	Е
Southbound	45.0	D	292.0	F	25.3	С	41.9	D
KY 237 at KY 2846/Globa	Way (MP 11.	207)						
Intersection	13.1	В	198.0	F	11.9	В	257.5	F
Eastbound	47.1	D	106.9	F	47.1	D	106.9	F
Westbound	52.6	D	1470.0	F	52.6	D	1470.0	F
Northbound	9.4	А	10.5	В	7.3	А	8.8	А
Southbound	10.5	В	10.4	В	5.5	А	8.5	А
KY 237 at Cardinal Way	MP 11.412)						-	
Intersection	282.8	F	223.9	F	19.3	С	16.7	С
Eastbound	23.5	C	11.7	B	8.5	A	6.6	A
Westbound	8.3	A	25.2	D	5.3	A	8.7	A
Northbound	11.1	В	320.6	F	5.7	A	20.9	C
Southbound	389.1	F	79.7	F	24.8	С	11.3	В

Table 12. 2040 Build KY 237 Intersection Traffic Operations

Like the I-275 analysis, VISSIM was used to develop a worst case peak hour build model for KY 237 and compared to the existing 2016 existing and 2040 No Build. Given the geometry and traffic volumes along KY 237 are unchanged for each Build alternative; results do not vary between them. For the Build alternatives, travel time in both directions improve over both the 2040 No Build and Existing Condition as illustrated in **Table 13**.

Direction	2016 Existing (minutes/vehicle)	2040 No Build (minutes/vehicle)	2040 Build (minutes/vehicle)
Northbound	11.3	15.6	10.1
Southbound	16.1	20.2	14.3

Tabla	12	2040	Duild	דבר עש	Dook	Hour	Troval	Time	Detwoon	VV 2	o and	Crower	Dood
Iable	12.	2040	Dulla	NI 237	reak	пour	Traver	nme	Detween	NI Z	U anu	Graves	Roau

Traffic along Graves Road is forecasted to range between 15,000 and 18,500 daily vehicles. To handle the increased traffic, Graves Road will be realigned and widened. The proposed Graves Road interchange ramp terminals will operate at LOS C or D as noted in **Table 14** and illustrated on **Exhibit 8** in **Appendix A**. The addition of an eastbound loop ramp improves the westbound intersection LOS to B (AM Peak) and C (PM Peak) from LOS D for both peak periods.

The Worldwide Boulevard/Williams Road intersection was evaluated as both a roundabout and a signalized intersection. The signalized intersection performed superior to the roundabout, primarily due to the westbound left turn traffic from Worldwide Boulevard not being able to find gaps in the roundabout traffic.

The Graves Road and KY 20 intersection was also evaluated as both a roundabout and signalized intersection and both operated at LOS C or better for both the AM and PM peak periods.

For Alternative 2, Bullittsville Road tees into KY 20 and operates at LOS F in the PM peak period. This intersection was analyzed as an unsignalized intersection; however, a signal could be considered at such time warrants are met.

Traffic along KY 20 between Graves Road and KY 237 is forecasted to increase to approximately 16,000 daily vehicles and is also under consideration to be widened for Alternatives 1 and 2, but not in the Recommended Alternative.

		2040 N	o Build		2	040 Build - 4	Uternative 1			040 Build - A	Iternative 2		2040 Bui	ld - Recomn	nended Alte	rnative
	A	Σ	đ	Σ	A	-	PP	-	AN	-	R	_	A		La la	5
	Delay (sec/veh)	SOI	Delay (sec/veh)	SOI	Delay (sec/veh)	ros	Delay (sec/veh)	SOI	Delay (sec/veh)	ros	Delay (sec/veh)	ros	Delay (sec/veh)	ros	Delay (sec/veh)	SOJ
KY 237 at Graves Rd (MP	11.885)															
Intersection	280.1	ц	243.6	F	35.7	Е	85.5	ш	35.7	Е	85.5	ц	7.3	A	32.7	D
Eastbound	116.5	щ	24.1	С	102.3	ч	125.9	ш	102.3	ч	125.9	н	15.9	С	77.5	ц
Westbound	11.0	В	50.8	F	11.3	В	16.4	С	11.3	В	16.4	С	7.2	A	16.3	С
Northbound	11.7	В	366.2	F	10.2	В	154.5	ч	10.2	В	154.5	н	6.3	A	20.8	С
Southbound	445.0	ч	93.7	F	13.9	В	13.8	В	13.9	В	13.8	В	3.6	A	2.2	A
Graves Road at Williams	Road / Wo	Idwide Boul	evard (Build	Alternative	s analyzed as	a signalized	intersection	(
Intersection					21.3	J	32.2	J	13.0	В	86.3	н	21.3	J	32.2	J
Eastbound	13.4	В	12.6	в	53.7	D	58.6	Е	19.8	J	19.8	J	53.7	D	58.6	Е
Northbound					18.6	В	29.0	J	11.2	В	95.6	F	18.6	В	29.0	C
Westbound	15.4	J	22.2	J	58.1	Е	53.8	D	8.2	A	89.5	ц	58.1	н	53.8	D
Southbound					14.3	В	25.5	C	13.9	В	78.2	F	14.3	В	25.5	С
I-275 Westbound at Grav	ves Road															
Intersection					23.8	С	52.7	D	26.1	С	42.4	D	26.1	С	33.6	С
Westbound					41.9	D	50.7	D	33.3	С	45.0	D	33.3	С	50.8	D
Northbound					18.6	В	44.1	D	16.8	В	47.6	D	16.8	В	19.1	В
Southbound					17.1	В	56.7	н	23.3	J	37.7	D	23.3	J	33.2	J
I-275 Eastbound at Grave	es Road															
Intersection					37.4	۵	37.2	۵	19.2	в	23.0	U	19.2	В	23.0	ပ
Eastbound		_			45.1	D	41.5	۵	45.1	۵	41.5	D	45.1	D	41.5	D
Northbound					31.0	U	40.0	۵	8.9	A	14.5	В	8.9	A	14.5	в
Southbound					38.2	۵	34.6	J	12.8	в	22.3	U	12.8	в	22.3	U
Graves Road at Petersbu	urg Road (Bu	ild Alternativ	ves align wit	h Bullittsvil	le Road)											
Intersection					34.5	J	29.4	J					34.5	U	29.4	J
Eastbound	8.3	A	8.4	A	36.1	۵	34.4	ပ					36.1	D	34.4	ပ
Westbound					41.3	٥	36.9	۵					41.3	D	36.9	٥
Northbound					37.5	۵	32.6	J					37.5	D	32.6	J
Southbound	52.3	ш	101.9	ш	30.1	J	22.3	J					30.1	J	22.3	J
Graves Road at Petersbu	urg Road/Old	d Graves Roa	q													
Intersection									11.3	в	14.0	В				
Eastbound									18	υ	17.2	U				
Westbound									5.9	A	7.8	A				
Northbound									7.1	A	9.9	A				
Southbound									11.4	В	16.7	C				
Graves Road at Bullittsvi	ille Road (ar	alyzed as an	unsignalize	d intersectio	(uc											
Westbound	8.7	A	9.4	A					10.7	в	10.8	В				
Northbound	28.7	D	81.7	ш					193.7	ш	312.4	н				

Table 14. 2040 Build Graves Road Intersection Traffic Operations

4.3 Safety Considerations

The crash analysis for the project area (see Section 1.7 of this study) identified several highcrash locations within the influence of the build alternatives for this project. Each location identified in Figure 4 as "High Crash Spots" Numbers 1, 2, 3, 4, 19, 27, 28, 29, and 30 will be addressed by a build alternative component. High Crash Segment 1 and Spots 1, 2, 3, and 4 will be addressed by the widening and upgrading of Graves Road between KY 20 and KY 237. Spot 19 will be relieved by the I-275/KY 237 Interchange ramp modifications proposed in Section 3.2 of this study and the ongoing KYTC project at Worldwide Boulevard.

Spots 27, 28, 29, and 30 are I-275 high-crash locations that will be improved by extending the I-275 westbound three-lane section from west of the KY 237 Interchange to west of the proposed Graves Road Interchange and providing an eastbound auxiliary lane. From the safety perspective, implementation of a build alternative from this study will substantially improve highway safety conditions between Graves Road and KY 237. West of Graves Road, a KYTC pavement rehabilitation is programmed in the KYTC Six Year Highway Plan. As part of this project, the safety analysis will be updated to determine causation factors and determine mitigation strategies to address the safety concerns. This project will address Segment 12 and Spots 31 through 39.

With regard to KY 237, the diversion of more than 25,000 vehicles per day from the traffic stream will result in less congestion along KY 237 and is expected to result in a corresponding crash reduction. Overall safety benefits to the corridor are expected to accrue from any build alternative implementation.

An ongoing KYTC project to improve access management on KY 20 approaching KY 237 will improve safety at Segment 5, which also includes Spot 14. To address safety concerns along KY 20 west of Graves Road, KYTC will conduct a separate HSIP project for this segment of roadway to determine what improvements can be made to address Segment 3, which also includes Spots 5 through 11.

4.4 Conceptual Signing Plan

The KY 237 interchange is numbered as Exit 8. Researching the history of this interchange it formerly was numbered as Exit 7, but was changed because of another Exit 7 along I-74/I-275 in Ohio. This was causing confusion among motorists and it was agreed between KYTC, ODOT and FHWA to renumber KY 237 to eliminate the confusion. The Graves Road interchange will be located at approximately milepoint 8.5 and; therefore, should be numbered as Exit 8. KYTC is recommending KY 237 be renumbered to Exit 6 and Graves Road be numbered Exit 8. An alternative approach would be to keep KY 237 as Exit 8 and make Graves Road Exit 9; however, another Exit 9 exists and could lead to similar confusion as before. A conceptual signing plan is illustrated on **Exhibit 9** in **Appendix A**.

Policy Requirement 2

The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on-ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.

The build alternatives evaluated through this IJS are proposed as full interchanges connecting to a public road and providing all movements to and from I-275 from Graves Road. Furthermore, logical termini were considered for the local network improvements. South of I-275, Graves Road was identified as a high crash segment. To address safety concerns identified through the IJS process, Graves Road will be upgraded to a five-lane facility. Access will be protected between I-275 and the immediate north and south intersections providing 1,900 and 2,000 feet of access protection. To the north, Graves Road will connect to an improved section of KY 237. To the south, Graves Road will connect to KY 20, with an option to upgrade KY 20 back to KY 237 for Alternatives 1 and 2.

4.5 Recommended Alternative

On May 24, 2017, a project team meeting was held to review Alternatives 1 and 2 and make recommendations to move forward pending environmental approval and public input. The project team recommended a combination of Alternatives 1 and 2 as described in Section 3.5. The Alternative 2 interchange design was preferred primarily because of the benefits of replacing the left turns from Graves Road onto eastbound I-275 with the free flow loop ramp. This is particularly beneficial for the truck traffic from Park West International Industrial Park and the vehicular traffic from the rapidly growing residential neighborhoods north of I-275. The loop ramp will address the highest forecasted turn volume for the interchange. Alternative 2 showed improved interstate travel times and intersection delay at the proposed interchange when compared to Alternative 1.

With respect to adjacent intersections on Graves Road, both Worldwide Boulevard and the KY 20 intersections presented as part of Alternative 1 were recommended, using signalized intersections at each location. Expected industrial development in the area produced concern that these intersections be adequate to accommodate left-turning heavy vehicles, and the signalized intersections will best handle that accommodation.

At the time of the May 24th meeting, the project team did not feel enough differentiation existed between the two Williams Road options, so both were presented to the public at a meeting held on November 16, 2017 in Boone County. This meeting was offered to present and gather input on the proposed interchange design and to survey the public's preference on two Williams Road alternatives. Approximately 215 members of the community signed in to the public meeting. An information handout, large boards showing the proposed project on aerial imagery, and a flyover video of the proposed project were all used to inform the public. Also, over twenty KYTC representatives were on hand to help explain the project and answer questions.

Over 60 comment forms were returned from the public. All comments were reviewed and considered by KYTC. The comments were generally positive, with most of responses saying that the project is needed. The majority of responses also indicated that the Williams Road alignment associated with Alternative 1 was preferred; however, some responders recommended a third alignment that was north of the two options presented at the public meeting. The public input led to a modified Williams Road option being developed and presented as part of the Recommended Alternative as illustrated previously on **Figure 11**. This adjustment to the alignment provides a two-lane connection to existing Williams Road and also provides a stub to serve future development.

In addition to adjusting Williams Road, Graves Road between the westbound ramps and Worldwide Drive was shifted slightly west for the Recommended Alternative. This helps potentially avoid one residential impact and provides greater spacing between the Hebron Fire Department and the Graves Road/Worldwide Boulevard intersection providing more room to tie in the fire department access along Worldwide Boulevard.

Improvements to KY 20 were considered; however, those were not recommended as part of the Recommended Alternative. 2040 traffic from Graves Road is expected to split between KY 20 and Bullittsville Road lessening the impact on either roadway. With projected traffic ranging between 13,500 and 15,600 daily vehicles along KY 20, the project team determined that the existing two-lane road could handle the increased demand. Preliminary analysis also showed widening along KY 20 would impact as many as 18 residences, two businesses and potentially one historic property. Significant utility impacts were also anticipated, increasing the overall project cost and schedule. A separate project could be considered at a later date, if demand exceeds expectations. Bullittsville Road is under consideration for improvement through the *Boone County Transportation Plan* process. Any improvements to that facility will be considered and prioritized through an independent planning effort.

For the Recommended Alternative, 1,900 to 2,000 feet of access control will be maintained between I-275 and the immediate north and south intersections. This will be critical to ensuring long-term operational efficiency of both Graves Road and I-275 and will improve safety by limiting access along the route. Existing Graves Road has narrow lanes, no shoulders and a tight s-curve south of I-275, all contributing factors to the four high crash spots and one high crash segment identified through the study process. The redesigned Graves Road will address the crash problems occurring at each these locations. The Graves Road roundabout at KY 237 was forecasted for each alternative to be LOS E and F, during the AM and PM peak periods, respectively. To improve conditions at this location, the roundabout and approaches are proposed to be widened as illustrated in **Figure 11**. The additional capacity improves conditions to LOS A during the AM peak hour and LOS D during the PM peak hour.

For Alternatives 1 and 2, travel time and LOS deteriorated slightly when compared to the No Build. As a result, extension of the third westbound I-275 travel lane is recommended to be extended approximately 7,700 feet, from just west of the KY 237 Interchange to just west of the proposed Graves Road interchange. This extension improved Interstate peak hour travel times as highlighted in **Table 16.** With the extension of the third I-275 westbound through lane, no additional westbound improvements are warranted. For the eastbound direction, traffic analysis did reveal the KY 237 eastbound diverge changed from LOS D to E for the Build Alternative. As a result, an eastbound auxiliary lane is recommended between Graves Road and KY 237.

The Recommended Alternative will accommodate bicycles and pedestrians. Typical sections were developed for each roadway to illustrate recommended lane widths, median treatments and bicycle and pedestrian sidewalks. These are illustrated on **Exhibit 12** in **Appendix A**.

An important factor in considering approval of new interchanges is interchange spacing. **Figure 12** illustrates both the ramp and crossroad spacing between the proposed Graves Road interchange and the closest interchange to the east (KY 237) and west (KY 3608). Within the study area, the functional classification of I-275 is urban and the spacing requirement for a typical urban environment is one mile between interchanges. As illustrated on **Figure 12**, the interchange spacing is greater than a mile, exceeding current requirements. To address potential operational and safety concerns, an eastbound auxiliary lane will be provided between ramps and the westbound third lane will be extended an additional 7,700 feet.

Figure 12. Interchange Ramp Spacing



5.0 Policy Requirements Summary

As discussed in Section 4, FHWA's "Policy on Access to the Interstate System" provides the requirements for the justification and documentation necessary to substantiate any proposed changes in access to the Interstate System. The policy has been reduced to two requirements and is summarized below:

Policy Requirement 1: An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility ...or on the local street network...

After a thorough analysis of the operational and safety impacts for a proposed interchange located in northern Boone County along I-275 at Graves Road, KYTC has determined that the new interchange will not significantly adversely impact I-275 or the local roadway network. The Recommended Alternative will result in 25,400 daily vehicles being diverted from the KY 237 interchange reducing congestion and improving safety along KY 237 and I-275. The analysis revealed systemwide travel time savings. Travel times along KY 237 will be reduced 54 percent in the northbound direction and 41 percent in the southbound direction. With the extension of the third I-275 westbound lane, travel speeds will increase by 10 percent in the westbound direction. Intersections along the improved Graves Road will all operate at LOS D or better. The redesigned Graves Road will address safety concerns along Graves Road by providing a modern four-lane roadway through the interchange vicinity from KY 20 north to KY 237.

Policy Requirement 2: The proposed access connects to a public road only and will provide for all traffic movements... The proposed access will be designed to meet or exceed current standards...

The Recommended Alternative is proposed as a full interchange connecting to a public road, will provide all movements to and from I-275 from Graves Road, and will be designed to meet current standards. Furthermore, logical termini were considered for the local network improvements. To the north, Graves Road will connect to an improved section of KY 237 and to the south, Graves Road will connect directly to KY 20 and Bullittsville Road providing critical eastern, western and southern connections. All improvements were designed to current roadway design standards. The interchange will be designed to meet interstate spacing requirements.

This IJS describes an existing transportation system unable to keep up with the rapid growth occurring in northern Boone County resulting in deteriorating mobility and increasing safety concerns. While no one project will address all transportation needs, the Graves Road interchange has been recommended in various county, regional and KYTC plans and is shown in the IJS to offer substantial improvements in area traffic mobility and safety; therefore, it is recommended for approval.

APPENDIX A: Exhibits

Exhibit 1. Traffic Count Locations Exhibit 2. I-275 Directional ADTs and Levels of Service – AM Peak Hour Exhibit 3. I-275 Directional ADTs and Levels of Service – PM Peak Hour Exhibit 4. KY 237 Directional ADTs and Levels of Service Exhibit 5. Crash Data by Severity Exhibit 6. Crash Data by Type Exhibit 7. Environmental Overview Exhibit 8. 2040 Build Graves Road Directional ADTs and Levels of Service Exhibit 9. Conceptual Signing Plan Exhibit 10. Recommended Alternative Directional ADTs and Levels of Service Exhibit 11. Recommended Alternative I-275 Directional ADTs and Levels of Service Exhibit 12. Recommended Alternative Typicals


























Appendix E -- Typical Sections

	INDEX OF SHEE	ГЅ	
	SHEET NO. DESCRIPTION		
	R2 TYPICAL SECTIONS-SUMMARY R3 PLAN AND PROFILE SHEETS	OF QUANTITIES	
	UTILITY REFERENCE SHEETS RIGHT OF WAY SUMMARY SHE	ETS	
	DETAIL SHEETS		
	EROSION CONTROL SHEETS MITIGATION PLAN SHEETS COOPDINATE CONTROL SHEETS		
	SOIL PROFILE SHEETS PIPE DRAINAGE SHEETS	,	
	S STRUCTURE PLANS		
	T TRAFFIC PLANS		
	U UTILITY RELOCATION PLANS		
	XI CROSS SECTION SHEETS		
N			
JT.D(
AY01	SHEETS NOT INCLUDED IN TOTAL SHEETS		
ILSVI			
DETA			
CADNE	STANDARD DRAWI	NGS	
11/0	NUMBER		
IASE			
5 \РН			
I-27			
ΥT			
COUL			
ONE			
0 BC			
90.0			
CIDH/			
ENGRY			
6: \E			
AME:			
E NZ			
FIL			
0			
2019	5 7		
28,			
Jary			
ebru			
s ED: F			
oTTE	DESIGN CRITERIA		
щ. П.	CLASS OF HIGHWAY COLLECTOR		
USE DAT	TYPE OF TERRAIN ROLLING		
	DESIGN SPEED 55		
	REQUIRED PSD 250		
IAME:	ADT FUTURE (2010) 2,100		
ΕT Ν	DHV 3,360		
-SHEI	D %		
ய்			
459	GEOGRAPHIC COORDINA	1165	
II. 9.	LATITUDE 35 DEGREES 04 MINUTES 59 SEC LONGITUDE 84 DEGREES 44 MINUTES 4 SEC	UNUS NORTH ONDS WEST	
<8°.		LENGTH 4646	. 30
tion	DESIGNED	ADDED DEDUCTED FC	IR -
Sta	% RESTRICTED SD	RAILROAD CRO	SSI
dicr.c	LEVEL OF SERVICE	BRIDGES	
~	MAX. DISTANCE W/U PASSING		

Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS

PLANS OF PROPOSED PROJECT

AT I-275 AND GRAVES RD





	COUNTY OF	ITEM NO.	SHEET NO.
	BOONE	6-8953	RI
THIS PROJECT IS A FULLY CONTROLLED ACCESS HIG SHALL BE PROVIDED O SPECIFICALLY INDICATE	E NH SYSTEN AND PAR HWAY. ACH DONU PIA	6-8953	RI
PRELIMIN RIGHT OF PLANS PLANS PLANS PLANS PLANS COUNTY OF BOONE -8953 204 008 0275 NEWXCHN	IARY WAY S		
MIKE BEZOLD, PE	_		
PROJELI MANAGEN DATE:			
STATE HIGHWAY ENGINEER DATE:	—		



BULLITSVILLE RD



TAILSN

ASE

8

VAME:

FILE

28.

DATE

AME:

159





NOTES

- () SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.
- OF THE SHOULDERS.
 (2) ASPHALT SEAL REOUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT 2 FEET DOWN THE DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING: ASPHALT SEAL COAT 2.4 LBS/ SO YD.
 ASPHALT SEAL AGGREGATE 20 LBS/SO YD. (Size #8 or 9M)
- (3) SUPERLEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.
 (4) TREAT CEMENT STABILIZED ROADWAY WITH 2.0 LBS/ S0 YD. OF ASPHALT CURING SEAL AND 5.0 LBS/ S0 YD. OF SAND FOR BLOTTER.
- (5) TREAT DGA BASE WITH 1.6 LBS/ SO YD. OF ASPHALT CURING SEAL AND 5.0 LBS/ SO YD. OF SAND FOR BLOTTER WHERE SPECIFIED.

GRAVES ROAD TYPICAL SECTIONS (SHEET 1 of 12)

NOTES

- 1 see cross sections for slopes outside the limits of the shoulders.
- AREA BETWEEN THE BACK OF CURB AND THE SIDEWALK AND THE AREA FROM THE SIDEWALK TO TWO FEET DOWN THE SLOPE, WILL BE SODDED.
- SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.
 TREAT CEMENT STABILIZED ROADWAY WITH 2.0 LBS/ SO YD. OF ASPHALT CURING SEAL AND 5.0 LBS/ SO YD. OF SAND FOR BLOTTER.
- (5) TREAT DGA BASE WITH 1.6 LBS/ SO YD. OF ASPHALT CURING SEAL AND 5.0 LBS/ SO YD. OF SAND FOR BLOTTER WHERE SPECIFIED.

TYPICAL SECTIONS GRAVES RD







159

COUNTY OF	ITEM NO.	SHEET NO.
BOONE	6-8953	R2a

GRAVES RD - RAISED MEDIAN







IINCADNDETAILSNTYPICALS ASE 8 NAME: FILE 28.

VAME:

159



1 SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.

- (2) ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT 2 FEET DOWN THE DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING: ASPHALT SEAL COAT 2.4 LB5/ SO YD.
 ASPHALT SEAL AGGREGATE 20 LBS/SO YD. (Size #8 or 9M)
- SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.
- (4) SHOULDERS SHALL BE WIDENED I' WHERE GUARDRAIL IS TO BE INSTALLED.

TAILS

Ю

PHASE

COUNTY I-275\

8

VAME:

FILE

2019

28.

PI OTTED:

USER: DATE

NAME:

E-SHEET

459

TYPICAL SECTIONS I–275 WIDENING



I-275 MUST BE JPC TO MATCH THE EXISTING PAVEMENT. ASPHALT WILL NOT BE CONSIDERED FOR THE WIDENING PORTION OF THE PROJECT. THE RAMPS (PAST THE GORE) ARE STILL OPEN TO THE ALTERNATES.

COUNTY OF	ITEM NO.	SHEET NO.
BOONE	6-8953	R2c

NCRETE ALTERNATE	
FFIC LANES	
PROX. 12" 12" JPC PAV SURFACE12" JPC PAV	EMENT
APPROX. II. 75" CRUSH .75" BASE 8" CRUSHED	ied stone base aggregate size #2's
ULDERS	
PPROX. 6" 6 JPC PAVI SURFACE 6 JPC PAVI	EMENT SHLD
APPROX. FULL DEPTH .75" BASE 8" CRUSHED	I CRUSHED STONE BASE AGGREGATE SIZE #2'S
	Г
SCALE: 1"=NTS	GRAVES ROA Typical sect (Sheet 4 of
	-



USER: DATF NAME:

28.

159

COUNTY OF	ITEM NO.	SHEET NO.
BOONE	6-8953	R2d

ANE	S
, 5" CE	
DX. SE	3" CLASS 4 ASPHALT BASE 1.00D PG76-22 3" CLASS 4 ASPHALT BASE 1.00D PG64-22 3" CLASS 4 ASPHALT BASE 1.00D PG64-22 4" CRUSHED STONE BASE
ED ON	
нs	HOULDERS
5" CE	
DX. SE	3" CLASS 4 ASPHALT BASE 1.00D PG76-22 3" CLASS 4 ASPHALT BASE 1.00D PG64-22 3" CLASS 4 ASPHALT BASE 1.00D PG64-22 4" CRUSHED STONE BASE
ED ON	

NOTES

- ① SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.
- (2) AREA BETWEEN THE BACK OF CURB AND THE SIDEWALK AND THE AREA FROM THE SIDEWALK TO TWO FEET DOWN THE SLOPE, WILL BE SODDED.

LAILSN.

Ю

PHASE

COUNTY 1-275\

8

NAME:

FILE

2019 28.

NAME:

/8.11.9.459

- (3) SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.
 (4) TREAT CEMENT STABILIZED ROADWAY WITH 2.0 LBS/ SO YD. OF SAND FOR BLOTTER.
- (5) TREAT DGA BASE WITH 1.6 LBS/ SQ YD. OF ASPHALT CURING SEAL AND 5.0 LBS/ SQ YD. OF SAND FOR BLOTTER WHERE SPECIFIED.

TYPICAL SECTIONS WORLDWIDE BOULEVARD







COUNTY OF	ITEM NO.	SHEET NO.
BOONE	6-8953	R2e

WORLDWIDE BOULEVARD

3° CLASS 4 ASPHALT BASE 1.00D PG76-22 3.5" CLASS 4 ASPHALT BASE 1.00D PG64-22 4° DRAINAGE BLANKET - TYPE II - ASPH 10° DGA BASE	

4" DRAINAGE BLANKET - TYPE II - ASPH 4" DGA BASE

STANDARD INTERGAL CURB



NOTES

- ① SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.
- (2) AREA BETWEEN THE BACK OF CURB AND THE SIDEWALK AND THE AREA FROM THE SIDEWALK TO TWO FEET DOWN THE SLOPE, WILL BE SODDED.
- (3) SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.
 (4) TREAT CEMENT STABILIZED ROADWAY WITH 2.0 LBS/ S0 YD. OF SAND FOR BLOTTER.

COUNTY I-275NPHASE IINCADNDETAILSN

BOONE

8

G: \ENGR

NAME:

FILE

2019

28.

NAME:

E-SHEET

459

TYPICAL SECTIONS WILLIAMS RD







STANDARD INTEGRAL CURB —



WILLIAMS RD SUPERELEVATION SECTION



WILLIAMS RD



BOONE	6-8953	R2f

GRAVES ROAD TYPICAL SECTIONS (SHEET 7 of 12)



159

28.

TYPICAL SECTIONS KY 237 ROUNDABOUT



KY 237 / GRAVES RD ROUNDABOUT



KY 237 AT THE PAVEMENT. CONC OF THE KY 237 NOTE:



APPRO 20.5" BA

PREPARATION

SHOULDERS

APPROX. STANDARD CURB AND GUTTER

10" DGA BASE

E-SHEET NAME:

v8.11.9.459

	COUNTY OF	ITEM NO.	SHEET NO.
	BOONE	6-8953	R2h
DETAIL "C"			
ALT ALTERNATE			
HE ROUNDABOUT MUST BE ASPHALT TO MAT	CH THE EXISTING		
AT THE ROUNDABOUT.	IL WIDENING FORFION		
37 ROUNDABOUT / WID	ENING		
ALTERNATE			
1.5" CLASS 4 ASPHALT SURFACE	0.38A PG76-22		
CLASS 4 ASPHALT BASE 1.00	DD PG76-22		
- 3.5" CLASS 4 ASPHALT BASE 1.	000 PG64-22		

ROADBED 8" CEMENT STABILIZED ROADBED

SCALE: 1"=NTS

GRAVES ROAD TYPICAL SECTIONS (SHEET 9 of 12)



-v 28. 2019

459 E-SHEET NAME: USER: msipes DATE PLOTTED: February 2

		COUNTY OF	ITEM NO.	SHEET NO.
		BOONE	6-8953	R2i
'K" Ernate				
-				
I				
'K" FRNATE				
-				
	\rightarrow			
– RURAL				
CONCRE	TE ALTERNATE			
TRAFFIC L	ANES			
APPROX. SURF	ACE JPC PAVEMENT	- 8 IN		
APPR 6" Bi	OX6" CRUSHED STO	DNE BASE		
ROADI PREPARAT	BED	BILIZED ROADE	BED	
SHOULDER	<u>s</u>			
APPROX. SURF	ACE JPC PAVEMENT	- 8 IN		
APPR 6" B,	OX6" CRUSHED STO	DNE BASE		
ROADI PREPARAT	BED8" CEMENT STAE	BILIZED ROADE	BED	
	Тү	GRAVES R Picai sfr	OAD	
SCALE: 1"=NTS	(S	HÉET IO C	of 12)	

- ① SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.
- (2) AREA BETWEEN THE BACK OF CURB AND THE SIDEWALK AND THE AREA FROM THE SIDEWALK TO TWO FEET DOWN THE SLOPE, WILL BE SODDED.

- (3) SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.
 (4) TREAT CEMENT STABILIZED ROADWAY WITH 2.0 LBS/ S0 YD. OF SAND FOR BLOTTER.

















(4) 8" CEMENT STABILIZED ROADBED





NAME:

459

2019

28.

		ITEM NO	SHEET NO
	BOONE	6-8953	R2j
	L		1
"I"			
TERNATE			
IL "I" ALTERNATE			
BRIC			
PE IV			

GRAVES ROAD TYPICAL SECTIONS (SHEET 11 of 12)



NGN

TAILSNTYPICALS

DEI

IINCAD

COUNTY I-275\PHASE

BOONE

8

G: \ENGR

NAME: (

FILE

28.

PLOTTED:

DATF

NAME:

E-SHEET

459

COUNTY OF	ITEM NO.	SHEET NO.
BOONE	6-8953	R2K

ASPHA	LT ENTRANCE
5" Ce	1.5" CLASS 2 ASPHALT SURFACE 0.38D PG64-22
X	3.25" CLASS 2 ASPHALT BASE 1.00D PG64-22 5.5" CRUSHED STONE BASE

5"	1.5" CLASS 2 ASPHALT SURFACE 0.38D PG64-22
K	3" CLASS 2 ASPHALT BASE 1.00D PG64-22 4" CRUSHED STONE BASE

GRAVES ROAD TYPICAL SECTIONS (SHEET 12 of 12) SCALE: 1"=NTS

Appendix F -- CPM Note

Appendix F -- CPM Note

SPECIAL NOTE FOR CPM SCHEDULE

I. General

The Progress Schedule required for this Project is the CPM schedule. The DBT shall designate a Schedule Representative who shall be responsible for coordinating with the Engineer during the preparation and maintenance of the schedule. The DBT shall submit an interim schedule followed by a baseline schedule, or only a baseline schedule, depending on when the DBT starts work as described below.

II. Interim Schedule

If the DBT starts work within 60 days of execution of the contract, they shall submit an interim schedule. The interim schedule shall be in CPM schedule format. The interim schedule shall include detailed activities for the work to be accomplished during the first 90 days of the Contract, and a summary of activities for the balance of the work.

III. Baseline Schedule

The DBT shall submit a baseline schedule within 60 days of the execution of the Contract. The baseline schedule shall be in CPM schedule format and as described below. The Engineer will review the baseline schedule and will either "approve", "approve as noted", or "reject" the schedule within 21 days of receipt. If the Engineer does not provide written notification regarding the disposition of the baseline schedule within 21 days, the submission will be considered approved.

For baseline schedules that are "approved as noted," the DBT shall make the necessary revisions and resubmit the revised schedule within 14 days. The Engineer will only reject baseline schedules that are not in compliance with Contract requirements.

For baseline schedules that are "rejected," the Engineer will indicate in writing all portions of the schedule that are not in compliance with the contract requirements. The Project Engineer will conduct a mandatory meeting with the DBT and the DBT's Schedule Representative within 14 days of the Engineer's written notice. The purpose of this meeting is to resolve all issues with the baseline schedule. At this meeting, the DBT shall provide clarification and all additional information necessary for the Engineer to "approve" the baseline schedule.

In the event the baseline schedule is not "approved" within 120 days of execution of the Contract, all work shall cease on the Project and no progress payments shall be made until the baseline schedule is "approved." Approval of the baseline schedule does not revise the Contract Documents. The baseline schedule must be "approved" or "approved as noted" by the Engineer prior to the Engineer evaluating any DBT claims associated with time impacts.

A. Schedule Requirements

Generate the baseline schedule using Primavera P6 Project Management by Oracle Corporation, Redwood Shores, CA 94065, or an equivalent program approved by the Engineer. The DBT shall provide any necessary training and license needed for KYTC to use the software. Submit the Primavera P6 XER file in the Version required by KYTC.

The DBT shall provide a working day schedule that shows the various activities of work in sufficient detail to demonstrate a reasonable and workable plan to complete the Project by the Original Contract Completion Date. Show the order and interdependence of activities and the sequence for accomplishing the work. Describe all activities in sufficient detail so that the Engineer can readily identify the work and measure the progress of each activity. The baseline schedule must reflect the scope of work, required phasing, maintenance of traffic requirements, interim completion dates, the Completion Date, and other Project milestones established in the Contract Documents. Include activities for design processes, mobilization, inspection, testing, submittals, working drawings, shop drawing preparation, submittal review time for KYTC shop drawings, material procurement and fabrication, and the delivery of materials, plant, and equipment, and other similar activities. Design reviews shall be numbered and include "KYTC".

The DBT shall be responsible for assuring all work, including all Subcontractor work, is included in the schedule. The DBT shall be responsible for assuring that all work sequences are logical and that the schedule indicates a coordinated plan. Failure by the DBT to include any element of work required for performance of the Contract shall not excuse the DBT from completing all work within the required time. The Engineer's review of the baseline schedule will be for compliance with the Specifications and Contract requirements. Approval by the Engineer shall not relieve the DBT of any of their responsibilities for the accuracy or feasibility of the schedule. Omissions and errors shall be corrected as described in Section VI or VIII in this note and shall not affect Contract time, the Completion Date, or total Contract payment.

1. Administrative Identifier Information

- a. Project Number
- b. County
- c. Route Number
- d. FHWA Number
- e. PID Number
- f. Contract Signed Date
- g. Completion Date
- h. DB Design Manager and DBT Name
- i. DB Design Manager and DBT Dated Signature
- j. KYTC's Dated Approval Signature

2. Project Activities

a. Activity Identification (ID)

Assign each activity a unique identification number. Activity ID length shall not exceed 10 characters. Once accepted, the Activity ID shall be used for the duration of the Project.

b. Activity Name Each activity shall have a narrative name (description) consisting of a verb or work function (e.g., form, pour, excavate) and an object (e.g., slab, footing, underdrain).

c. Activity Original Duration

Assign a planned duration in working days for each activity. Do not exceed a duration of 20 working days for any construction activity unless approved by the Engineer. Do not represent the maintenance of traffic, erosion control, and other similar items as single activities extending to the Completion Date. Break these Contract Items into component activities in order to meet the duration requirements of this paragraph.

- d. Activity Relationships:
 - i. All activities, except the first activity, shall have a predecessor(s). All activities, except the final activity, shall have a successor(s).
 - ii. Use only finish-to-start relationships with no leads or lags to link activities, or use start-to-start relationships with lags no greater than the predecessor duration to link activities.
 - iii. Use of finish-to-finish relationship is permitted when both activities are already linked with a start-to-start relationship.

3. Project Milestones

The DBT shall adhere the following milestones:

a. Start Project

The DBT shall include as the first milestone in the schedule, a milestone named "Start Project". The date used for this milestone is the date the Contract is executed and signed by KYTC.

b. End Project Milestone

The DBT shall include as the last activity in the Project schedule, a milestone named "End Project". The date used for this milestone is considered the Project Completion Date.

c. Start Phase Milestone

The DBT shall include as the first activity for a Project phase, an activity named "Start Phase X," where "X" identifies the phase of work. The DBT may include additional milestones but, as a minimum, must include all contractual milestones.

d. End Phase Milestone The DBT shall include as the last activity in a Project phase, an activity named "End Phase X," where "X" identifies the phase of work. The DBT may include additional milestones, but at a minimum contractual milestones.

4. Level of Effort Activities (Hammocks)

Level of Effort (hammock) activities are summary activities used for graphical display only. Use hammocks to show the duration of specified Contract work periods, phases and road closures. The hammock activity type is allowed to have a start-to-start relationship with the first activity in a series of activities and a finish-to-finish relationship with the last activity in a series of activities.

5. Constraints

Use constraints sparingly in the schedule. If constraints are used, use only early constraints or late constraints. Do not use As Late As Possible, Finish On, Mandatory Finish, Mandatory Start, or Start On constraints.

6. Seasonal Weather Conditions

The winter shutdown periods shall be shown using non-work calendars. The activity can be assigned to a calendar indicating time periods of nonwork. These custom calendars can be created to show days, weeks, or months of non-work. Seasonal weather conditions shall be considered and included in the planning and scheduling of all work.

7. Linking Projects

Independent projects shall not be linked.

8. Activity Codes

The DBT shall include the following codes for each activity:

- a. Area
- b. Phase
- c. Responsibility for each task, DBT and Subcontractors
- d. Worktypes for each task, as identified by KYTC
- e. DBE and non-DBE DBT/designer tasks
- f. Funding code

9. Schedule Options

The schedule may only be calculated using retained logic. Show open ends as noncritical. Schedule durations are to be contiguous (no suspend or resume dates). Total float shall be calculated as finish float.

10. Cost Loading

a. Cost Loading Activities

Costs for incremental design preparation will be assigned to the respective design phase submittal milestone(s). Equipment costs will be assigned to their respective Procurement Activities (i.e., the delivery milestone activity). Costs for installation of the material/equipment (labor, construction equipment, mobilization, and temporary materials) will be assigned to their respective construction activities. Evenly disperse overhead and profit to each activity over the duration of the Project. The total of all cost loaded activities, including costs for material and equipment delivered for installation on the Project, and labor and construction equipment loaded construction activities, shall total to 100 percent of the value of the Contract.

b. Quantities and Units of Measure

Cost loaded activities, as applicable, will have a detailed breakdown of the quantities for each of the various kinds of work and the unit of measure for material testing frequency calculation and planning purposes. These entries are informational only and are non-calculating. Quantities and Units of Measure shall be entered as "Notebook Topic P3 Activity Log Info" for each activity. Begin each Notebook entry with "Quantities and Units of Measure".

B. Submission Requirements

Submit all schedules within the time frames specified. Submit the schedule and information in electronic file format. Submit the information detailed below along with the electronic baseline schedule.

1. Baseline Schedule in Bar Chart Format

This baseline schedule shall include the Administrative Identifier Information discussed in Section III.A.1 on the first page of the schedule. For each activity on the chart, indicate the Activity ID, Activity Name, Original Duration, Remaining Duration, Total Float, Early Start Date, Early Finish Date, and Calendar ID. Use arrows to show the relationships among activities.

2. Baseline Schedule in Bar Chart Format, on Paper

Identify the critical path of the Project on the bar chart in red. The critical path is defined as the longest path of activities in the Project that determines the Project Completion Date. The activities that make up the critical path of activities are the "Critical Activities."

3. <u>Three Week Look Ahead and a Six Week Look Ahead Schedule in</u> <u>Bar Chart Format</u>

This schedule shall have all the requirements of the baseline schedule in bar chart format except that it shall be limited to those activities that have an early start or early finish within a three-week and a six-week period of the data date.

4. <u>Scheduling Statistics Report</u>

Submit a report of baseline schedule statistics, including number of activities, number of activities on the longest path, number of started activities, number of completed activities, number of relationships, percent complete, and number and type of constraints.

5. Logic Diagram (if Requested by the Engineer)

Submit a diagram in PERT chart format showing the logic of the baseline schedule.

6. Activity ID Sort

Submit a listing of all activities included in the baseline schedule sorted by ascending Activity Identification Number.

7. Total Float Sort

Submit a listing of all activities included in the baseline schedule sorted by increasing total float and by early start date.

8. Detailed Predecessor/Successor Sort

Submit a listing of all activities included in the baseline schedule indicating the activities that immediately precede and immediately succeed that activity in the schedule logic.

9. <u>Earned Value Report</u>

Submit an Earned Value Report listing all activities having a budget amount and cost. A compilation of total earnings on the Project from the notice to proceed to the most recent monthly progress payment request and the difference between the previous request amount and the current payment request amount. Sort report first by resource and then by activity.

10. Graphical Representation of Actual Work Completed

Submit a graphical representation of actual work completed versus planned work.

11. Structural Schedule for Main Viaduct

Submit a structural schedule for the main viaduct with milestone dates (planned versus actual) for the major elements of work (e.g., footers, piers, abutments, deck, parapets).

IV. Float

Use of float suppression techniques, such as preferential sequencing (arranging critical path through activities more susceptible to Department caused delay), lag logic restraints, zero total or free float constraints, extending activity times, or imposing constraint dates other than as required by the Contract, shall be cause for rejection of the Project schedule or its updates.

A. Definitions of Float

Total Float is the length of time along a given network path that the actual start and finish of activity(s) can be delayed without delaying the Project Completion Date. Project Float is the length of time between the End Project Milestone and the Contract Completion Date.

B. Ownership of Float

Float available in the schedule at any time shall not be considered for the exclusive use of either KYTC or the DBT. During the course of Contract execution, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Efficiencies gained as a result of favorable weather within a calendar month, where the number of days of normally anticipated weather is less than expected, shall also contribute to the Project Float. A schedule showing work completing in less time than the Contract time, and accepted by KYTC, shall be considered to have Project Float. Project Float shall be a resource available to both KYTC and the DBT. If a delay occurs which impacts the Project's critical path, consumes all available float, and extends the work beyond the Contract Completion Date, KYTC will consider a time extension.

C. Negative Float

Negative float shall not be a basis for requesting time extensions. Any extension of time shall be addressed in accordance with the Section VII. Scheduled completion date(s) that extend beyond the Contract (or phase) completion date(s) may be used in computations for assessment of liquidated damages. The use of this computation is not to be construed as an order by KYTC to accelerate the Project.

V. Monthly Update Schedule

A monthly update schedule is a schedule in which only progress is updated from the prior data date to the current data date. Work added and/or excusable delays encountered since

the prior data date must be represented as a schedule revision as described in Section VI. Omissions and errors shall be corrected as described in Section VI or VIII in this note and shall not affect the Completion Date, the Contract time, or total Contract payment.

A. Update Requirements

On the tenth day of the current month, during the life of the Project, submit an updated schedule and all required information with a data date of the last day of the preceding month. The date for submission and data date may be adjusted to accommodate regularly scheduled progress meetings. Submit the monthly updated bar chart on paper and a copy of the updated schedule in electronic format in Section III.B. The Engineer will "approve" or "reject" the schedule update within 14 days of receipt of the updated CPM schedule. The Engineer may withhold estimates if the updated schedule is not submitted as required by this section. For each updated schedule, identify the actual start and finish dates for all completed activities and the actual start date and remaining duration for all activities in progress. Provide a written narrative that identifies any changes or shifts in the critical path and submit reasons for the changes or shifts in the critical path. Correct out-of-sequence progress listings generated by the Scheduling Statistics Report on the critical path. Minor logic revisions to correct out of sequence progress to critical or non-critical path activities may be made as part of the monthly schedule update. Submit proposed significant changes and/or changes to the critical path in accordance with Section VI. The Project schedule shall be reviewed at each monthly progress meeting. Any corrections shall be made prior to the next monthly progress meeting.

Submit the following with each updated schedule:

- 1. CPM Schedule in Bar Chart Format
- 2. Three Week and Six Week Look Ahead CPM Schedule in Bar Chart Format
- 3. Logic Diagram (if requested by the Engineer)
- 4. Activity ID Sort (if requested by the Engineer)
- 5. Total Float Sort (if requested by the Engineer)
- 6. Detailed Predecessor/Successor Sort (if requested by the Engineer)
- 7. Schedule Statistics Report
- 8. Electronic files (formatted as described above)
- 9. Earned Value Report

The DBT may submit a statement that there were no changes in the schedule logic, activity durations, or calendars since the previous update in lieu of submission of Items 3, 4, 5, and 6 above.

B. Early Completion Monthly Update Schedule

An Early Completion Monthly Update Schedule is defined as a monthly update schedule submitted by the DBT in which the Finish Date precedes the Contract Completion Date.

C. Late Completion Monthly Update Schedule

A Late Completion Monthly Update Schedule is defined as a monthly update schedule submitted by the DBT in which the Finish Date exceeds the Contract Completion Date. In the event the Finish Date is more than 14 days beyond the current contract completion date and a schedule revision is not warranted, the DBT must proceed in accordance with Section VIII.

VI. Revisions

The work may require and/or the DBT may make revisions to the CPM schedule. Addition of new activities or new calendars or changes to existing activities, calendars, or logic constitute a revision. All revisions must be reported in narrative form on a cover sheet accompanying the monthly update schedule. Any revision that modifies the critical path or impacts an interim date or Project Completion Date must be represented on a companion schedule submitted with the monthly update schedule or as a fragnet within the monthly update schedule. A fragnet is defined as the sequence of new activities that are proposed to be added to the existing schedule. The fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities. If submitted as a fragnet, the DBT shall compute two finish dates. The first finish date shall be computed with consideration of any impact by the fragnet. The DBT shall also submit a written narrative stating the reason for the proposed revisions. The Engineer will "approve" or "reject" proposed revisions within 10 days of receipt of appropriate schedules and narrative.

Any revision that modifies an activity's costs shall be submitted with a written narrative stating the reason for the proposed revision. The Engineer will review and "approve" or "reject" proposed cost revisions.

All approved revisions shall be incorporated into the Monthly Update Schedule.

VII. Time Extensions for Delays in Accordance with 108.06

The work may require and/or the DBT may request an extension of the Completion Date. Perform the following analysis to compute the duration of the time extension. Submit two paper copies and two electronic copies of each analysis performed.

- A. Determine Project progress prior to circumstance(s) necessitating the time extension. The previous accepted monthly update, updated to the date of the circumstance alleging to have caused delay, shall be used to display the prior progress of the Project. This schedule is referred to as the Un-impacted Schedule.
- *B.* Prepare a fragmentary network (fragnet) depicting the circumstance that is believed to have delayed the Project.
- *C.* Insert the fragnet into the Un-impacted Schedule, run the schedule calculations and determine the finish date. This schedule is referred to as the Impacted Schedule.
- D. Compare the Impacted Schedule finish date with the Un-impacted Schedule finish date in order to determine the duration of any warranted time extension.

Submit the impacted schedule with the request for time extension. Include a narrative report describing the effects of new activities and relationships to interim and Contract Completion Dates. All approved time extensions shall be incorporated into the monthly update with the fragnet used to determine impacts incorporated into the schedule. Omissions and errors shall be corrected as described in Section VI or VIII in this note and shall not affect Completion Date, Contract time, or total Contract payment.

VIII. Recovery Schedule

If the Monthly Update Schedule or Revised Monthly Update Schedule projects a finish date for the Project more than 14 Calendar Days later than the current Completion Date, submit a recovery schedule showing a plan to finish by the current Completion Date if requested by the Engineer. KYTC will withhold Estimates until the Engineer approves

the recovery schedule. The Engineer will use the schedule to evaluate time extensions and associated costs requested by the DBT.

Appendix G -- Environmental Document (CE-3)
DIVISON OF ENVIRONMENTAL ANALYSIS

TC 58-48 03/2015 Rev.

Page 1 of 17

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

Ţ

100 and the second

I

P

-

Item # 6 000	53.00		Route	1-275 and	Graves Road		
Work Type: New Con	struction		County: F	Boone			
Project Description	Address vehicular con	gestion and i	improve fre	light mobi	lity surrounding	Graves Road	d and the
i ojece oescription	275/KY 237 interchan	ge while also	addressin	g safety iss	ues along KY 20).	
Roadway Conditions	I-275 – 4-lane intersta	te with 60-fc	ot	1-275	Current Year	(2016) - 51	,400 AD
and Setting	depressed median				Design Year	(2040) - 76	,900 AD
D	Graves Rd 2-lane U	rban Major C	ollector	Graves	Current Year	(2016) - 2	,600 AD
				Rd.	Design Year	(2040) - 18	,550 AD
	KY 237 - 4-lane Urban	Principal Art	terial	KY 237	Current Year	(2016) - 36	,000 AD
					Design Year	(2040) - 56	,800 AD
	KY 20 - 2-lane Rural M	lajor Collecto	or	KY 20	Current Year	(2016) - 3	,600 AD
					Design Year	(2040) - 6	,700 AD
	Project Length	Begin MP	End MP	Number	of alternative(s)	considered,	
1-275	2.6 miles	6.7	9.3	including	; "No Build"	5	
Graves Rd.	2.4 miles	n/a	n/a	See	"Section 4. Alte	rnatives Sum	mary"
KY 237	0.2 miles	10.4	10.6				
KY 20 (West of Grave	s Rd.) 3.9 miles	10.9	14.8				
KY 20 (East of Graves	Rd.) 0.5 miles	15.4	15.9				
	JRES District Environment	tal Coordinat	or		2/3	15/19 Date	
All appropriate	Project Ma	nager ion ond identifie	d required fu	ture work ha	ve been entered into	25-19 Date othe CAP	
Den	Division of Environm (required for	mental Analys Level 2)	515		2-	<u>27-</u> Date	019
EG	Recommended	by: FHWA			3/01	/2019 Date	
Ju	Federal Highway A (required for	idministratio	2		3/	51 / 20 Date	19



TC 58-48 03/2015

Department of Highways DIVISON OF ENVIRONMENTAL ANALYSIS

Page 2 of 17

Rev.

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

Item # 6-8953.00 County

Boone

Route I-275 and Graves Road

3. PURPOSE AND NEED (attach additional pages if needed)

I-275 is a circular route around Cincinnati and northern Kentucky that traverses east-west in Boone County. Located just off I-275 at Exit 4 and near the eastern border of Boone County is the Cincinnati/Northern Kentucky International Airport (CVG). This airport serves multiple cargo and passenger airlines carrying more than 6.8 million passengers yearly, and research from the *Cincinnati Enquirer* newspaper shows that it's one of the fastest-growing airports in North America. As the airport has grown, so has the development surrounding it, particularly areas adjacent to I-275 to the west. Just west of the airport is the I-275 interchange with KY 237 (Exit 8) that serves multiple nearby warehouses, distribution centers, and businesses, as well as several residential neighborhoods. Even further to the west is Exit 11 at KY 8, an underutilized interchange serving primarily the Creation Museum and northwestern, rural Boone County.

<u>Purpose</u>

The purpose of this project is to improve mobility and safety in the rapidly growing area adjacent to I-275 between Interstate Exits 8 and 11 in northern Boone County.

Needs

The continual growth in Boone County and around the airport has put a strain on the existing roadways and has created mobility and safety issues that will only get worse as the traffic in the area continues to grow. There are multiple factors contributing to the growth in the project area and need of the project, such as:

- * There is approximately ten million square feet of existing distribution and warehousing space and at least another million available for lease in the area surrounding the KY 237 interchange with I-275.
- * Multiple residential neighborhoods (Treetop, North Pointe, Parlor Grove Estates, etc.) are located north of I-275 that must use KY 237 to access the majority of potential destinations and additional subdivisions are planned.
- * The acreage used for industrial/business in Boone County increased from 6,866 acres in 2009 to 7,660 acres in 2016 and there is an additional 6,564 acres zoned for industry/business that have not yet been built upon.
- * More than 4,300 trucks travel KY 237 daily and is forecasted to increase to more than 6,700 in 2040.
- * The population in Boone Co. has increased from 118,811 in 2010 to an estimated 130,000 today and is growing at a rate of 1,400 people per year.
- * The estimated number of housing units in Boone Co. grew from 45,053 in 2010 to 47,878 in 2016 and is growing at an estimated rate of 530 new housing units a year.
- * The international mail service provider DHL is nearing completion of a \$108 million expansion at CVG and plans to hire another 900 employees.
- * Amazon recently announced that their new venture into air shipping will be based at CVG. Along with a planned increase in product handling and shipping facilities, this expansion is anticipated to add approximately 6,000 new jobs.
- * The Amazon Prime Air announcement was one of three growth announcements in 2017 by CVG that demonstrates continued growth for both passengers and freight.

Please see Section 3 of Attachment 1 for additional data, figures, and discussio nof the project's Purpose and Need.



TC 58-48 03/2015

Page	3	of	17
	-	•••	

Rev.

DIVISON OF ENVIRONMENTAL ANALYSIS

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

Item #	6-8953.00	County	Boone	Route	I-275 and Graves Road

4. ALTERNATIVES SUMMARY Describe all alternatives that were evaluated, their impacts, and the reason(s) for elimination or selection (attach additional pages if needed)

Required Attachments Location Map Plan Map/Sheet(s) (See Exhibits 3 and 4) Several alternatives were evaluated as a part of the project development process. Each alternative would replace the existing Graves Road overpass with a new interchange approximately 650 feet to the west. Also, constructing the new interchange would require realigning the existing Williams Road. Two interchange configurations and two Williams Road realignments were developed. These alignments are interchangeable and result in four build alternatives for the project. The No Build Alternative was also analyzed and considered to provide a basis of comparison for the potential impacts that might result from the implementation of a build alternative. Each build alternative fully satisfies the project's Purpose and Need and was analyzed for potential environmental impacts. A short description of each alternative is below and Section 4 of Attachment 1 provides a more detailed description of each alternative, typical sections, and other project considerations. Exhibits of the alignments are provided in Appendix A.

<u>Alternative 1-A</u> – Widen Graves Road and construct a full diamond interchange at Graves Road and I-275. Realign 0.45 miles of Williams Road beginning at its new intersection with Graves Road and then following roughly parallel to the proposed Graves Road and interchange ramps.

<u>Alternative 1-B</u> – Widen Graves Road and construct a full diamond interchange at Graves Road and I-275. Realign one mile of Williams Road beginning at its new intersection with Graves Road and then proceeding directly west.

<u>Alternative 2-A</u> – Widen Graves Road and construct a modified diamond interchange at Graves Road and I-275. Realign 0.45 miles of Williams Road beginning at its new intersection with Graves Road and then following roughly parallel to the proposed Graves Road and interchange ramps.

<u>Alternative 2-B</u> – Widen Graves Road and construct a modified diamond interchange at Graves Road and I-275. Realign one mile of Williams Road beginning at its new intersection with Graves Road and then proceeding directly west.

<u>The No Build Alternative</u> – Maintain all roadways on their present alignment and no construction or work would be performed beyond regular maintenance activities.

After multiple team meetings, design changes, technical reports, and public involvement, the project team chose Alternative 2-A as the Selected Alternative.

<u>Alternative 2-A, The Selected Alternative</u> – Alternative 2-A will improve the mobility in the area, particularly on KY 237, by providing another access point to I-275 between Exits 8 and 11. It will help distribute trucks traveling to and from the warehouses and distribution centers of the Park West International Industrial Park. The Treetop residential neighborhood along Graves Road and the multiple residential areas on KY 237 north of Graves Road will be able to access the interstate without traversing through the highly commercial and industrial area surrounding Exit 8. Diverting traffic from KY 237 to Graves Road results in improved intersection delay and travel time along KY 237 as well as improving traffic safety concerns associated with stop-and-go traffic and over capacity conditions on KY 237. Safety is also improved along KY 237 and KY 20 with the proposed safety improvements. Pedestrian traffic will also see an improved corridor with the addition of sidewalks throughout the proposed roadways. Therefore, Alternative 2-A, the Selected Alternative, meets the project's Purpose and Need by addressing the safety and mobility issues in this rapidly growing area.

At a Preliminary Line and Grade (PL&G) meeting the project team chose the modified diamond interchange as the Graves Road and I-275 interchange. No choice was made at the PL&G meeting, however, on the two Williams Road alignments. This choice was made following the public meeting, where the public comments indicated they highly favored the realignment that stays close to the proposed roadways. Comments from the public meeting also led to a small adjustment to the Graves Road alignments that was implemented into the Selected Alternative. Other changes to Selected Alternative were also made after the public meeting as a result of continuous traffic analysis and design optimization. Changes include minor widening of I-275, safety improvements at the KY 237 interchange with I-275, and safety improvements along KY 20. A more detailed discussion of the Selected Alternative, the decision-making process, and the items added after the public meeting is provided in Section 4 of Attachment 1. Exhibits 7 through 7f in Appendix A provide mapping of the Selected Alternative.



TC 58-48

Department of Highways DIVISON OF ENVIRONMENTAL ANALYSIS

03/2015 Page 4 of 17

Rev.

CATE	GORICAL EXCLUS	ION ENVIRONMI	ENTAL DE	TERMINATION C	HECKLIST		
Item # 6-8953.00	County Boone		Route	I-275 and Graves Ro	ad		
5. COMMENTS AND	O COORDINATION						
Attach all letters, mee	ting minutes, and copies	s of any newspaper adv	ertisements			YES	NO
1. Will the project	have public, local gove	rnment, and resource	agency outr	each?		\checkmark	
Identify type of ou	utreach used:						I
✓ Meetings	Dates	11/16/2017					I
Newspaper Adv	v. Newspaper Na	mes	Cincinn	ati Enquirer			I
Meeting(s) with k	Dates	11/2/2017	Date	26			l
2. Was there public	or agency controversy	on the project?	If "Yes " exnli	ain in #4 helow			\checkmark
 Additional work 	needed to resolve all n	ublic, resource agency	, and proper	ty owners' concerns?			$\overline{\checkmark}$
If "Yes." explain p	lans for resolution in # 4	below.	, and proper	ty owners concerns.			
4. Additional infor	mation or comments	2010111					
The Boone County Fis	cal Court contributed fu	inds for the developme	ent of the pro	ject and their represen	tatives were	present	t at
multiple project team	meetings. This includes	s the PL&G meeting on	5/24/2017 w	here the modified diam	nond intercha	ange wa	as
chosen. See Section 5	of Attachment 1 for mo	ore discussion of the lo	cal governme	ent outreach.			
Coordination has occu development process included in Appendix A public meeting was alignments being cons Section 5 of Attachme the public, and the de Selected Alternative a owners along KY 20. S	urred with local, state, a . See Section 5 of Attach D. held on 11/16/2017 to sidered. Approximately ent 1 for more details or cisions made following ifter the public meeting ee Section 5 of Attachm	nd federal agencies an ment 1 for a list of age present the selected m 215 community memb the community outre the meeting. Since the , a letter describing the nent 1 for a summary o	d their comm encies where odified diam ers attended ach performe proposed KY proposed w f the respons	nents were considered of coordination was perfo ond interchange along y , and 60 comment form ed, a summary of the co 7 20 safety improvemen ork was sent to potenti ses.	during the pro ormed. C resp with both Wi as were receive orments receive ts were adde ally affected	oject onses a lliams F ved. See eived fro d to the propert	re toad e om e ty
See Appendix B for th Appendix B also conta	e newspaper tear sheet nins the letter sent to K	:, handout, sign-in shee / 20 property owners a	ets, and retur nd the two e	ned comment forms fro mail responses received	om the public d.	meetir	ıg.
6. ENVIRONMENTA	L COMMITMENTS, M	ITIGATION, REQUIRE	D FUTURE	ACTIONS, AND OTHER		S	
 Does the project investigations, st If "Yes," DEC should be a state of the project of the project of the project	have environmental co sudies, or approvals stil advise project manag	ommitments, mitigation I to be completed? Iter for consideration of	on measures, CAP entry in (, additional environme Dracle.	ntal	YES	
2. Identify all issues	5:						
* A Biological Assessn	nent (BA) to be comple	ted prior to construction	on to satisfy S	ection 7 of the Endange	ered Species	Act.	
* A 404 and 401 Perm Elimination System (K	hit shall be received price PDES) permits (KYR10)	or to construction to sa shall also be received p	tisfy the Clea rior to const	n Water Act. A Kentuck ruction.	y Pollutant D	vischarg	e
* The remaining Arch where the property o	aeological Survey shall wners denied access for	be completed per the I field surveys (See App	Memorandur endix C).	n of Agreement (MOA)	for the four p	properti	ies

* Phase II Site Investigations shall be completed prior to construction for UST/Hazmat sites.

* Prior to demolition of the Graves Road bridge over I-275, an asbestos-containing materials (ACM) inspection will be conducted and a 10-Day Notice of Demolition will be filed with the Kentucky Division of Air Quality (DAQ).



DIVISON OF ENVIRONMENTAL ANALYSIS

TC 58-48 03/2015

Page 5 of 17

Rev.

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST	

lter	m # 6-8953.00 County Boone Route I-275 and Graves Road								
3. 7 .	 Other unique environmental or engineering factors that require consideration through the remaining project development (excess excavation needs, utility considerations, drainage problems, geotechnical issues, topographic constraints, mines, acidic rock, drinking water wells, etc.) Alternative 2-A, the Selected Alternative, is not expected to generate excess materials. If design changes result in the requirement of excess material sites, locating potential fill areas and the regulatory clearances required will be the responsibility of the contractor. No other unique environmental or engineering factors have been identified. While environmental resources within KY 20's existing right of way were evaluated and are included in this evaluation, KYTC shall continue to consider them when determining the details of the proposed safety improvements along KY 20. 								
Α.	Right-of-Way Impacts	NA	YES	NO					
1.	Does the project require the acquisition of right of way?		\checkmark						
2.	Full or partial property acquisition required. Temporary Easement 13.38 acres		\checkmark						
	Estimated acreage: Fee Simple 79.80 acres Permanent Easement 0.00 acres *								
3.	Business or residential relocations required. No. of relocations: Residential 15 * Business 1 Suitable properties available: Residential \checkmark Yes \square No \square Unknown Describe "No" in A.8 below Business \checkmark Yes \square No \square Unknown If total acreage > 10 acres or total relocations are > 5, consult with DEA. If total acreage > 25 acres or total relocations are >10, DEA consults with FHWA. If > 1 relocation, complete Environmental Justice evaluation (see C.5).		✓						
4. 5.	Last resort housing required. Likely 🗹 Unknown Property transfer from a state or federal agency required. List agency(ies) in A.8 below.			√					
6.	Cemetery affected by project			1					
7.	Will excess excavation sites be required? Designated Permitted/Available for Contractor Unknown (must note in Section 8)	7							
8. Ti ei in p	8. Describe Impacts/Comments The project team worked throughout project development to minimize the number of relocations, but engineering and environmental concerns dictated that a certain amount of right-of-way acquisition and relocations would be unavoidable. This includes adjustments made to the Selected Alternative based on comments received at the public meeting that avoided a potential relocation.								

15 residential homes would be relocated by the Selected Alternative, including two located on one property. Field visits in June of 2018 indicated that two of the 15 homes were unoccupied at the time and one had tenants moving out by the end of the month, leaving only 12 with residents living in them. All 15 appear to be single-family dwellings, with 14 conventional homes and one apartment located above a garage. The majority (10) of residential relocations are near the proposed Graves Road/KY C23020/Bullittsville Road intersection, where the Selected Alternative replaces three existing KY 20 intersections (Graves Rd.,



TC 58-48 03/2015

DIVISON OF ENVIRONMENTA	L ANALYSIS
--------------------------------	-------------------

Page 6 of 17

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

6-8953.00 Item # County Route I-275 and Graves Road

8. Describe Impacts/Comments (cont.)

Watts Rd., and Bullittsville Rd.) with one new signalized intersection. Three residential relocations are required at the intersection of Graves Road with Worldwide Boulevard and the realigned Williams Road. Through conversations with local officials, review of online real estate databases, and research into the growth of the area, issues finding suitable replacement housing is not expected and last resort housing should not be needed. Relocations will be handled according to the Relocation Assistance Program administered by KYTC's Division of Right of Way.

One commercial property located along KY 20 will be relocated by the Selected Alternative. The building was observed to be empty and for sale or lease during multiple site visits.

No cemeteries were found to be relocated as part of the Selected Alternative.

Boone

All the safety improvements proposed along KY 20 will remain within existing KYTC right-of-way, so no acquisition or relocation is required.

For more discussion on the right-of-way impacts, refer to Section 7 of Attachment 1. The locations of residential and commercial relocations are shown on the Environmental Resource map (Exhibit 8) of Appendix A.

B. Economic and Farmland Impacts	NA	YES	NO
 The project will have economic impacts on the regional and/or local economy, such as effects on development, tax revenues and public expenditures, employment opportunities, accessibility, and retail sales. 		7	
2. The project will affect established businesses or business districts.			\checkmark
3. The project will affect prime farmlands.		\checkmark	
4. The project will affect property protected by an agricultural preservation easement.			$\overline{}$

5. Describe impacts/benefits to the local economy and summarize methodology used in analysis of prime farmlands and agricultural districts, including avoidance, minimization, and mitigation.

One empty commercial building will be relocated by the Selected Alternative. No active business will be relocated.

The project will impact a residential land development proposed to north of I-275. Preliminary plans showed approximately 185 plats within the development and the Selected Alternative would impact, whether by strip takings or complete take, approximately 55 of these plats. The Boone County Planning Commission has postponed the approval of the land development until final decisions are made on this project. See Section 7B of Attachment 1 for a figure of the proposed land development.

A Land Evaluation Site Assessment (LESA) provided by the Natural Resources Conservation Service (NRCS) was completed to determine the project's potential impacts to prime and unique farmland. The Selected Alternative would impact 7.47 acres of prime and unique farmland and had assessment score of 84. This is well below the threshold of 160 which would require additional coordination and the consideration of mitigation. Coordination occurred prior to the KY 20 safety improvements being added to the project, however, the improvements will be entirely within the existing right-of-way and will not impact prime and unique farmland. See Section 7B of Attachment 1 for a comparison of prime and unique farmland impacts by alternative and Appendix D for the LESA forms.

Coordination with the Kentucky Department of Agriculture showed that there are no properties in the project area involved with the Purchase Agricultural Conservation Easements (PACE) program (see Appendix D).

Rev.



TC 58-48

Rev. 03/2015

DIVISON OF ENVIRONMENTAL ANALYSIS

Page 7 of 17

CATEGORICAL EXCLUSION ENVIRONIVIENTAL DETERIVITINATION CHECKLIST	CATEGORICAL EXCLUSION	ENVIRONMENTAL	DETERMINATION	CHECKLIST
--	-----------------------	---------------	---------------	-----------

Itei	n # <u>6-8953.00</u> County	Boone	Route	I-275 and Graves Road			
C.	Social Impacts				NA	YES	NO
1.	1. The project will affect neighborhoods or community cohesion for various social groups.						
2.	 The project will affect travel patterns and accessibility (e.g., vehicular, commuter, bicycle, or pedestrian). 						
3.	3. The project will affect school districts, churches, businesses, police or fire departments, etc. Include direct impacts and indirect impacts that may result from the displacement of households and businesses.					7	
4.	The project will affect the elde	erly, handicapped, nondri	ivers, or transit-dep	pendent.		\checkmark	
5.	The project will have disprope effects on minorities or low-in	ortionately high and adve acome populations (Enviro	rse human health c onmental Justice, E	or environmental E.O. 12898).			\checkmark

6. Describe burdens/benefits and attach documentation describing EJ analysis. If relocation survey was sent, summarize responses here.

See Section 7C of Attachment 1 for a discussion of community cohesion and travel patterns.

<u>Community Resources</u> - There are five community resources near the project area, a fire department, an elementary school, two churches, and the future site of a public library. See Exhibit 8 in Appendix A for the location of each resource. The elementary school and the future site of the public library are outside of the project limits and will not be impacted. The two churches are located adjacent to the project, but neither will be impacted by the Selected Alternative. See Section 7C of Attachment 1 for a discussion and a map of each location.

The Hebron Fire Protection District Station #2 may be affected by the project. Located just north of the intersection with Worldwide Boulevard, building an entrance to the property while maintaining suitable access to Graves Road is difficult. The design shift implemented as a result of the public meeting does provide greater distance from the intersection to the fire station, which improves the ability to construct a suitable entrance into the fire station. Early design alignments have shown an entrance can be constructed, though, and coordination with the fire station and local officials will continue through final design to decide the best course of action for the fire station.

<u>Environmental Justice</u> - To help determine the project's effects on minorities and/or low-income populations, an Environmental Justice (EJ) Analysis was performed. Demographics and economic data was obtained from the American Community Survey (ACS) 5-Year Summary to provide insight into potential for EJ population in the project area. The project's residential impacts are covered by Census Tract 0704.01 Block Groups 1 and 2 and Census Tract 0704.02 Block Groups 2 and 3. The project area, as with all of Boone County, is predominately white and relative low percentage of low-income residents. Refer to Section 7C of Attachment 1 for additional details on the Census information and ACS data.

Surveys were mailed to the residential relocations required by the project. Over the course of the next month, nine surveys were returned. Seven surveys were from household residences and two were from a property owner that were non-resident landlords. None of the nine survey responses indicated they would classify as minority and/or low-income. One survey did, however, indicate that a elderly person was the sole occupant of a potential relocation.

Following the surveys, a field visit was made to talk to the six non-responding residences. The field visit resulted in the observation that two of the properties were unoccupied and in conversations with two non-responding residences. Although the two non-responding residents were unwilling to provide a completed survey, conversations with them resulted in the determination that they were not of minority status. In regard to low income status, observations during field investigations were used alongside PVA data to make a determination. The PVA's assessed values for both properties exceeded \$195,000 and nothing was observed in the field to indicate low-income, so both residents were determined not to be low-income status.

One field conversation was with a family member of the property owner. They said that family members lived with the owner



Rev. 03/2015

Page 8 of 17

TC 58-48

DIVISON OF ENVIRONMENTAL ANALYSIS Page CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

lten	n # 6-8953.00	County	Boone		Route	I-275 and Graves R	oad			
6.	 Describe burdens/benefits and attach documentation describing EJ analysis. If relocation survey was sent, summarize responses here. (cont.) owner to help maintain the property and assist the owner with health concerns, which indicates a potential elderly or handicapped situation. 									
	There are two residents who were never able to be contacted, whether by survey, field visits, or phone calls. Census data, PVA data, and windshield surveys were used to evaluate their potential EJ status. Both residents lived within Census Tract 704.02, Block Group 3, and based on available census data for that area, were unlikely to be a member of a minority population (12.3% minority population in this Block Group). Additionally, PVA data and field observations did not indicate that either resident was likely to be low-income.									
	There is 1 comm Therefore, ther corridor with th	nercial prope e are no EJ ir ne potential t	erty being acquire npacts due to co o service low-inc	ed by the project, but mmercial relocations. ome residents.	the build No comn	ing is currently vacant a nunity resource was ide	and for entified	sale or within	r lease. 1 the pr	oject
	Of the 15 poter impacts to EJ-po- handicapped re from the impro disproportional the EJ Analysis.	tial resident opulations ar sidents who ved mobility cely high and	ial relocations, th re anticipated. Th are not of the EJ and safety result adverse impact	ere were no minority e EJ analysis did show population. Both relo ing from the project. to EJ-populations. See	or low-in that the cated and Based on Section 7	come population ident project would relocate d non-relocated EJ-pop this EJ analysis, the pro 7C of Attachment 1 for	tified ar two el ulation oject wi additio	id ther derly a s would ill not l nal info	efore, i ind/or d benet have a ormatic	no fit on on
D. I	ocal Land Use	and Transp	ortation Plan					NA	YES	NO
1.	Project is consi	stent with lo	ocal land use plar	n. (NA if no plan	exists)				\checkmark	
2.	Project is consi	stent with lo	ocal transportation	on plan. (NA if n	o plan e	xists)			1	
3.	Project would i	nduce adver	rse or beneficial	secondary and cumul	ative effe	ects.				\checkmark
4.	Are there any e	existing and/	or planned bike	or pedestrian walkwa	ays?				\checkmark	
5.	 Are there any existing and/or planned bloc of pedestrian walkways? Describe impacts. Land use planning is contained in the 2010 Boone County Comprehensive Plan. In the project area, land use has shifted from rural/residential to industrial/business park and suburban development. Over time the area has shifted from almost entirely rural, low intensity residential land use to being much more urbanized, with warehouses, high density subdivisions, and commercial buildings along KY 20 and KY 237. The 2035 Future Land Use map illustrates shifts to business park, industrial, and suburban density residential land uses from presently zoned agriculture, woodlands and rural density residential land uses throughout the study area. 									

The Boone Co. Fiscal Court is currently updating the 2005 version of the Boone County Transportation Plan 2030. In the 2005 version, a new I-275 interchange at Graves Rd. was listed as one of eleven 'high priority' projects. Widening Graves Road to 4-lanes was also discussed in the plan and considered a 'medium priority' project.

The Boone County Transportation Plan 2030 mentions several documents developed as early as 1992 that discuss bicycle and pedestrian planning in the area. Although no discussion of a bicycle/pedestrian plan for Graves Road was discovered in these documents, an exhibit from the 1996 Boone County Transportation Plan does show Graves Road as a proposed corridor for bike lanes.

There are no existing sidewalks along Graves Road, Williams Road, KY 20, or many of the side roads. There are sidewalks on KY 237, Worldwide Boulevard, and within the residential neighborhood off Graves Road at Sequoia Drive. The proposed project includes sidewalks on both sides of Graves Road and Williams Road, providing a connecting between residences and the surrounding area.

See Section 7D of Attachment 1 for a more detailed discussion of the Local Land Use and Transportation Plan.



KENTUCKY TRANSPORTATION CABINET **Department of Highways DIVISON OF ENVIRONMENTAL ANALYSIS**

TC 58-48 03/2015 Rev.

of 17 Page 9

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

lte	m # <u>6-8953.00</u> County <u>Boone</u>	Route I-275 and Graves Road			
Ε.	Historic Resources		NA	YES	NO
1.	Are NRHP listed eligible/potential eligible sit (Document means for assessing ages of structu Architectural Investigation Form, corresponded		\checkmark		
	If "Yes," indicate level of impact:				
	No Effect" (Attach SHPO concurrence Historian memo.)	letter, Historic Architectural investigation form, or DEA			
	☑ "No Adverse Effect" (Attach SHPO con				
	"Adverse Effect" (Attach FHWA and SHI				
	completed. *				
	Memorandum of Agreement required? S	GHPO signature date	\checkmark		
	F	HWA signature date			
2.	De Minimis coordination required?		\leq		
	Date of Approval				
	* If Individual 4(f) is required, project is not elig	gible for CE Levels 1 or 2.			
2	Doscribo historic rosourco impacts		-		

Describe historic resource impacts

Evaluations for cultural historic sites were performed in a Cultural Historic Resource Baseline Survey prepared for the proposed interchange and an Addendum to that report to evaluate the proposed KY 20 safety improvements. In total, 99 cultural historic sites were identified within the Area of Potential Effect (APE). One, a residential property named the Allie Corn Farmstead (Site 36 [BE 95]) and located on the west side of Graves Road, was already listed on the National Register of Historic Places (NHRP). It was recommended that the site remain eligible for listing and that the NHRP boundary be expanded. This site was considered during the design of the proposed alternatives and direct impacts to the historic property were avoided. In addition, the project was designed west of a tree line at the back of the property to provide additional separation between the disturbance limits and the historic property. With disturbance limits over 100 feet away from the expanded boundary, the primary dwelling not oriented towards the project alternatives, and the tree line assisting in obscuring the view from the dwelling, it was determined that the project will not alter the setting or character-defining features of Site 36 and a No Adverse Effect finding was made for this site.

A commercial building, located along KY 20 near the intersection with KY 3618, was recommended as eligible for listing in the NHRP (Site 4 of the Addendum [BE 1081]). The recommended boundary includes the building footprint and a small buffer extending to the existing right of way. A No Adverse Effect finding was made for this site since the project will not change the relationship between the commercial building and KY 20.

Three sites located within the KY 20 safety improvements area had undetermined NRHP status due to access restrictions. However, because of the nature of the anticipated improvements, the proposed project has no potential to affect them. No other site was recommended as eligible for listing in the NHRP. SHPO provided concurrence with the initial Cultural Historic Resource Baseline Survey finding of No Adverse Effect to historic properties in a letter dated 2/7/2018. In the letter, SHPO concurred with the recommendation that BE 95 remain eligible for listing and to include the expanded boundary. SHPO also believed that BE 96 (Site 35) appeared eligible for inclusion on the NHRP under Criterion B and C but recognized that this historic resource would not be affected by the project. SHPO provided concurrence with the findings of the Addendum on 1/14/2019.

See Section 7D of Attachment 1 for additional details on the sites recommended for the NHRP. SHPO concurrence letters are provided in Appendix D. Both sites are shown on the Environmental Resources map (Exhibit 8) of Appendix A.

F. A	NA	YES	NO	
1.	Will project affect archaeological resources? If "Yes," list site numbers that cannot be avoided.		\checkmark	
	Site 15Be720			
	(Document means for assessing project and attach Archaeological Investigation Form,			
	correspondence, or documentation from DEA archaeologist demonstrating findings.)			
2.	Are/were sites recommended for Phase II work? (Attach SHPO concurrence letter.)			\checkmark
	If "Yes," list site number(s):			



TC 58-48

Department of Highways DIVISON OF ENVIRONMENTAL ANALYSIS

Page 10 of 17

CATEGORICAL EXCLUSION ENVIRONMENTAL DE	ETERMINATION CHECKLIST
--	-------------------------------

Item # <u>6-8953.00</u> County <u>Boone</u>	Route	I-275 and Graves	Road					
			NA	YES	NO			
3. Are NRHP eligible/potentially eligible site	es affected by the project?				\checkmark			
If "Yes," indicate level of impact. If "No," a	ttach SHPO concurrence letter.							
"No Adverse Effect" (Attach SHPO								
"Adverse Effect" (Attach FHWA and	ted							
4. Is Native American Consultation (NAC) re			\checkmark					
If "Yes," document dates of consultation be	elow and describe the outcome in F.	9 below.						
Dates NAC conducted: Phase I	Phase II	MOA						
FHWA closure date: Phase I	Phase II	MOA						
		Phase						
Tr	I 🗌							
		MOA						
5. Describe archaeological resource impact	S							
Two evaluations for archaeological resources v	vo evaluations for archaeological resources was performed for the project. The second was evaluate areas impacted from							

design changes made to the project, which included the proposed KY 20 safety improvements, the KY 237 interchange improvements, and the widening of the existing one-lane roundabout at the Graves Road intersection with KY 237 to two-lanes. In total, the database review and field surveys for archaeological resources identified four sites in the project area. Three sites were previously recorded (15Be655, 15Be472, and 15Be529) and 1 was not. Two previously recorded sites, Sites 15Be472 and 15Be655, could not be relocated during the current survey and were determined not to be eligible for the NRHP. The third previously recorded site had recently been recorded and determined not eligible for inclusion in the NRHP. One site, Site 15Be720, was documented as a result of the current survey but additional archaeological work was not recommended since it would not produce significant information beyond that which has been collected. See Section 7F of Attachment 1 for additional information on Site 15Be720.

No archaeological resources are recommended as eligible for listing in the NRHP. SHPO concurred with the recommendation of the first evaluation in a letter dated 7/5/2018 and with the recommendation of the second evaluation in a letter dated 1/14/2019. See Appendix D for SHPO concurrence letters. Native American Consultation (NAC) was not performed since no prehistoric artifact was discovered.

Four parcels could not be surveyed due to landowners denying access to the property. A Memorandum of Agreement (MOA) was developed to commit to performing the Phase I Archaeological Survey on these parcels after right-of-way is acquired and prior to the start of construction. The MOA is provided as Appendix C.

G.	Section 4(f)	NA	YES	NO
1.	Are 4(f) properties affected by the project? If "Yes," notify DEA EPM, who will consult with FHWA			$\overline{}$
	to determine applicability of Section 4(f).			
2.	Is the project adjacent to a 4(f) resource? If "Yes", DEA EPM will consult with FHWA to determine		\checkmark	
	applicability of "constructive use." If Questions 1 and 2			
	are both "No," go to Section H.			
3.	Prudent and feasible means to avoid 4(f) properties were fully considered, but resource cannot	\checkmark		
	be avoided.			
	Only determined in consultation with FHWA. Indicate 4(f) type below.			
	De Minimis Finding Programmatic Section 4(f) Full Section 4(f) statement			
	If an Individual 4(f) statement is required, the project cannot be completed as a CE Level 1 or 2			
	document. However, if the impacts can be satisfied by completing a Programmatic 4(f) Statement			
	or a De Minimis Finding, the CE can be completed as a CE Level 1 or 2 project.			

03/2015 Rev.



Department of Highways

TC 58-48 03/2015 Page 11 of 17

Rev.

DIVISON OF ENVIRONMENTAL ANALYSIS CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

4. Describe process followed and consultation completed. Attach documentation developed to resolve 4(f) issue. The Selected Atternative has no direct impact to a 4(f) resource. The project is adjacent to two NRHP listed sites, the Allie Corn Farmstead (E 59) and the commercial building (EE 1081). For EE 59, the deg of the proposed road is a minimum of 170 feet from the property line and a tree line along the back of the history property provides additional separation between the relocated Graves Road and the resource. The viewshed was considered and found that a portion of the proposed interchange that is over 800 feet away could potentially be seen from the property. The Noise Impact Analysis completed for the project showed that the 2040 predicted noise level at the historic property was lower for the Selected Atternative than for the No Build Atternative. For BE 1081, the project will only involve minor safety improvements along KY 20 and will not include any substantial changes to the roadway immediately in front of the site. Therefore, it was determined that the project will have no use and no constructive use on 4(f) resources. 4. Section 6(f) NA YES NA YES NO A red (f) properties affected by the project? // "Yes," consult with DEA and FHWA to determine applicability of Section 6(f). * // "Yes," consult with DEA and FHWA to determine applicability of Section 6(f). * // "Intervention of the administration of the publicly owned park/recreation area? A. Will a Memorandum of Agreement be required? // Project may only be processed as a CE Level 3 if Section 6(f) applies. // Project may only be processed as a CE Level 3 if Section	 4. Describe process follo The Selected Alternative Farmstead (BE 95) and the from the property line and relocated Graves Road and that is over 800 feet away showed that the 2040 pro- Alternative. For BE 1081, substantial changes to the use and no constructive of H. Section 6(f) 1. Are 6(f) properties affi- <i>If "Yes," consult with DE</i> 2. Has discussion been in having responsibility from aving responsibility from aving responsibility from <i>Final signature date:</i> * <i>Project may only be p</i> 4. Describe parties involve N/A. 1. Indicate if any of the from Significant change Gignificant change Addition or relocated Addition or alterated Change in roadway or noise barriers 2. There are noise-sensite 	wed and consultation completed. Attach documentation developed to resolve 4 has no direct impact to a 4(f) resource. The project is adjacent to two NRHP listed s ne commercial building (BE 1081). For BE 95, the edge of the proposed road is a minin and a tree line along the back of the history property provides additional separation in and the resource. The viewshed was considered and found that a portion of the prop by could potentially be seen from the property. The Noise Impact Analysis completed edicted noise level at the historic property was lower for the Selected Alternative th the project will only involve minor safety improvements along KY 20 and will not in the roadway immediately in front of the site. Therefore, it was determined that the p use on 4(f) resources. Fected by the project? <i>EA and FHWA to determine applicability of Section 6(f).</i> * nitiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required? <i>processed as a CE Level 3 if Section 6(f) applies.</i> ved, property involved, process followed, and consultation required to resolve 6(Part 772)	4(f) issu sites, th imum betwe posed i ed for tl han for nclude project NA	ie. ne Allie of 170 f en the ntercha he proje r the No any will ha YES e.	Corn eet inge ect b Build ve no NO			
that is over 800 feet away could potentially be seen from the property. The Noise Impact Analysis completed for the project showed that the 2040 predicted noise level at the historic property was lower for the Selected Alternative than for the No Build Alternative. For BE 1081, the project will only involve minor safety improvements along KY 20 and will not include any substantial changes to the roadway immediately in front of the site. Therefore, it was determined that the project will have no use and no constructive use on 4(f) resources. A Section 6(f) NA YES NO Are 6(f) properties affected by the project? If "Yes," consult with DEA and FHWA to determine applicability of Section 6(f). Are 6(f) properties affected by the dovernor's Office of Local Development and the agency having responsibility for the administration of the publicly owned park/recreation area? Will a Memorandum of Agreement be required? Final signature date: * Project may only be processed as a CE Level 3 if Section 6(f) applies. Noise Impact (23 CFR Part 772) NA YES NO I Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: New roadway on new alignment Addition of 1 or more through travel or auxiliary lanes Significant change in vehicle mix or traffic speed Significant change in vehicle mix or traffic speed Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Traffic noise analysis demonstrates that KYTC noise abatement rolicy, Table 1. There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. A substant al increase of 10+ do for weixting conditions will result from build alternative. S There are feasible and reasonable measures that can reduce impacts. Key addition or alteration in the side that chare unoise analysis in 1.6	that is over 800 feet away showed that the 2040 pro Alternative. For BE 1081, substantial changes to the use and no constructive of H. Section 6(f) Are 6(f) properties affilif "Yes," consult with DE Has discussion been in having responsibility from the section of the secti	All could potentially be seen from the property. The Noise Impact Analysis completed edicted noise level at the historic property was lower for the Selected Alternative the the project will only involve minor safety improvements along KY 20 and will not in the roadway immediately in front of the site. Therefore, it was determined that the p use on 4(f) resources.	ed for ti han for nclude project NA (f) issue (f) issue	he proje r the No any will ha YES e. YES	ect Build ve no NO NO NO NO			
Snower that the 2040 predicted noise level at the instoric property was lower for the selected Atternative than for the No Bulla Atternative. For BE 1081, the project will any innove minor safety improvements along KY 20 and will not include any substantial changes to the roadway immediately in front of the site. Therefore, it was determined that the project will have no use and no constructive use on 4(f) resources. I. Are 6(f) NA YES NO I. Are 6(f) properties affected by the project?	Alternative. For BE 1081, substantial changes to th <u>use and no constructive of</u> H. Section 6(f) 1. Are 6(f) properties aff <i>If "Yes," consult with DE</i> 2. Has discussion been in having responsibility fr 3. Will a Memorandum of <i>Final signature date:</i> * <i>Project may only be p</i> 4. Describe parties involve N/A. 1. Noise Impact (23 CFR F 1. Indicate if any of the f New roadway on r Addition of 1 or me Significant change Significant change Addition or relocate Addition or alterate Change in roadway or noise barriers	edicted holse level at the historic property was lower for the selected Alternative transmission of the project will only involve minor safety improvements along KY 20 and will not in the roadway immediately in front of the site. Therefore, it was determined that the project of the site of the site. Therefore, it was determined that the project of the project? EA and FHWA to determine applicability of Section 6(f). * initiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required? processed as a CE Level 3 if Section 6(f) applies. ved, property involved, process followed, and consultation required to resolve 6(resolve 6)	nan foi nclude project NA	YES e. YES	ve no NO NO NO NO			
Alternative - Note Loss, the project winnediately informed safety implotements and KT 20 and winned include any substantial changes to the roadway immediately in front of the site. Therefore, it was determined that the project will have no use and no constructive use on 4(f) resources. I. Section 6(f) NA I. Are 6(f) properties affected by the project? if 'Yes," consult with DEA and FHWA to determine applicability of Section 6(f). * I. Has discussion been initiated with the Governor's Office of Local Development and the agency having responsibility for the administration of the publicly owned park/recreation area? 3. Will a Memorandum of Agreement be required? Final signature date: * Project may only be processed as a CE Level 3 if Section 6(f) applies. 4. Describe parties involved, property involved, process followed, and consultation required to resolve 6(f) issue. N/A. Noise Impact (23 CFR Part 772) NA Ne wroadway on new alignment Addition of 1 or more through travel or auxiliary lanes Significant change in horizontal or vertical alignment Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers 2. There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residen	 Alternative: For BE 1081, substantial changes to the use and no constructive of the Section 6(f) 1. Are 6(f) properties affin if "Yes," consult with DB 2. Has discussion been in having responsibility for 3. Will a Memorandum of Final signature date: * Project may only be p 4. Describe parties involve N/A. 1. Indicate if any of the form addition of 1 or may addition of 1 or may addition or relocate Addition or alterate addition or alterate addition or alterate are noise barriers 2. There are noise-sensities involve addition or alterate and the parties are noise-sensities. 	The project will only involve minor safety improvements along KT 20 and will not in the readway immediately in front of the site. Therefore, it was determined that the puse on 4(f) resources. Fected by the project? EA and FHWA to determine applicability of Section 6(f). * nitiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required?	roject	vill ha	ve no NO S NO NO NO NO NO NO NO			
use and no constructive use on 4(f) resources. 4. Section 6(f) NA YES NO 1. Are 6(f) properties affected by the project? f"Yes," consult with DEA and FHWA to determine applicability of Section 6(f). * Has discussion been initiated with the Governor's Office of Local Development and the agency having responsibility for the administration of the publicly owned park/recreation area? Will a Memorandum of Agreement be required? Final signature date: * Project may only be processed as a CE Level 3 if Section 6(f) applies. Posicit may only be processed as a CE Level 3 if Section 6(f) applies. Noise Impact (23 CFR Part 772) NA YES Noise Impact (23 CFR Part 772) NA YES Noise Impact (23 CFR Part 772) NA YES Noise Impact (23 CFR Part 772) NA YES Noise Infract (10 more through travel or auxiliary lanes Significant change in vehicle mix or traffic speed Significant change in horizontal or vertical alignment Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks,	 use and no constructive of the section 6(f) 1. Are 6(f) properties affin ff "Yes," consult with DE 2. Has discussion been in having responsibility from the section of the sec	use on 4(f) resources. fected by the project? EA and FHWA to determine applicability of Section 6(f). * nitiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required? processed as a CE Level 3 if Section 6(f) applies. ved, property involved, process followed, and consultation required to resolve 6(resolve) Part 772)	NA	YES e. YES				
4. Section 6(f) NA YES NO 1. Are 6(f) properties affected by the project? <	 H. Section 6(f) 1. Are 6(f) properties affilf "Yes," consult with DB 2. Has discussion been in having responsibility fr 3. Will a Memorandum of Final signature date: * Project may only be p 4. Describe parties involved N/A. 1. Indicate if any of the file New roadway on rising a significant change ✓ Significant change ✓ Significant change ✓ Addition or alterate Change in roadway or noise barriers 2. There are noise-sensite 	fected by the project? EA and FHWA to determine applicability of Section 6(f). * Initiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required? processed as a CE Level 3 if Section 6(f) applies. ved, property involved, process followed, and consultation required to resolve 6(Part 772)	NA	YES	NO			
1. Are 6(f) properties affected by the project? <i>f</i> "yes," consult with DEA and FHWA to determine applicability of Section 6(f). * I as discussion been initiated with the Governor's Office of Local Development and the agency having responsibility for the administration of the publicly owned park/recreation area? Will a Memorandum of Agreement be required? <i>Final signature date:</i>	 Are 6(f) properties aff <i>If "Yes," consult with DE</i> Has discussion been in having responsibility fr Will a Memorandum of <i>Final signature date:</i> <i>Project may only be p</i> Describe parties involved N/A. Noise Impact (23 CFR F) Indicate if any of the f New roadway on r Addition of 1 or m Significant change Significant change Addition or alterated Change in roadway or noise barriers There are noise-sensited 	fected by the project? <i>EA and FHWA to determine applicability of Section 6(f).</i> * initiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required? <i>processed as a CE Level 3 if Section 6(f) applies.</i> ved, property involved, process followed, and consultation required to resolve 6(Part 772)	(f) issu	e.				
If "Yes," consult with DEA and FHWA to determine applicability of Section 6(f). * Has discussion been initiated with the Governor's Office of Local Development and the agency having responsibility for the administration of the publicly owned park/recreation area? Will a Memorandum of Agreement be required? I in signature date: * Project may only be processed as a CE Level 3 if Section 6(f) applies. Describe parties involved, property involved, process followed, and consultation required to resolve 6(f) issue. N/A. Noise Impact (23 CFR Part 772) NA YES NO Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: New roadway on new alignment Addition of 1 or more through travel or auxiliary lanes Significant change in horizontal or vertical alignment Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Traffic noise analysis demonstrates that KYTC noise Analysis and Abatement Policy, Table 1. There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. I are reficued and reasonable measures that can reduce impacts. I'''res,'' discuss in 1.6 below. I''''''''''''''''''''''''''''''''''''	 If "Yes," consult with DE Has discussion been in having responsibility fr Will a Memorandum of <i>Final signature date:</i> <i>Project may only be p</i> Describe parties involved N/A. Noise Impact (23 CFR F) Indicate if any of the f New roadway on r Addition of 1 or may Significant change Significant change Addition or relocate Addition or alterate Change in roadway or noise barriers 	EA and FHWA to determine applicability of Section 6(f). * nitiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required?	(f) issu	e.	□ □ NO			
2. Has discussion been initiated with the Governor's Office of Local Development and the agency having responsibility for the administration of the publicly owned park/recreation area? Image: Constraint of the publicly owned park/recreation area? 3. Will a Memorandum of Agreement be required? Image: Constraint of the publicly owned park/recreation area? Image: Constraint of the publicly owned park/recreation area? 3. Will a Memorandum of Agreement be required? Image: Constraint of the publicly owned park/recreation area? Image: Constraint of the publicly owned park/recreation area? 3. Will a Memorandum of Agreement be required? Image: Constraint of the publicly owned park/recreation area? Image: Constraint of the publicly owned park/recreation area? 3. Will a Memorandum of Agreement be required? Image: Constraint of the publicly owned park/recreation area? Image: Constraint owned area? 4. Describe partice involved, property involved, process followed, and consultation required to resolve 6(f) issue. Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint on traffic speed Image: Constraint on traffic speed Image: Constraint on traffic speed Image: Constraint on trelation of weigh station, rest area, ride s	 Has discussion been in having responsibility for the second second	hitiated with the Governor's Office of Local Development and the agency for the administration of the publicly owned park/recreation area? of Agreement be required? 	(f) issu	e. YES				
having responsibility for the administration of the publicly owned park/recreation area? 3. Will a Memorandum of Agreement be required? <i>Final signature date:</i> * Project may only be processed as a CE Level 3 if Section 6(f) applies. 4. Describe parties involved, property involved, process followed, and consultation required to resolve 6(f) issue. N/A. • Noise Impact (23 CFR Part 772) NA 1. Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: Image: Construct of the following are applicable, which would necessitate a traffic noise analysis: Image: New roadway on new alignment Addition of 1 or more through travel or auxiliary lanes Significant change in vehicle mix or traffic speed Significant change in vehicle mix or traffic speed Significant change in norizontal or vertical alignment Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Change in roadway character that substantially reduces the shielding effect of landforms Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. Image: Consect of the form existing conditions will result from build alternative. Traffic noise analysis demonstrates that CYTC noise abatement criteria will be exceeded. Image: Consect of the dot how the dot of the dot of the dot how the do	 having responsibility f Will a Memorandum of <i>Final signature date:</i> <i>Project may only be p</i> Describe parties involved N/A. I. Noise Impact (23 CFR F) I. Indicate if any of the f New roadway on r Addition of 1 or mediate of the significant change Significant change Addition or relocate Addition or alterate or noise barriers 2. There are noise-sensite the significant change or noise barriers	for the administration of the publicly owned park/recreation area? of Agreement be required? 	(f) issur	e. YES	NO			
3. Will a Memorandum of Agreement be required? Image: Signature date: Image: Signatur	 3. Will a Memorandum of <i>Final signature date:</i> <i>Project may only be p</i> 4. Describe parties involved in the signature date: <i>Project may only be p</i> 4. Describe parties involved in the signature date: N/A. 1. Indicate if any of the final significant (23 CFR F) Indicate if any of the final significant change Significant change Significant change Addition or relocate Addition or alterate Change in roadway or noise barriers 2. There are noise-sensite 	of Agreement be required? 	(f) issur	e. YES				
Final signature date:	 Final signature date: * Project may only be p 4. Describe parties involved N/A. 1. Noise Impact (23 CFR F) 1. Indicate if any of the f New roadway on r Addition of 1 or m Significant change ✓ Significant change ✓ Addition or relocate Addition or alterate Change in roadway or noise barriers 2. There are noise-sensite 	processed as a CE Level 3 if Section 6(f) applies. ved, property involved, process followed, and consultation required to resolve 6(Part 772)	(f) issur	e. YES	NO			
 * Project may only be processed as a CE Level 3 if Section 6(f) applies. 4. Describe parties involved, property involved, process followed, and consultation required to resolve 6(f) issue. N/A. Noise Impact (23 CFR Part 772) NA YES NO 1. Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: New roadway on new alignment Addition of 1 or more through travel or auxiliary lanes Significant change in vehicle mix or traffic speed Significant change in horizontal or vertical alignment Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. A substantial increase of 10+ db from existing conditions will result from build alternative. There are feasible and reasonable measures that can reduce impacts. <i>If "Yes," discuss in 1.6 below.</i> 	 * Project may only be p 4. Describe parties involved in N/A. 1. Indicate if any of the f New roadway on r Addition of 1 or mails in Addition of 1 or mails in Significant change ✓ Significant change ✓ Addition or relocate Addition or alterate Change in roadway or noise barriers 2. There are noise-sensite 	processed as a CE Level 3 if Section 6(f) applies. ved, property involved, process followed, and consultation required to resolve 6(Part 772)	(f) issu NA	e. YES	NO			
4. Describe parties involved, property involved, process followed, and consultation required to resolve 6(f) issue. N/A. • Noise Impact (23 CFR Part 772) NA 1. Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: New roadway on new alignment Addition of 1 or more through travel or auxiliary lanes Significant change in vehicle mix or traffic speed Significant change in horizontal or vertical alignment Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Constraint of the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. Image: Constraint of the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. Image: Constraint of the proposed project (e.g., residences, businesses of 10+ db from existing conditions will result from build alternative. There are feasible and reasonable measures that can reduce impacts. Image: Constraint of the babatement for the babatemen	 4. Describe parties involvent N/A. 1. Noise Impact (23 CFR I) 1. Indicate if any of the f New roadway on r Addition of 1 or m Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers 2. There are noise-sensit 	ved, property involved, process followed, and consultation required to resolve 6(Part 772)	(f) issu NA	e. YES	NO			
N/A. . Noise Impact (23 CFR Part 772) NA YES NO 1. Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis and applicable and prove of the following are applicable, which would necessitate a traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. Image: Constraint of the following are applicable, and reasonable measures that can reduce impacts. Image: Constraint of the following are applicable, and reasonable measures that can reduce impacts. Image: Constraint of the following are applicable, and the following are applicable, and the following are applicable, andifted andifted and reasonable measures that can reduc	N/A. I. Noise Impact (23 CFR F New roadway on r Addition of 1 or m Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers 2. There are noise-sensit	Part 772)	NA	YES	NO			
Noise Impact (23 CFR Part 772) NA YES NO 1. Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis and addition or relocation of interchange lanes or ramps Image: Constraint of the following area, ride share, or toll plaza Image: Constraint of the following area, ride share, or toll plaza Image: Constraint of the following area, ride share, or toll plaza Image: Constraint of the following area, ride share, or toll plaza Image: Constraint of the following area, ride share, or toll plaza Image: Constraint of the following area, ride share, or toll plaza Image: Constrainte of the following area, ride share, or toll plaza <td> I. Noise Impact (23 CFR I Indicate if any of the f New roadway on r Addition of 1 or m Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers There are noise-sensit </td> <td>Part 772)</td> <th>NA</th> <td>YES</td> <td>NO</td>	 I. Noise Impact (23 CFR I Indicate if any of the f New roadway on r Addition of 1 or m Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers There are noise-sensit 	Part 772)	NA	YES	NO			
1. Indicate if any of the following are applicable, which would necessitate a traffic noise analysis: Image: Constraint of the following are applicable, which would necessitate a traffic noise analysis: Image: New roadway on new alignment Addition of 1 or more through travel or auxiliary lanes Image: Significant change in vehicle mix or traffic speed Image: Significant change in vehicle mix or traffic speed Image: Significant change in horizontal or vertical alignment Image: Addition or relocation of interchange lanes or ramps Image: Addition or alteration of weigh station, rest area, ride share, or toll plaza Image: Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Change: Chan	 Indicate if any of the f New roadway on r Addition of 1 or m Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers There are noise-sensit 			\checkmark				
 New roadway on new alignment Addition of 1 or more through travel or auxiliary lanes Significant change in vehicle mix or traffic speed Significant change in horizontal or vertical alignment Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. Image: Addition crease of 10+ db from existing conditions will result from build alternative. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in 1.6 below. 	 New roadway on r Addition of 1 or m Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers There are noise-sensit 	following are applicable, which would necessitate a traffic noise analysis:						
 Addition of 1 or more through travel or auxiliary lanes Significant change in vehicle mix or traffic speed Significant change in horizontal or vertical alignment Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. ✓ A substantial increase of 10+ db from existing conditions will result from build alternative. If "Yes," discuss in 1.6 below. 	 Addition of 1 or me Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers There are noise-sensit 	new alignment						
Significant change in vehicle mix or traffic speed Image: Significant change in horizontal or vertical alignment Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers Image: Significant change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Image: Significant change in constraints that KYTC noise abatement criteria will be exceeded. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. Image: Significant change in the second that can reduce impacts. If "Yes," discuss in 1.6 below. Image: Significant change in the second to the second	 Significant change Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers There are noise-sensit 	ore through travel or auxiliary lanes						
 Significant change in horizontal or vertical alignment Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. A substantial increase of 10+ db from existing conditions will result from build alternative. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in 1.6 below. 	 Significant change Addition or relocat Addition or alterat Change in roadway or noise barriers There are noise-sensit 	in vehicle mix or traffic speed						
 Addition or relocation of interchange lanes or ramps Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. A substantial increase of 10+ db from existing conditions will result from build alternative. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in 1.6 below. 	 Addition or relocate Addition or alterate Change in roadway or noise barriers There are noise-sensite 	in horizontal or vertical alignment						
 Addition or alteration of weigh station, rest area, ride share, or toll plaza Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. A substantial increase of 10+ db from existing conditions will result from build alternative. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in 1.6 below. 	 Addition or alterat Change in roadway or noise barriers There are noise-sensit 	tion of interchange lanes or ramps						
 Change in roadway character that substantially reduces the shielding effect of landforms or noise barriers There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. A substantial increase of 10+ db from existing conditions will result from build alternative. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in 1.6 below. 	 Change in roadway or noise barriers There are noise-sensit 	tion of weigh station, rest area, ride share, or toll plaza						
or noise barriers	or noise barriers 2. There are noise-sensit	y character that substantially reduces the shielding effect of landforms						
 2. There are noise-sensitive receivers/land uses adjacent to the proposed project (e.g., residences, businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. 3. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. 4. A substantial increase of 10+ db from existing conditions will result from build alternative. 5. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in 1.6 below. 	2. There are noise-sensit							
businesses, schools, parks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1. Image: Comparison of the second se		tive receivers/land uses adjacent to the proposed project (e.g., residences,						
 3. Traffic noise analysis demonstrates that KYTC noise abatement criteria will be exceeded. 4. A substantial increase of 10+ db from existing conditions will result from build alternative. 5. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in 1.6 below. 	businesses, schools, pa	arks, etc.). See KYTC Noise Analysis and Abatement Policy, Table 1.		\checkmark				
 4. A substantial increase of 10+ db from existing conditions will result from build alternative. 5. There are feasible and reasonable measures that can reduce impacts. If "Yes," discuss in I.6 below. 	3. Traffic noise analysis c	demonstrates that KYTC noise abatement criteria will be exceeded.		 ✓ 				
5. There are feasible and reasonable measures that can reduce impacts.	4. A substantial increase	of 10+ db from existing conditions will result from build alternative.						
If Yes, discuss in i.6 below.	5. There are feasible and	d reasonable measures that can reduce impacts.			\checkmark			
$\mathbf{b} = \mathbf{b}$	If Yes, discuss in 1.6 t	below.						
 Describe noise impact and abatement measures (ii applicable). A Traffic Noise Impact Applysis was proposed for the proposed project and a total of 452 receptors were modeled for the 	Describe noise impact A Traffic Noise Impact	t and abatement measures (if applicable).	adalad -	for the				
Selected Alternative. Of the 453 total receptors analyzed. 23 would be impacted, including 19 that would exceed the NAC of 66								
dB(A), two that would exceed the substantial increase criteria of 10dB(A), and two that would exceed both criteria. Impacts								
were to a child day care center (2 receptors) and single-family residences (21 receptors). Abatement was found not feasible for	were to a child day care o	center (2 receptors) and single-family residences (21 receptors). Abatement was fou	und no	t feasib	le for			
16 impacted receptors because a barrier could not meet KYTC's feasibility criteria. For the remaining seven impacted receptors,	16 impacted receptors be	ecause a barrier could not meet KYTC's feasibility criteria. For the remaining seven in	impact	ed rece	ptors,			
a structural noise barrier evaluation was performed. The modeled barrier was acoustically feasible and met KYTC's design goal,	a structural noise barrier	a structural noise barrier evaluation was performed. The modeled barrier was acoustically feasible and met KYTC's design goal,						
but it did not meet the reasonableness criterion of a cost per benefitted receptor criteria of \$35,000. The cost per benefit	but it did not meet the re							

recommended for the project.



Department of Highways DIVISON OF ENVIRONMENTAL ANALYSIS TC 58-48 Rev. 03/2015

Page 12 of 17

Iten	n # 6-8953.00	County	Boone		Ro	oute	I-275 and G	raves Road			
J. A	ir Quality Impa	cts							NA	YES	NO
1.	Is the project loo	cated in an a	air quality no	n-attainment	or maintenand	e area	a for ozone (C) ₃)		\checkmark	
	(part of Boone, I	Kenton, and	Campbell co	unties)?							
2.	Is the project list	ted in an ap	proved STIP a	and/or TIP?	If not in STI	P, notif	fy DEA SME.			\checkmark	
	STIP#	2019-20	022	Page #	4	_ т	IP Page#	267			
3.	Is project contro	oversial <u>or</u> d	oes the proje	ect HAVE or Al	DD a signalize	l inter	rsection with a	a			\checkmark
	projected "open	n to traffic" y	/ear ADT > 80),000 vehicles	per day?						
	If "Yes," analysis may be required. Clearance memo from DEA SME is required and must be										
attached. If "No," check box below.											
☑ This project does not exceed the Kentucky CO screening criteria for project-level analysis							S				
and is not expected to produce a violation of the CO standards (35 ppm over a one-hour								r			
	period or 9 p	ppm over an	eight-hour pe	eriod).							
4.	Does the project	t have poter	ntial for Mobi	ile Source Air	Toxin effects?					\checkmark	
	No potentia	I for meaning	gful MSAT eff	ects - no analy	sis required						
Qualifying CE (23 CFR 771.117c) *											
Air quality exempt project (40 CFR 93.126)											
Other projects with no meaningful impacts on traffic volumes or vehicle mix											
Low potential MSAT effects - Qualitative Analysis and uncertainty assessment required **											
Higher potential MSAT effects (AADT . 140,000 by design yr) - Quantitative Analysis required											
to differentiate alternatives											
* Indicate project type as described in the list											
	** Contact DEA	SME for assis	stance and att	ach related an	alysis.						
5.	Is the project in	an area req	uiring PM 2.5	consideratio	n (Boone, Boy	d, Bull	litt, Campbell,		\checkmark		
	Jefferson, Kento	on, or part of	f Lawrence)?								
	If PM 2.5 conside	eration is requ	uired, attach o	checklist, consu	ultation emails	etc., t	to document fi	ndings.			
6.	Impacts/Comme	ents (referer	nce attached	documentatio	on)						
Tł	ne proposed proje	ect is within	the area desi	gnated as a ma	aintenance are	a for 8	8-hour ozone.	A regional emi	ssions a	analysis	was
pe	erformed for the	8-hour ozon	e by Ohio-Ker	ntucky-Indiana	Regional Cou	ncil of	Governments	(OKI), the met	ropolita	an plan	ning
or T	rganization (MPO) that covers	Boone Coun	ty. The analysi	s "determined	that t	the projects in	the OKI 2040 I	Regiona	1	
ro	ansportation Plat	n and the Fr	2010-2021 11	are consister	nosed project	quality is inclu	y goals of the s uded in both n	lans and there	fore co	y nforms	to the
re	quirements as st	ated.	ozone stana		posed project	is men				mornis	
T						•			6		1
I r	idening Graves P	s project is to oad. This pro	b address mol	ed to accomm	ty by construct	ing a i wth th	new Interchan	ge on I-275 at	Graves	Koad al tarea a	na nd
w	ill occur even in t	he No Build	scenario. MS	AT pollutants a	are regional in	nature	e (versus pollu	tants like Carb	on Mor	noxide 1	hat
ar	e a near road cor	ncern) and th	ne project doe	es not induce a	additional traf	ic, but	t rather redist	ributes it withi	n the p	roject a	rea
w	hile increasing eff	ficiency of th	ne roadway n	etwork. The pi	roposed interc	hange	is just over 1-	mile from the	Exit 8 in	terchai	nge at
K	237, and forecas	st for design	year 2040 sh	ow the ADT de	ecreasing from	45,40	0 east of K237	to 31,500 just	west of	f Graves	5
Ro	oad. Additionally,	, the truck pe	ercentages do	not meaning	fully change be	tweer	n the Selected	and No Build	Alternat	ives. Th	nis

project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, Environmental Protection Agency (EPA) regulations for vehicle engines and fuels will cause overall MSAT emissions



Department of Highways

TC 58-48 03/2015

DIVISON OF ENVIRONMENTAL ANALYSIS

Page 13 of 17

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

6-8953.00 Item # County Route

I-275 and Graves Road

6. Impacts/Comments (reference attached documentation)

Boone

to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

PM 2.5 consideration is no longer required since the EPA revoked the 1997 annual PM 2.5 standards in October of 2016.

		•	
K. Hazardous Materials	NA	YES	NO
 Are known or potentially contaminated sites (service stations, landfills, automotive repair, junkyard, structures with asbestos, etc.) located along the project corridor? 		\checkmark	
 Is ROW required from, or extensive excavation required adjacent to, a potentially contaminated site? If "Yes," Phase II testing is required and should be completed prior to ROW authorization request. 			
3. Does Phase II analysis indicate the existing and/or proposed ROW is contaminated? Extent and estimated remediation cost to be provided by DEA SME to Division of ROW and Project Team.	I		
 4. Will any bridges or standing structures be demolished for completion of the work? Status of inspection of bridges and structures for asbestos -containing materials (ACM) Complete Required Not Required (Identify bridges and structures and discuss results of assessment, if completed, reason not required, or future work in K.6 and Section 5.) 			
5. If bridges are to be removed, refurbished, or repainted, will there be lead-based paint wastes to address?			
6. Discuss significance of any "Yes" marked in 1-5 and any deferred necessary activities. Five potential UST/HAZMAT sites were identified near the project area. One site is the commercial relocat project that was formerly an old grocery market and auto service station. Based off the impacts to the site project, a limited Phase II SI is recommended. The second site is an active automobile and equipment serv business. It is located on the north side of KY 20 near its intersection with KY 3618. A limited Phase II SI is the the KY 20 safety improvements result in construction disturbing this site. The project also impacts portion containing an electrical substation. Due to the construction from the project and the substations of Phase II.	ion requ by the price and price and price s of a price soft a so	iired by propose repair ended o operty	the ed only if

containing an electrical substation. Due to the separation from the project and the substations, a Phase II SI is not recommended. See Section 7K of Attachment 1 for additional details of these sites. Their location is shown on the Environmental Resources map (Exhibit 8) of Appendix A. The remaining two sites were either outside the project disturbance limits or determined to not be a site of concern.

The existing Graves Road bridge over I-275 will be demolished with the proposed project. It is unlikely that this bridge contains lead-based paint or asbestos, but a bridge inspection for asbestos-containing materials (ACMs) will be performed by KYTC prior to construction. If ACMs are found, then abatement will be required and will be completed following all proper regulations. Prior to demolition, it will be the responsibility of the roadway contractor to submit a 10-Day Notice of Intent to Demolition to the KY Division for Air Quality (DAQ). A Special Note will be included in the Contract Proposal document to alert the contractor of this responsibility and to provide a copy of the ACM inspection and/or abatement results for the DAQ.

Rev.

		тс	58-18
Department of Highways	Rev.	03	/2015
	Page	14 o	f 17
CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECK	KLIST		
Item # 6-8953.00 County Boone Route I-275 and Graves Road			
Threatened and Endangered Species (T&F)	NA	YES	NO
1. Sources considered to identify potential impacts to federally threatened and endangered	\square	√ √	\square
species (attach copies): Sources: USFWS, KDFWR, KSNPC, KY Clearinghouse			
DEA Combined Species List Species: Gray Bat, NLEB, and IB; running buffalo clover; ring pink,			
Species identified: rough pigtoe, fanshell, orangefoot pimpleback, pink mucket, and clubshell mussels.			
2. Habitat Assessment indicated federally listed T&F habitat present in vicinity			
No Effect determined for all mussel species			
3. Indiana bat and/or Northern long-ear bat <i>(check all that apply)</i>			
To be determined No Effect CMOA Tree Cutting Restrictions			
4. Is project located upstream of or within Designated Critical Habitat?	\Box	\Box	\checkmark
(consultation with DEA required)			
5. Biological Assessment required: List species: all bat and plant species		\checkmark	
Completed (attach USFWS letter)			
(CAP entry recommended and include in Section 5)			
6. Is project likely to adversely affect federally listed T&E? (formal consultation required) *		\checkmark	
* If the project is likely to affect a federally listed T&E species, excluding Indiana Bat addressed			
through a CMOA, it is not eligible for CE Level 1 or 2, and DEA and FHWA must be consulted.			
7. Describe T&E species concerns/protective measures.			
Coordination with USFWS indicate three T&E bat species, seven mussel species, and one plant species have	e the p	otenti	al to
be within the project area. No critical habitat exists within the project area. Based on field surveys, habitat	it for al	l the lis itat for	ted the
listed species. No presence/absence survey was conducted.	iny nab		the
Field surveys identified habitat for the listed bat species within the project corridor and within 1-km of th	e proie	ct. A 1-	km
survey surrounding the KY 20 safety improvements area was not performed since all work will be within e	existing	right o	fway
and no blasting will occur due to the nature of that work. No caves, mine openings, or adits were found d	uring t	ne field	-
surveys. Approximately 27.81 acres of forested land was identified within the project area and is consider	ed hab	itat for	
northern long-eared bat and the Indiana bats. Approximately 5.06 acres, however, are within the KY 20 ri	ght of v	vay an	l may
not require clearing. For the gray bat, approximately 7.66 acres (1.16 acres within KY 20 right of way) of ri identified and is considered babitat. The majority of the project is not in an area designated by USEWS as	parian known	areas v swarm	ing
habitat for Indiana bat and is considered 'Potential' habitat. However, a small portion at the western-mos	st end c	f KY 20	is
within the 'Known Summer 1' habitat for the Indiana bat.			
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two	elict sh	ells we	re
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two r found. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters	relict sh ection	ells we with K	re
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two r found. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC	relict sh ection has ma	ells we with K\ ide a 'N	re lo
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two refound. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC Effect' determination for all mussel species due to poor stream quality and the lack of mussel habitat.	elict sh ection has ma	ells we with K\ ide a 'N	re lo
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two is found. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC Effect' determination for all mussel species due to poor stream quality and the lack of mussel habitat. There is approximately 3.35 acres of habitat for the running buffalo clover (including 0.92 acres within KY	relict sh ection has ma 20 righ	ells we with KN Ide a 'N t of wa	re lo y).
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two refound. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC Effect' determination for all mussel species due to poor stream quality and the lack of mussel habitat. There is approximately 3.35 acres of habitat for the running buffalo clover (including 0.92 acres within KY However, no evidence of it was discovered within the interchange disturbance limits in a field survey performing season. For the KY 20 safety improvements area, habitat was identified but a presence/absence	relict sh ection has ma 20 righ formed survey	ells we with K\ ide a 'N t of wa during	re lo y).
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two refound. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC Effect' determination for all mussel species due to poor stream quality and the lack of mussel habitat. There is approximately 3.35 acres of habitat for the running buffalo clover (including 0.92 acres within KY However, no evidence of it was discovered within the interchange disturbance limits in a field survey perfolooming season. For the KY 20 safety improvements area, habitat was identified but a presence/absence performed due to being outside of the blooming season.	elict sh ection has ma 20 righ ormed survey	ells we with KY de a 'M t of wa during v was n	re lo y). ot
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two refound. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC Effect' determination for all mussel species due to poor stream quality and the lack of mussel habitat. There is approximately 3.35 acres of habitat for the running buffalo clover (including 0.92 acres within KY However, no evidence of it was discovered within the interchange disturbance limits in a field survey performed due to being outside of the blooming season. A Biological Assessment (BA) will be required to determine impacts on the listed bat and plant species and the	relict sh ection has ma 20 righ formed survey d will b	ells we with KY ide a 'N t of wa during v was n e comm	re lo y). ot leted
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two refound. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC Effect' determination for all mussel species due to poor stream quality and the lack of mussel habitat. There is approximately 3.35 acres of habitat for the running buffalo clover (including 0.92 acres within KY However, no evidence of it was discovered within the interchange disturbance limits in a field survey performed due to being outside of the blooming season. For the KY 20 safety improvements area, habitat was identified but a presence/absence performed due to being outside of the blooming season. A Biological Assessment (BA) will be required to determine impacts on the listed bat and plant species and prior to construction. Mitigation and minimization measures, if appropriate, will be developed as a part of the species and the species will be developed as a part of the species will be developed as a part of the species and plant species and prior to construction.	elict sh ection has ma 20 righ ormed survey d will b f the B	ells we with K\ ide a 'f t of wa during v was n e comp A. For l	re lo y). ot leted sted
A visual search for mussels in Sand Run and Woolper Creek was performed, and no live mussels and two refound. Neither of the relict shells were of a listed species. Ashbys Fork, which crosses KY 20 near its inters 3618, was also evaluated but determined to be of poor quality and without suitable mussel habitat. KYTC Effect' determination for all mussel species due to poor stream quality and the lack of mussel habitat. There is approximately 3.35 acres of habitat for the running buffalo clover (including 0.92 acres within KY However, no evidence of it was discovered within the interchange disturbance limits in a field survey performed due to being outside of the blooming season. For the KY 20 safety improvements area, habitat was identified but a presence/absence performed due to being outside of the blooming season. A Biological Assessment (BA) will be required to determine impacts on the listed bat and plant species and prior to construction. Mitigation and minimization measures, if appropriate, will be developed as a part of mussel species, A 'No Effect Finding' form (KYTC form TC 58-54) will be completed prior to the BA. See Section 2012.	relict sh ection has ma 20 righ formed survey d will b f the Ba tion 7L	ells we with KN de a 'N t of wa during v was n v was n e comp A. For I of	re lo y). ot leted sted

		TC	58-48				
	Department of Highways DIVISON OF ENVIRONMENTAL ANALYSIS						
		Page VIICT	15 c	of 17			
lter	m # 6-8953.00 County Boone Boute I-275 and Graves Boad						
M	Water Resource Impacts	NΛ	VES	NO			
1.	Does project impact State Listed Special Use Waters or tributaries to a Special Use Water?						
	Indicate all types below and consult DEA Permit SME prior to issuance of the CE.						
	Cold Water Aquatic Habit Outstanding National Resource Water Exceptional Waters						
	Beference Reach Stream Outstanding State Resource Water State Wild River						
	Eederally Designated Wild River Eederally Designated Scenic River Eederal T&F Species						
2.	Will project involve surface disturbance greater than one acre?		\checkmark				
	If "Yes," note need for KPDES KYR10 storm water permit box in M.11.						
3.	Is project located partially or wholly within a designated MS4 community?		\checkmark				
	If "Yes," identify any local ordinances, restrictions, local permits, or other local requirements that						
	require consideration before, during, and after construction. Specify if box M.13 below and, if						
4	uppropriate, section 5.						
4.	bes project encroach upon 100 year noouplain?			Ľ			
	If Yes, determinations regarding No Rise Certifications, FEMA Map Revisions, etc., to be made by KYTC Design, Drainage Section, during final design.						
5.	Could project potentially affect surface or groundwater drinking water supplies, public or			\checkmark			
	private?						
6.	Does project involve impacts to a stream below Ordinary High Water Mark (OHWM) or to a		~				
	wetland?						
	If answer is "No," the replies to questions 7 and 8 will also be "No."						
	Anticipate impacts below OHWM: (check all that may apply)						
	Bridge/Pier Abutment Relocation/Channelization Temporary Diversion Culvert						
	Low Water Crossing Excess Excavation Site Bank Stabilization 🗸 Wetland Fill						
	Other (describe) (i.e., Temporary Crossing)						
7.	Will project impact a lake or pond requiring its draining or filling? (note characteristics below)		\checkmark				
	A stream enters the lake or pond A stream exits the lake or pond						
	If stream is exiting lake or pond, 404 permit is required.						
1							
1							

,	KENTUCKY TRANSPORTATION CABINET TC 58-48						
	Department of Highways DIVISON OF ENVIRONMENTAL ANALYSIS						
	CATEGORICA	DIVISO L EXCLUSION	N OF ENVIRONMENTAL AN	ALYSIS	Page KLIST	16 c	of 17
Iten	n # 6-8953.00 County	Boone	Route	I-275 and Graves Road			
					NA	YES	NO
8.	Permit Requirements						
	401/404 Permits are likely	to be required for	r this project <i>(indicate typ</i>	e below and in Section 5)		\checkmark	
	If any permits are expected	to be required, su	ubmit CE Request for Assistan	ice to DEA SME.			
	Stream/Lake/Pond Impacts:	BNR	🗌 ACE NW 🗹 ACE I	P 🗹 DOW IWQC			
	Mitigation required by:	✓ ACE	JOW				
	Wetland Impacts:	BNR	ACE NW ACE I	P JOW IWQC			
	Mitigation required by:	✓ ACE	J DOW				
	Will this project affect navia	gable waters of th	ne U.S. as defined by USACE a	and require a			\checkmark
	Section 10 permit? If "Ye	es," coordination w	vith DEA is required.				
	Will this project affect a nat	vigable water bod	dy requiring a Coast Guard, Se	ection 9 permit?			\checkmark
	If "Yes," coordination with Di	ivision of Structura	l Design is required.				
	Will this project require a K	PDES storm wate	r permit (KYR10) for construc	ction?		\checkmark	
	Will this project require any additional permits from a local MS4?						\checkmark
	(discuss requirements in box	M.10)					
	Section to ensure that pote	odplain require an ential flooding imp	nalysis and coordination by Ki pacts are thoroughly addresse	r I C Design-Drainage ed?			\checkmark
9.	Is project within the waters	shed of a significat	nt water resource (private or	public drinking water			\checkmark
	supply, wellhead protection	n area, Special Use	e Waters, etc.)? (Indicate type	es below.)			
	Project is candidate for	application of KYT	C Karst policy.				
10.	Describe water resource in	vestigations cond	ucted, impacts identified, and	d permits required or anticip	ated:		
	restrictions, ordinances, per	mits, etc. are requ	unity of Sanitation District No uired for the project. KYTC has	their own MS4 permit, so th	¥1), but e projec	no add t desig	n will
	follow the storm water regu	lations and design	n criteria outlined in it.				
	The project has the potentia	al to impact Sand F	Run, Woolper Creek, Ashbys Fo	ork, and Garrison Creek and/	or their	tributa	ries.
	Impacts to Ashbys Fork and future design phase. One br	Garrison Creek wi	ill depend on the nature of the nately twenty culverts will be	EXY 20 safety improvements necessary to construct the Se	implem lected /	ented i Alternat	n tive.
	Additional culverts will be li	kely once details o	of the KY 20 safety improveme	ents are determined, as there	are two	know	1
	drainage issues already iden	tified. Both location	ons will be addressed with fin	al design. The Selected Altern	ative w	ill have	an O foot
	estimated 5,300 linear feet of stream impacts; approximately 1,900 feet of perennial, 2,600 feet of intermittent, and 800 feet of ephemeral. At least three wetlands and 0.35 acres will be impacted by the Selected Alternative. Approximately 2,570						
	linear feet of stream and tw	o additional wetla	ands (0.04 acres) were identified	ed within the right of way of t	the KY 2	20 safet	У
	An United States Army Com	s of Engineers 404	normit a Kantusku Division a	y mprovements.	uality C	ort:fiant	ion
	(WQC), and a Kentucky Pollu	is of Engineers 404 ution Discharge Eli	imination System (KPDES) Stor	rm Water (DOW) 401 Water Qu rm Water Permit (KYR10) per	mit will	be	ion
	completed prior to construc	tion. Final stream	and wetland impacts, includin	ng the KY 20 safety improvem	ents ar	ea, and	
	stream and wetland charact	i be determined as eristics and the pr	is a part of the permitting proc rojects impacts. Location of sti	cess. See Section 7M for addit reams and wetlands are provi	ional di ided on	scussio the	n of
	Environmental Resources m	ap (Exhibit 8) of A	ppendix A.				



TC 58-48 Rev. 03/2015

DIVISON OF ENVIRONMENTAL ANALYSIS

Page 17 of 17

CATEGORICAL EXCLUSION ENVIRONMENTAL DETERMINATION CHECKLIST

Item # 6-8953.00 County Boone

Route I-275 and Graves Road

N. Construction Impacts

Discuss potential impacts of construction activities pertaining to water quality, stream diversion, air quality, detours and delays of traffic, businesses, noise, etc.

Construction will occur with lane closures and on-site diversions. No detours are anticipated for construction of the project. All construction activity will be completed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), KYTC's Standard Specification for Road and Bridge Construction, and KYTC's standard drawings.

The project is not expected to require excess material sites. If it is determined that excess material sites are necessary, their location, along with all permitting and regulatory clearance, will be the responsibility of the contractor.

KYTC will implement erosion and sediment control measures as specified in the standard specifications.

An electronic Notice of Intent (NOI) for the KPDES KYR10 will be initiated by KYTC's Project Development Branch prior to letting the project to construction. The NOI will be completed and submitted to DOW once the roadway contract is awarded and the contractor is known. Additionally, a Best Management Practices (BMPs) plan will be completed jointly by KYTC and the roadway contractor.

ATTACHMENT 1

TABLE OF CONTENT

SUPPORTING INFORMATION	1
SECTION 2 – ENVIRONMENTAL DETERMINATION	3
SECTION 3 – PURPOSE AND NEED	5
SECTION 4 – ALTERNATIVES SUMMARY	7
Alternative 1-A	7
Alternative 1-B	8
Alternative 2-A	8
Alternative 2-B	8
The No Build Alternative	8
The Selected Alternative, Alternative 2-A	9
Intersections Considered But Dismissed	
Typical Section	
CECTION E COMMENTS & COODDINATION	40
SECTION 5 - COMMENTS & COORDINATION	
Local Government	
State/Federal Agencies and Other Organizations	
Public Involvement	
Public Meeting	
Malled Letters	14
SECTION 7 – ENVIRONMENTAL CONDITIONS AND CONSEQUENCES	15
7A – Right-of-Way Impacts (Pages 5-6 of the Checklist)	15
Property Acquisition Impacts	15
Commercial Relocation Impacts	15
Indirect or Cumulative Impacts	15
7B – Economic and Farmland Impacts (Page 6 of the Checklist)	16
Farmland Impacts	16
Economic Impacts	
Indirect or Cumulative Impacts	
<u>7C – Social Impacts (Pages 7-8 of the Checklist)</u>	17
Community Cohesion	
Community Resource Impacts	1/ 17
Environmental Justice Impacts	
•	

7C – Local Land Use and Transportation Plan (Page 8 of the Checklist)		
2010 Boone County Comprehensive Plan Boone County Transportation Plan 2030		
OKI 2040 Regio	nal Transportation Plan, 2016 Update	
Existing and/or	Planned Bike or Pedestrian Walkways	22
7E – Historic Resources	(Page 9 of the Checklist)	22
The Allie Corn F	armstead	22
The Commercia	l Building	23
7F – Archaeological Resources (Pages 9-10 of the Checklist)		24
Site 15Be720		24
7K – Hazardous Materials (Page 13 of the Checklist)		25
Pennington Ma	rket	25
Hebron Substat	ion	25
Taylor Enterpris	es	25
Section 7L – Threatened and Endangered Species (T&E) (Page 14 of the Checklist)		
Section 7M – Water Re	source Impacts (Pages 15-16 of the Checklist)	
Stream and We	tland Characteristics	27
Stream Impacts		28
Wetland Impacts		28
Indirect or Cum	ulative Impacts	28
SUMMARY		29
Summary of Impacts		
Items to Resolve Prior to Construction		
REFERENCES		

LIST OF FIGURES

Figure 1. Heavy Truck Traffic on KY 237	5
Figure 2. Typical Congestion on KY 237	5
Figure 4. Both Williams Road Alternatives	7
Figure 3. Full Diamond Interchange	7
Figure 5. Modified Diamond Interchange	8
Figure 7. News Articles Publicizing the Public Meeting	. 13
Figure 8. Proposed Land Development	. 16
Figure 9. Bullittsville Christian Church	. 17
Figure 11. Community Resources in the Project Area	. 18
Figure 12. Census Blocks in the Project Area	. 19

Figure 13. The Home on Allie Corn Farmstead	22
Figure 15. Location of the Allie Corn Farmstead (BE95)	23
Figure 14. The Commercial Building (BE 1081)	23
Figure 16. Location of the Commercial Building (BE1081)	24
Figure 17. The Pennington Market	25
Figure 18. Substation Impact Area	25
Figure 19. The Hebron Substation	25
Figure 20. Taylor Enterprises	25
Figure 21. Sand Run	27
Figure 21. Woolper Creek	27

LIST OF TABLES

Table 1. LESA Results for the Proposed Alternatives	16
Table 2. Percent Minority in the Project Area	19
Table 3. EJ Analysis Summary of Residential Relocations	20
Table 4. USFWS T&E Species in the Project Area	26
Table 5. Summary of Impacts	29

SUPPORTING INFORMATION

This supporting document is included to provide additional detail on the information provided in the *Categorical Exclusion Environmental Determination Checklist*, KYTC Form TC 58-48. For clarity, it has been formatted similar to the checklist.

SECTION 2 – ENVIRONMENTAL DETERMINATION

[This provides additional information on the Environmental Determination from Section 2 (page 1) of the CE Environmental Determination Checklist]

During a scoping meeting held on November 2, 2017 between the Federal Highway Administration (FHWA) and the Kentucky Transportation Cabinet (KYTC), it was concluded that the project would be processed as a Categorical Exclusion, Level 3 (CEL3). The FHWA Scope Verification Meeting Minutes are included in Appendix D. Technical reports were completed for the project in 2017 and 2018, with addendums completed in 2018. The CEL3 was completed in 2019.

SECTION 3 – PURPOSE AND NEED

[This provides additional information on the Purpose and Need from Section 3 (page 2) of the CE Environmental Determination Checklist]

Mobility issues are especially evident in the roadways surrounding Exit 8, which is subject to lengthy delays because of trucks traveling to the cluster of industrial facilities and businesses along KY 237. Congestion is also known to back up onto I-275 from the KY 237 westbound off-ramp. A Level of Service (LOS) analysis, which measures how well a roadway or intersection is serving its intended traffic and is graded from A (free flowing) to F (very congested), show several intersections and/or movements experiencing LOS E and F conditions along KY 237 to the north and south of I-275. Conditions will only worsen by 2040, with only one movement along KY 237 above a LOS E. See Exhibit 1 in Appendix A for the existing and 2040 design year LOS conditions at intersections along KY 237.



The traffic backups and delays caused by the increasing traffic demand is also posing more highway safety concerns for those who travel area roadways. Between 2012 and 2016, 1,267 crashes were reported along the 19.7 miles of roadways covering I-275 from Exit 4 to Exit 11 as well as portions of KY 237, KY 20, and Graves Road. Over 300 crashes occurred within a half-mile radius of the I-275/KY 237 interchange, including a cluster at the eastbound on-ramp. Furthermore, 39 high crash spots (defined as 0.3 miles or less) were identified, including several along KY 237 in close proximity to I-275. Forty-three percent of the 19.7 miles of roadways were found to have Critical Rate Factors (CRF) greater than 1.00. The CRF is a measure of crash frequency along a given roadway and a CRF over 1.00 indicates a high crash segment and that crashes may not be occurring randomly. KY 237 has a CRF of 2.24 in the highly congested area between I-275 and KY 2846, which includes the access points to the Park West International Park. Along Graves Road, the section south of I-275 has a critical rate factor of 2.04 and included a high number of single vehicle crashes. KY 20 has two segments with CRF greater than 1.00. See Exhibit 2 for locations of high CRF segments and spots.



SECTION 4 – ALTERNATIVES SUMMARY

[This provides additional information to the Alternatives Summary from Section 4 (page 3) of the CE Environmental Determination Checklist]

ALTERNATIVE 1-A

This alternative removes the existing Graves Road overpass and installs a full diamond interchange 650' to the west. The ramps would be signalized and dual left-turn lanes would be constructed on the bridge to access the ramps. To the south of the interchange, the alignment proceeds between the existing Graves Road and Watts Road until the tie-in with KY 20. The three existing KY 20 intersections with Graves Road, Bullittsville Road, and Watts Road will be replaced with a single intersection. To the north of the interchange, the alignment realigns with the existing Graves Road near Worldwide Boulevard. It then follows closely to the existing roadway except for going off-alignment to improve the curve near Sequoia Drive. The alignment ends at KY 237, where it widens the existing one-lane roundabout intersection to a two-lane roundabout. See Exhibit 4 for a map of this alignment.

For Williams Road, approximately 0.45 miles of would be realigned. It begins with a new intersection with Graves Road opposite of Worldwide Boulevard. Then it proceeds roughly parallel to the newly realigned Graves Road and the proposed ramp before tying in to the existing roadway. This alignment was designed to minimize right-of-way acquisition. See Exhibit 6 of Appendix A for a map of the Williams Road alignment.

The alternative also includes minor safety improvements to the existing interchange at KY 237 and I-275 (Exit 8). These improvements were to address safety issues identified in the Interstate Justification Study (IJS). These improvements, which can be constructed within existing right-of-way, include:



Figure 3. Full Diamond Interchange



Figure 4. Both Williams Road Alternatives

- reducing the radius for the eastbound ramp from KY 237 north to I-275 east,
- lengthening the westbound off-ramp for KY 237 northbound traffic, and
- minor widening and restriping for a dual left turning movement from northbound KY 237 to westbound I-275.

ALTERNATIVE 1-B

For this alternative, the proposed diamond interchange, the widening of Graves Road, and its intersections will all match that described in Alternative 1-A. The only difference in this alternative from Alternative 1-A is the proposed realignment of Williams Road, where approximately 1.0 miles of new roadway will be constructed with this alternative. It begins at the new intersection with Graves Road opposite of Worldwide Boulevard, and then proceeds directly to the west. It would tie in to the existing roadway near Traditions Golf Club. This alternative was designed to minimize residential relocations required. See Exhibits 4 and 6 of Appendix A for mapping of the interchange design and the proposed Williams Road, respectively.

This alternative also includes the safety improvements to the existing interchange at KY 237 and I-275.

ALTERNATIVE 2-A

This alternative would also remove the existing Graves Road overpass and install a new interchange approximately 650' east on I-275. This interchange matches Alternative 1 except it would have a loop in the southwestern quadrant. This allows southbound traffic on Graves Road to take the ramp onto I-275 eastbound without stopping and without requiring a left turn movement across northbound traffic on Graves Road. The eastbound off-ramp and westbound on-ramps would follow the diamond interchange and would be signalized in the same way as Alternative 1. To the south of the interchange, the proposed Graves Road matches Alternative 1 by proceeding between the existing Graves Road and Watts Road until the tiein with KY 20. To the north of the interchange, this





alternative is the same as Alternative 1 to the end of the project, including the realigned Williams Road opposite Worldwide Boulevard. For Williams Road, this alternative also has the 0.45-miles realignment that was described with Alternative 1-A. See Exhibits 5 and 6 of Appendix A for mapping of the interchange design and the proposed Williams Road, respectively.

This alternative also includes the safety improvements to the existing interchange at KY 237 and I-275.

ALTERNATIVE 2-B

This alternative combines the Graves Road and I-275 modified diamond interchange configuration of Alternative 2-A and the 0.45-miles of realigned Williams Road of Alternative 1-B. The widening of Graves Road and the Graves Road intersections with KY 237 and KY 20 are the same as with previous alternatives. See Exhibits 5 and 6 of Appendix A for mapping of the interchange design and the proposed Williams Road, respectively. This alternative also includes the safety improvements to the existing interchange at KY 237 and I-275.

THE NO BUILD ALTERNATIVE

This alternative would maintain all roadways on their present alignments and not involve any construction or work beyond regular maintenance. The existing roadway would be maintained in its current alignment

and no widening would take place. No relocations would be required, nor would any right-of-way acquisitions take place. The No Build Alternative would not satisfy the project's Purpose and Need.

THE SELECTED ALTERNATIVE, ALTERNATIVE 2-A

On May 24, 2017, a PL&G meeting was held to review the alternatives and make recommendations to move forward pending environmental approval and public input. The modified diamond interchange was preferred primarily because of the benefits of replacing the left turns from Graves Road onto eastbound I-275 with the free flow loop ramp. This is particularly beneficial for the truck traffic from Park West International Industrial Park and the vehicular traffic from the rapidly growing residential neighborhoods north of I-275. The loop ramp will address the highest forecasted turn volume for the interchange. Also, the modified diamond interchange showed improved interstate travel times and intersection delay at the proposed interchange when compared to full diamond interchange.

At the time of the May 24th meeting, the project team did not feel enough differentiation existed between the two Williams Road options, so both were presented to the public. A public meeting was held November 16, 2017 in Boone County to present Alternatives 2-A and 2-B and to survey the public's preference on the two. Approximately 215 members of the community signed in to the public meeting and over 60 comment forms were returned. The comments were generally positive, with most of responses saying that the project is needed. The majority of responses also indicated that Alternative 2-A was preferred. This contributed to the project team choosing Alternative 2-A as the *Selected Alternative*.

Also based of comments from the public meeting, the proposed Graves Road was shifted slightly west between the westbound ramps and Worldwide Boulevard for the *Selected Alternative*. This helps potentially avoid one residential impact and provides greater spacing between the Hebron Fire Department and the Graves Road/Worldwide Boulevard intersection. This allows for more room to construct a suitable entrance into the fire department.

The traffic analysis and design optimization for the project continued after the public meeting and resulted in additional changes to the *Selected Alternative*. First, the traffic analysis revealed the KY 237 eastbound diverge changed from an LOS D to an LOS E when adding the Graves Road interchange. To address this deterioration in LOS, an auxiliary lane was added along I-275 between the proposed Graves Road and the KY 237 interchange. The second change to the *Selected Alternative* was to the Graves Road intersection with KY 237, where it was decided to widen the existing one-lane roundabout to a two-lane roundabout.

The third change was to KY 20, where during the development of the Interstate Justification Study for the project, it was determined that the project should address locations of high accident rates (CRF >1.00) along the roadway. The area evaluated begins at the KY 20 intersection with KY 3608, through the proposed Graves Road intersection, and end at its intersection with KY 237. Along this stretch of KY 20 are two segments and ten spots of high accidents. One spot, at mile point 15.8, will be addressed by making drainage improvements since a high percent of accidents occurs during wet conditions. A second spot will be addressed by adding left turn lanes into Laurel Meadows Drive and Fister Place Boulevard. For the seven spots along the 3.6-mile segment to the west of the proposed Graves Road, improvements will be determined during a future design phase. All improvements will be within KYTC's existing right-of-way and may include shoulder widening, cross slope corrections, tree clearing, drainage corrections, installation of edge line rumble strips, improved signing, and installation of high friction surface treatments. There is one spot, at the KY 20 intersection with KY 237, that will not be addressed due to the potential high costs of impacting the intersection.

Mapping of the *Selected Alternative* is provided as Exhibit 7 of Appendix A, including detailed mapping as Exhibits 7a through 7f.

INTERSECTIONS CONSIDERED BUT DISMISSED

Different intersection configurations, a roundabout or a signalized intersection, could be implemented with either interchange design alternative were considered early in the design process at the Graves Road intersections with Worldwide Boulevard/Williams Road to the north and the KY 20 intersection to the south.

The roundabout at Worldwide Boulevard experienced a poor level of service; therefore, the signalized intersection was desirable. While the southern roundabout at KY 20 operated at acceptable levels of service, concerns existed that additional industrial development could occur to the west, creating a similar left-turn movement for heavy vehicles as occurs at Worldwide Boulevard. For this reason, a signalized intersection was selected both the Worldwide Boulevard and the KY 20 intersection.

TYPICAL SECTION

Graves Road is an Urban Major Collector with two 11-foot lanes and no shoulders. It will be reconstructed to a four-lane divided highway with two 12-foot lanes in each direction and a 12-foot median. Left turn lanes will be developed in the 12-foot median at each intersection. The proposed typical will have a curb-and-gutter shoulder, followed by a 6-foot sidewalk (12-foot border). The existing 35-mph design speed was also used for the proposed typical section.

Williams Road is a local road with two 11-foot lanes and zero shoulder. The proposed Williams Road will be widened to have two 12-foot lanes, a curb-and-gutter shoulder, and a 6-foot sidewalk (12-foot border).

KY 20 is a state route with two 12-foot lanes and 0-2 foot shoulders. The project will not change the through lanes on KY 20, but turn lanes will be added and shoulder width may be increased.

Slight modifications to the typical section was made during project development. The proposed lanes and shoulders described are the selected typical section and were used for each alternative analysis.



SECTION 5 – COMMENTS & COORDINATION

[This provides additional information to the Comments and Coordination from Section 5 (page 4) of the CE Environmental Determination Checklist]

LOCAL GOVERNMENT

The Boone County Fiscal Court contributed funds for development of the project, including Phase I design and environmental. Their representatives were present at multiple project team meetings and worked with the project team throughout the project. This coordination is expected to continue through future phases of work.

STATE/FEDERAL AGENCIES AND OTHER ORGANIZATIONS

The following agencies were considered during the development process and coordination responses are included in Appendix D:

- U. S. Fish and Wildlife Service (USFWS)
- U.S. National Resources Conservation Service (NRCS)
- Kentucky State Clearinghouse, which includes:
 - Kentucky Division of Water (KDOW)
 - Division of Waste Management (DWM)
 - Kentucky Division of Air Quality (KDAQ)
 - Kentucky Department of Fish and Wildlife Resources (KDFWR)
- Kentucky Nature Preserves Commission (KNPC)
- Kentucky Department of Fish and Wildlife Resources (KDFWR)
- State Historic Preservation Office (SHPO)
- Kentucky Department of Environmental Protection (KDEP) (Response not included in Appendix D, but is included in the Phase I Site Assessment completed for the project)
- Kentucky Geological Survey (KGS) (Response not included in Appendix D, but is included in the Phase I Site Assessment completed for the project)

The Kentucky Speleological Survey, Inc. (KSS) was contacted to request the location of any recorded caves within 5-km of the proposed project. Coordination also occurred with Environmental Data Resources, Inc. (EDR), Northern Kentucky Health Department, Hebron Fire Protection District, and the Groundwater Data Repository (KGDR) to help identify any known hazardous material sites in the project area.

PUBLIC INVOLVEMENT

PUBLIC MEETING

A public meeting was held on 11/16/2017 to present the selected Interchange Design Alternative 2 along with the two Williams Road alternatives being considered. The public was informed of the meeting in numerous ways. KYTC ran a newspaper advertisement in the Cincinnati Enquirer on 11/2/2017, coordinated with local officials to send out a *Smart911 Alert* to community members who were signed up for emergency notifications, placed flashing signs near the project area, and posted on KYTC's social media

accounts. The community was also informed of the meeting by an article written in the Cincinnati Enquirer and a television segment on Local 12 WKRC-TV, a local station (see Figure 7).

Approximately 215 community members signed in to the public meeting. They were given a handout with project information and a comment form, and could view aerial mapping and a flyover of the proposed project. The project team had 20 representatives there to help explain the proposed project, the project development process, the right-of-way process, and to collect input from the public.

Input gathered during the meeting was generally positive and in favor of the project. The majority of the people also indicated that the Williams Road Alternative A was preferred. This was reflected in the comment sheets returned as well. Sixty (60) comment forms were received in the weeks following the meeting. Approximately 49 forms answered that the project was needed and only five said it was not. Twenty-eight (28) of them forms replied in favor of Williams Road Alternative A, whereas only eight chose Williams Road Alternative B.

A least five of the comment forms also recommended a third alignment, referred to as 'Alternative C' in the forms, that was north of the two options presented at the public meeting. This public input led to a modified Williams Road Alternative A to provides a two-lane connection to existing Williams Road similar to the original Alternative A and also provides a stub to serve future development to the north. This option is presented as part of the *Selected Alternative*.

Also based of comments from the public meeting, the proposed Graves Road was shifted slightly west between the westbound ramps and Worldwide Boulevard for the *Selected Alternative*. This avoids one residential relocation and provides greater spacing between Hebron Fire Department and the proposed Graves Road/Worldwide Boulevard intersection. The additional space allows for more room to tie in the fire department access.

The newspaper tear sheet, project information handout, a blank comment form, the sign-in sheets, and returned comment forms are all included in Appendix B.



MAILED LETTERS

The KY 20 safety improvements were added to the project as a result of coordination with FHWA on the IJS. This occurred after the public meeting and therefore, KY 20 was not shown within the project limits on the mapping, handouts, and other material displayed at the meeting.

To gather public input on these proposed safety improvements, KYTC District 6 sent a letter to each property owners along KY 20 potentially affected by the project on 10/31/2018. A map of the proposed area was included with the letter. See Appendix B for a template of the packet sent.

Over the next several weeks, KYTC received ten phone calls and two emails from property owners along KY 20 in response to the letter. None of the property owners said they were against the project, they simply requested more information or wanted to discuss particular items of concern. KYTC also received two emails in response to the letter, both with a specific request for improvements along KY 20. One involves removing a tree close to the road that is impacting sight distance and the second involves drainage issues causing flooding over the roadway. Both will be considered during future design and will likely be included with the project.

See Appendix B for the letter sent to the KY 20 property owners and for the two emailed responses.

SECTION 7 – ENVIRONMENTAL CONDITIONS AND CONSEQUENCES

[This provides additional information to the Environmental Conditions and Consequences from Section 7 of the CE Environmental Determination Checklist]

7A – RIGHT-OF-WAY IMPACTS (Pages 5-6 of the Checklist)

PROPERTY ACQUISITION IMPACTS

All four alternatives considered will require the conversion of land to transportation usage. The *Selected Alternative* will require approximately 79.80 acres of fee simple right-of-way and 13.38 acres of temporary easement. This is slightly less than the other combinations of alternatives considered.

For the interchange design alternatives, impacts north of Worldwide Boulevard are mostly to the east side of the existing Graves Road, especially at the curve correction developed near Sequoia Drive. From Worldwide Boulevard to I-275, the alignment shifts off of the existing roadway and impacts the back of residential properties and undeveloped land. The right-of-way impacts for the two interchange designs differ at I-275 due to the different ramp configurations. Interchange Design Alternative 2, the *Selected Alternative*, has less impacts than Interchange Design Alternative 1 on the Graves Road residents (southeast quadrant of the interchange) but more impacts on the Watts Road residents (southwest quadrant). In total, Interchange Design Alternative 2 impacted approximately 1 less acre Interchange Design Alternative 1 in this area. South of I-275 the alignment impacts the back of residential properties along Watts Road until going east to the intersection with KY 20. Choosing signalized intersections at Worldwide Boulevard/Williams Road and KY 20 resulted in less right-of-way impacts than the round-about intersections considered.

There are differences in right of way impacts between the two Williams Road alternatives. Williams Road Alternative A is a shorter alignment at 0.45 miles long compared to 1.0 miles for Williams Road Alternative B. This resulted in approximately three less acres of impacted property for the *Selected Alternative*. Safety improvements along KY 20 will remain within existing KYTC right-of-way so no acquisition or relocation is required.

COMMERCIAL RELOCATION IMPACTS

One commercial property located along KY 20 will be relocated by the *Selected Alternative*. The building was observed to be empty during multiple site visits. It is the former location of Pennington Market, a grocery market and auto service station. Due to the impacts of the project, and because it is recognized as a site of concern for hazardous materials, a Phase II Site Investigation will be performed on the property prior to construction. The location of the commercial property being relocated by the project can be seen on the Environmental Resources map (Exhibit 8) in Appendix A.

INDIRECT OR CUMULATIVE IMPACTS

No Indirect or cumulative impacts are anticipated from the project because the project is a reaction to the growth already occurring in the area.
7B – ECONOMIC AND FARMLAND IMPACTS (Page 6 of the Checklist)

FARMLAND IMPACTS

The *Selected Alternative*, Alternative 2-A, had the least amount of impacts to prime and unique farmland at 7.47 acres and also had the lowest LESA score at 84. The other alternatives considered had impacts ranging from 8.03 to 9.06 acres and a LESA score between 85 and 88. The LESA forms are included in Appendix D.

ALTERNATIVE	TOTAL ACRES PRIME AND UNIQUE FARMLAND	LESA SCORE
Alternative 1-A	8.31	88
Alternative 1-B	8.03	86
Alternative 2-A	7.47	84
Alternative 2-B	9.06	85

Table 1. LESA Results for the Proposed Alternatives

Design changes occurred after NRCS coordination, so the final impact numbers are likely different than shown in the table. Nevertheless, since the design changes were minor adjustments and affected each alternative in similar manner, the results shown still provide an indication of impacts.

ECONOMIC IMPACTS

The proposed residential land development with approximately 185 plats.



INDIRECT OR CUMULATIVE IMPACTS

No Indirect or cumulative impacts to farmland are anticipated from the project due to the small nature of farmland impacts and the development that is expected to occur in the area. Indirect or cumulative impacts to local economy are also not expected from the project because the project is in response to the growth, both residential and commercial, already occurring in the area.

7C – SOCIAL IMPACTS (Pages 7-8 of the Checklist)

COMMUNITY COHESION

The project is situated in the unincorporated Census Designated Places (CDP) of Hebron and Francisville KY. Through public involvement, conversations with local officials, and field visits, neither Hebron nor Francisville appeared to show substantial levels of community cohesion. They are not incorporated, they don't have a mayor or city council, and no evidence was found of any community festivals. Field investigations and interviews also did not reveal any smaller religious or ethnic communities which could show independent community cohesion. Therefore, no impacts to community cohesion are expected.

TRAFFIC PATTERN IMPACTS

Widening Graves Road from a 2-lane roadway to a 4-lane roadway with an interstate interchange will impact the current travel patterns of Graves Road. Property owners along the existing Graves Road will see significantly more traffic using Graves Road than before. However, the proposed project will provide great benefit to the area, including the property owners along Graves Road, by providing a new access to I-275 and reducing the traffic congestion on KY 237. The proposed project will improve safety and mobility in the area, as described in the Purpose and Need.

Bicycle and pedestrian accessibility will be improved with the proposed project as six-foot sidewalks are planned for both sides of the proposed Graves Road and Williams Road. The proposed sidewalks will connect residents along these roadways to multiple schools, community resources, residential neighborhoods, and to the existing sidewalks on KY 237.

COMMUNITY RESOURCE IMPACTS

There were five community resources identified near the project area, a fire department, an elementary school, two churches, and the future site of a public library. The locations of these community resources are shown on Figure 11 below and also on the Environmental Resources map (Exhibit 8) in Appendix A.

The Bullittsville Christian Church, located on the west side of Watts Road just north of KY 20, is not impacted by the *Selected Alternative*. Had the roundabout intersection at KY 20 been chosen, minor impacts to the church property would have been required in the form of strip takings of right-of-way.



The Cornerstone Baptist Church is located on the

north side of KY 20, west of the proposed Graves Road. This is within the proposed KY safety

improvements area, so any potential work will remain within existing right of way. In addition, this is not near a high crash segment or spot so minimal (if any) impacts are anticipated near the church.

The future site of the Boone County Public Library is on KY 237 just south of the round-about at the beginning of the project. The proposed project widens the round-about to two-lanes prior to the library property, though, so no impacts to this property will occur.



ENVIRONMENTAL JUSTICE IMPACTS

CHARACTERISTICS OF THE PROJECT AREA

Residential impacts occur in Census Tract 0704.01 Block Groups 1 and 2 and Census Tract 0704.02 Block Groups 2 and 3. The proposed improvements at the existing KY 237 interchange with I-275 are within Tract 0704.02, Block Group 1 and the KY 20 safety improvements are within Tract 0702.02, Block Groups 2, 3, and 4. All of these improvements, however, will be within existing right-of-way and no residential relocations will occur. Figure 12 shows the location of the project within each tract and block group where impacts will occur. Table 2 shows the results of the ACS data obtained for the tracts, block groups, and for Boone County.



Table 2	Percent	Minority in	n the Project Area
---------	---------	-------------	--------------------

	BOONE	CENSUS TRACT 0704.01		CENSUS TRACT 0704.02	
	COUNTY	BLOCK GROUP 1	BLOCK GROUP 2	BLOCK GROUP 2	BLOCK GROUP 3
White	88.7	88.4	92.5	97.9	86.6
Black or African American	2.7	4.5	0.3	0.3	5.3
American Indian or Alaskan Native	0.1	0.0	0.0	0.0	0.0
Asian	2.4	5.7	3.9	1.8	0.0
Native Hawaiian or Pacific Islander	0.0	0.0	0.0	0.0	0.0
Some Other Race Alone	0.0	0.0	0.0	0.0	0.0
Two or More Races	2.0	0.8	2.0	0.0	4.6
Hispanic (Any Race)	4.0	0.6	1.3	0.0	3.5
Total Minority	11.3	10.7	9.1	2.3	12.3

Source: ACS 5-Year Estimates, 2011-2016

This data shows that the project area, and all of Boone County, has a low minority population and a relatively low percentage of low-income residents. There are two data points though that differ.

- Tract 0704.02, Block Group 2, has a much lower percent minority at 2.3% than the other Block Groups. The other three Block Groups are approximately 90% white and 10% minority.
- Tract 0704.02, Block Group 3, has a higher level of low-income residents (8.4%) than Boone County (7.9%). The other Block Groups have much lower levels of low-income residents.

Field investigations did not indicate any localized pockets that would not be represented in the broader census data. The project area seems fairly similar to the surrounding areas.

EJ RELATED IMPACTS TO RESIDENTIAL RELOCATIONS

Of the 15 potential residential relocations, there were no minority or low-income population identified and therefore, no impacts to EJ-populations are anticipated. Table 3 provides a summary of the EJ Analysis results.

Field visits, interviews, and database review have not revealed any businesses, institutions, or other organizations which render services of primary concern to EJ population, so no EJ impact to commercial, community, or institutional organization is anticipated.

Neither Hebron nor Bullittsville showed any high level of community cohesion. Traffic will be maintained throughout construction and construction associated impacts (such as noise/dust) will be limited in time, scope, and scale. No non-relocation based impacts are anticipated to EJ populations due to the project.

Both relocated and non-relocated EJ-populations would benefit from the improved mobility and safety resulting from the project. Based on the information above, the project will not have a disproportionately high and adverse impact to EJ-populations. This project will not create disproportionately high and adverse impacts to any members of any EJ populations.

	RETURNED SURVEY - NOT EJ (10 SITES)	FIELD INTERVIEW INDICATED NOT EJ (2 SITES)	UNOCCUPIED DURING FIELD INVESTIGATIONS / NO RESIDENTS (2 SITES)	NO CONTACT – ASSUMED NOT LIKELY TO BE EJ (1 SITES)
	é			
S	<u>e</u>			
u n	<u>e</u>			
tic	<u>e</u>			
Ca	<u>e</u>			
ŏ	<u>e</u>			
Se	<u>e</u>			
<u> </u>				
tia	<u>e</u>			
en	<u>e</u>			
id		<u>e</u>		
les		<u>e</u>		
			<u>e</u>	
7			<u>e</u>	
				L.

Table 3. EJ Analysis Summary of Residential Relocations

7C - LOCAL LAND USE AND TRANSPORTATION PLAN (Page 8 of the Checklist)

The project is consistent with the local land use plan titled 2010 Boone County Comprehensive Plan (2010 BCCP), the local transportation plan titled Boone County Transportation Plan 2030 (Plan 2030), and the transportation plan for the metropolitan area titled OKI 2040 Regional Transportation Plan, 2016 Update.

2010 BOONE COUNTY COMPREHENSIVE PLAN

The 2010 BCCP was reviewed to determine growth trends, future land use, development trends, and specific transportation needs. The overall goal is as follows: "Proper planning is achieved through accepted land use management tools and coordination with public infrastructure." Specific to transportation, three goals were identified:

- Boone County shall continue as a vital member of an evolving, regional transportation system that needs active cooperation between the private and public sectors to enable the transition to an economically and energy efficient yet environmentally sound and equitable multi-modal (automobile, rail, air, river, bus, bicycles, pedestrian) transportation system.
- The local transportation system in Boone County shall be maintained and improved so that overall safety and level of service will be enhanced. Inefficiencies in the system will be identified and addressed. New land development shall be closely coordinated with the local transportation system to assure efficiency and continuity with the regional multi-modal transportation system.
- The interdependence between transportation systems and land use patterns is recognized and used to assure future development and redevelopment is planned with multi-modal transportation facilities.

Chapter 2 focused on existing and forecasted populations. OKI estimates a 2030 Boone County population to be approximately 189,000 compared to a 2010 population of approximately 119,000. While the 2010 BCCP acknowledges the forecasts may be adjusted down due to the economic downturn, this still represents significant county growth. 2010 BCCP goes on to say Boone County's greatest area of growth is anticipated to occur along KY 237 north of I-275, among other areas.

Chapter 11 specifically addressed transportation. The concluding statement noted the county had outgrown the current road system due to population and business growth. Further noted was the lack of timely funding over the last decade to address programmed transportation projects.

Chapter 12 addressed evolving land use patterns. In the project area, land use has shifted from rural/residential to industrial/business park and suburban development. Over the past approximately 25 years, the area has shifted from almost entirely rural, low intensity residential land use to being much more urbanized, with warehouses, high density subdivisions, and commercial buildings along the KY 20 and KY 237 corridors. The 2035 Future Land Use map illustrates additional business park, industrial, and suburban density residential land uses filling presently zoned agriculture, woodlands and rural density residential land uses throughout the study area.

BOONE COUNTY TRANSPORTATION PLAN 2030

The *Plan 2030* was prepared for the Ohio-Kentucky-Indiana (OKI) Regional Council of Governments and Boone County Fiscal Court and was finalized on November 30, 2005. The Boone County Fiscal Court is currently working to update its Transportation Plan, but findings were not available prior to publication of this document. *Plan 2030* recommended 29 projects. The projects' objectives were to 1) improve mobility and 2) accommodate travel demand from future growth. Projects were identified as high priority (completed within 10 years), medium priority (completed in 11 to 20 years, and low priority (completed

in more than 20 years). The proposed interchange was one of 11 high priority projects listed, and the proposed realignment of Graves Road with Bullittsville Road was a part of a medium priority project. It is anticipated that economic growth commitments from Amazon and others will elevate the priority of some, if not all of these identified roadway improvements as Plan 2030 is updated.

OKI 2040 REGIONAL TRANSPORTATION PLAN, 2016 UPDATE

The *OKI 2040 Regional Transportation Plan, 2016 Update,* serves as The OKI metropolitan transportation plan. A total of 132 projects are contained in the Plan, including 92 roadway, two ITS, 20 transit, 17 bicycle/pedestrian and one freight project. Six projects were specifically identified for Boone County and the Graves Road interchange was among those.

EXISTING AND/OR PLANNED BIKE OR PEDESTRIAN WALKWAYS

The Boone County Transportation Plan 2030 mentions several documents developed as early as 1992 that discuss bicycle and pedestrian planning in the area. Although no discussion of a bicycle/pedestrian plan for Graves Road was discovered in these documents, an exhibit from the 1996 Boone County Transportation Plan does show Graves Road as a proposed corridor for bike lanes.

7E - HISTORIC RESOURCES (Page 9 of the Checklist)

THE ALLIE CORN FARMSTEAD

The Allie Corn Farmstead (Site 36 [BE 95]) was initially listed on the NHRP on 2/6/1989 under Criterion A and under Criterion C. It was recommended that the boundary be expanded to include all of the property on the west side of Graves Road currently associated with the farm and a larger portion of the property on the east side of Graves Road (including the previously surveyed resource BE 817). Figure 15 shows the original and expanded boundaries of the Allie Corn Farmstead (BE95). SHPO concurred with the recommendation that BE 95 remain eligible for listing and to include the expanded boundary. This historic resource is shown on the Environmental Resources map (Exhibit 8) of Appendix A.



Figure 13. The Home on Allie Corn Farmstead



THE COMMERCIAL BUILDING

The addendum, which evaluated the properties along KY 20, recommended one site as eligible for listing on the NRHP (Site 4, BE 1081, see Figure 14). This site was recommended eligible under Criterion A for its association with the commercial development of Idlewild. This area is within the small crossroads community of Idlewild, which dates to the nineteenth century and is located on one of the important early thoroughfares in Boone County. Over time the building has had various operations, including a general store, three blacksmith shops, a carriage shop, and a car dealership. Today, it is the most intact commercial building associated with the Idlewild community and clearly displays its association with the commercial development of the small community. The recommended boundary



Figure 14. The Commercial Building (BE 1081)

includes the footprint of the building and a small buffer extending to the existing ROW. A 'No Adverse Effect' determination was made for the site because the proposed project will not change the relationship between the commercial building and KY 20. While specific plans for the KY 20 safety improvements have not been developed yet, the project will not include any new ROW acquisition and it is not anticipated that the project will include any substantial changes to the roadway immediately in front of this site.

Figure 16 shows the recommended boundary of the eligible commercial building (BE1081). This historic resource is also shown on the Environmental Resources map (Exhibit 8) of Appendix A.



7F – ARCHAEOLOGICAL RESOURCES (Pages 9-10 of the Checklist)

SITE 15BE720

One site was documented as a result of the current survey. Site 15Be720 is a historic farmstead/residence that dates from the early to mid-twentieth century. This site is located on the east side of Graves Road just north of Sequoia Road. The site consisted of a very low-density scatter of mainly domestic and architectural material located near a collapsing residential building and collapsing barn. It was concluded that the site has very limited research potential due to the paucity of cultural remains and lack of intact deposits. Additional archaeological work was not recommended since it would not produce significant information beyond that which has been collected.

7K – HAZARDOUS MATERIALS (Page 13 of the Checklist)

PENNINGTON MARKET

The Pennington Market, located along KY 20, is the commercial relocation required by the project and was formerly an old grocery market and auto service station. This site is currently an unoccupied commercial property for sale or lease. The site received a No Further Action (NFA) for one 500-gallon kerosene/gasoline tank and two 2,000-gallon gasoline tanks from the Kentucky Division of Waste Management on 4/2/2003. Based off the impacts to the site by the proposed project, a limited Phase II SI is recommended. The location of this site is shown on the Environmental Resources map (Exhibit 8) in Appendix A.



HEBRON SUBSTATION

The Hebron Substation, located along Graves Road just north of Worldwide Boulevard, is slightly impacted by the project. The Selected Alternative is along the existing Graves Road in this area and impacts are at least 100 feet from the nearest fenced-in substation. Within the disturb limits of the proposed project are portions driveway, open grassy area, and some electric poles coming from the substations. Due to the separation from the project and the substations, a Phase II SI is not recommended. The location of this site is shown on the Environmental Resources map (Exhibit 8) in Appendix A.





TAYLOR ENTERPRISES

This site is located along KY 20 just west of the intersection with Idlewild Road (KY 338). It currently operates as an automobile and equipment service and repair business. A hydraulic lift, a vehicle paint booth, and numerous tanks, barrels and containers are present inside the main service bay. If the KY 20 safety improvements include construction that disturbs this site, then a limited Phase II Site is recommended. The location of this site is shown on the Environmental Resources map (Exhibit 8) in Appendix A.



Figure 20. Taylor Enterprises

SECTION 7L - THREATENED AND ENDANGERED SPECIES (T&E) (Page 14 of the Checklist)

Coordination with U. S. Fish and Wildlife Service (USFWS), the Kentucky Department of Fish and Wildlife Resources (KDFWR), and Kentucky State Nature Preserve Commission (KSNPC) was performed early in the project development to identify species of concern within the study area. Coordination responses can be found in Appendix D. Two field surveys, one during the winter and one during spring, were performed for the original Ecological Impacts Assessment developed for the project. A third field survey was conducted during the summer of 2018 to evaluate conditions within the existing KY 20 right of way for the safety improvements. Based on the field surveys, habitat for all the listed T&E species exists within the project area. No presence/absence surveys (like electro-fishing, mussel surveys, or mist-netting) were conducted.

Table 4 provides a list of USFWS threatened and endangered species (T&E) that may occur in the proposed project location and may be affected by the proposed project. Also, USFWS coordination indicated no critical habitat was present in the project area.

	COMMON NAME	SCIENTIFIC NAME	STATUS
Bats	Gray bat	Myotis grisescens	Endangered
Bats	Indiana bat	Myotis sodalis	Endangered
Bats	Northern long-eared bat	Myotis septentrionalis	Threatened with the 4(d) Rule
Mussels	Clubshell	Pleurobema clava	Endangered
Mussels	Fanshell	Cyprogenia stegaria	Endangered
Mussels	Orangefoot pimpleback	Plethobasus cooperianus	Endangered
Mussels	Pink mucket	Lampsilis abrupta	Endangered
Mussels	ring pink	Obovaria retusa	Endangered
Mussels	Rough pigtoe	Pleurobema plenum	Endangered
Mussels	Sheepnose Mussel	Plethobasus cyphyus	Endangered
Plants	Running Buffalo clover	Trifolium stoloniferum	Endangered

Table 4. USFWS T&E Species in the Project Area

Source: USFWS Coordination

The effect of construction or future road use on the aquatic ecosystem and the loss of potential habitat may have minimal indirect effect on T&E species. These indirect effects are reduced by standard minimization and mitigation techniques typically implemented by KYTC. All impacts to T&E species will be summarized in a BA prior to construction and protective measures, if appropriate, will be developed as a part of the BA.

SECTION 7M – WATER RESOURCE IMPACTS (Pages 15-16 of the Checklist)

Consultation with state agencies, literature searches, and field surveys were used to document the water quality and streams within the project area and to assess the potential impacts from the project. Results were summarized in an Ecological Impact Assessment prepared for the project. Consultation and literature searches concluded the following:

- The proposed project does not impact any State Listed Special Use Waters or tributaries to a Special Use Water.
- The project is with the designated MS4 community of Sanitation District No. 1 of Northern Kentucky (SD#1). However, since KYTC has their own MS4 permit, the project design will follow

the storm water regulations and design criteria outlined in KYTC's permit and no any additional restrictions, ordinances, permits, etc. are required for the project.

- The Federal Emergency Management Act's (FEMA) Flood Insurance Rate Maps (FIRM) did not identify any regulatory floodplains that would be crossed by the proposed project alternatives.
- The project will not affect navigable waters of the U.S. as defined by USACE and require a Section 10 permit.
- The project will not affect a navigable water body requiring a Coast Guard, Section 9 permit.
- The project is not within the watershed of a significant water resource.

STREAM AND WETLAND CHARACTERISTICS

Field surveys were conducted between February 2017 to August 2018 to assess the streams and wetlands in the project area. Streams were assessed using the methodology from the Kentucky Division of Water (KDOW). Surveys included a visual assessment, completion of the *Habitat Assessment Field Data Sheet – High Gradient Streams* form, and water chemistry analysis. Surveys indicated that stream impacts will occur to Woolper Creek, Sand Run, and their tributaries. In addition, depending on the nature of the work, the KY 20 safety improvements could impact Ashby's Fork and its tributaries, as well as tributaries to Garrison Creek.

There are eleven third-order streams and three fourth-order streams impacted by the project, including four third-order streams along KY 20. However, each of these streams are relatively disturbed and are only partially supportive of aquatic life. The majority of stream impacts are small, low-quality first-order ephemeral channels draining a small amount of water into a roadside stream channel, or second-order 'collector' intermittent stream of moderate quality. All the streams sampled had conductivity levels above Environment Protection Agency (EPA) standards. Results for temperate, pH, and Dissolved Oxygen (DO) were within standards for all streams except for one unnamed tributary of Woolper Creek, where the DO was below the standards.



Figure 21. Sand Run



Figure 21. Woolper Creek

To determine wetland impacts, the local county soil survey, aerial photography, topographic mapping, and the National Wetland Inventory (NWI) maps were reviewed to locate known or possible wetlands within the proposed project area. This was followed up with field investigations to identify and delineate

the wetlands. Five relatively small wetlands (<0.25 acres) were identified in the project area, including two within the KY 20 safety improvements area. NWI maps also identified numerous ponds in the area, but many were found to have no wetland fringe. Wetlands were identified and delineated using the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987) and the Interim Regional Supplement (USACE 2010).

STREAM IMPACTS

Coordination early in the design process made designers aware of potential streams in the project area, allowing them to take the streams into consideration with the alignments. In particularly, efforts were made by the designers to minimize impacts to the existing stream between Watts Road and Graves Road. All impacts are to relatively disturbed streams that are only partially supportive of aquatic life as described above.

The *Selected Alternative* had slightly more impacts that the other alternatives considered. Interchange the interchange alignment with Alternatives 2-A and 2-B impacted approximately 500 feet more than the interchange alignment with Alternatives 1-A and 1-B. The Williams Road alignment of Alternatives 1-A and 2-A impacted approximately 20 feet more than the Williams Road alignment of Alternatives 1-B and 2-B.

WETLAND IMPACTS

As with the stream impacts, the *Selected Alternative* had slightly more impacts than the other alternatives considered. The interchange alignment with Alternatives 2-A and 2-B had approximately 0.10 acres more impacts than the interchange alignment with Alternatives 1-A and 1-B. The Williams Road alignment with Alternatives 1-A and 2-A had approximately 0.20 acres more impacts than for Alternatives 1-B and 2-B.

There are multiple ponds impacted by the project that did not have a wetland fringe and therefore are not included in the wetland impacts acreage. One pond, located along the northern section of Graves Road will be partially filled by the project. A second pond is located in the area of the loop ramp south of the interchange. This pond will be fully filled from the project and has a stream that exits it.

Both impacted ponds are shown on the Environmental Resources map (Exhibit 8) in Appendix A. As with the streams, wetland impacts will be reassessed following final design and mitigation will be determined through coordination with KDOW and USACE.

INDIRECT OR CUMULATIVE IMPACTS

Constructing the *Selected Alternative* is not anticipated to have any indirect or cumulative impacts to streams or wetlands.

SUMMARY

After conducting environmental and engineering analysis, preparing environmental technical reports, obtaining public input at a public meeting, and coordinating with local, state, and federal agencies, KYTC has found that the proposed action would not cause any significant impacts to the human or natural environment. It would fulfill the project's Purpose & Need and would provide the cities and counties surrounding the project corridor with an improved, safe, and efficient new roadway.

SUMMARY OF IMPACTS

No significant impacts are anticipated to any resource due to this project. The most immediate impacts of the project are to the residential relocations required. Minor or no impacts are anticipated for the other study areas, which include prime and unique farmland, hazardous material sites, air quality, noise, visual setting, historic and archaeological resources, terrestrial and aquatic environments, environmental justice populations, or communities. During the development of this project, each of these impacts have been considered right along with design constraints and the comments received from the public. A summary of the project impacts for each build alternative considered are provided in Table 5. Refer to the Environmental Resource map (Exhibit 8) in Appendix A for the location of resources.

	ALTERNATIVE 2-A, THE SELECTED ALTERNATIVE
Prime & Unique Farmland (ac)	7.47
Streams (linear ft)	7,870
Wetlands (ac)	0.390
Right of Way (ac)	79.80
Temporary Easement (ac)	13.38
Permanent Easement (sq ft)	0.00
Residential Relocations	15
Commercial Relocations	1
Cemetery Relocations	0
EJ Concerns	None
Historic Resources	3 Sites – Not impacted; Section 106 Determination of No Adverse Effect.
Archaeological Resources	4 Sites – 3 Previously Recorded & 1 New. Not recommended for NHRP listing.
4(f) Resources	2 located adjacent to the project; Determined to have no use or constructive use.
6(f) Resources	None.
T&E Specie Impacts	USFWS listed bat, fish, mussel, and plant species. No Effect for mussel species. Effects determination and mitigation will be developed in a BA for bats and plant.
UST/HAZMAT Impacts	5 sites of concern; 2 with a Phase II Site Investigation recommended.
Traffic Noise Impacts	23 impacted receptors but no structural noise barrier recommended.
Air Quality Concerns	Within Maintenance Area for Ozone; Project is in the TIP and conforms to the requirements under the 8-hour Ozone standards. PM 2.5 consideration was not required.

Table 5. Summary of Impacts

	ALTERNATIVE 2-A, THE SELECTED ALTERNATIVE
Pedestrian and Bicycle	Design includes 6-foot sidewalks on both sides of the proposed Graves Road and
Facilities	Williams Road.

ITEMS TO RESOLVE PRIOR TO CONSTRUCTION

As the project moves forward, the following list of environmental items will need to be resolved prior to construction.

- The assessment of parcels covered under the MOA for archaeology resources and the resolution of affects for any eligible resources (if any)
- A KPDES permit (KYR10) for storm water discharge
- A Phase II Site Investigation for 1 UST/HAZMAT site, and potentially a second depending on the nature of the work determined for the KY 20 safety improvements.
- A KDOW 401 Water Quality Certification
- An USACE Section 404 Permit
- A Biological Assessment to satisfy Section 7 of the Endangered Species Act
- Prior to demolition of Graves Road bridge over I-275, an asbestos-containing materials (ACM) inspection will be conducted and a 10-Day Notice of Demolition will be filed with the Kentucky Division of Air Quality (DAQ).

REFERENCES

Boone County Fiscal Court

2005 Boone County Transportation Plan 2030. Accessed July 2018. http://booneky.oki.org/.

Boone County Planning Commission

2010 2010 Boone County Comprehensive Plan. Accessed July 2018. https://www.boonecountyky.org/planning_commission/2010_comp_plan.aspx.

Cincinnati/Northern Kentucky International Airport (CVG)

2017 CVG Experienced Continued Growth in 2016. Accessed July 27, 2018. http://www.cvgairport.com/about/news/2017/01/23/cvg-experienced-continued-growth-in-2016

Esri

2018 World Imagery [basemap]. Scale Not Given. "World Imagery". Accessed July 2018. http://www.arcgis.com/home/item.html?id=30e5fe3149c34df1ba922e6f5bbf808f.

Kentucky Transportation Cabinet

2017 Statewide Transportation Improvement Plan (STIP) Book. Accessed July 27, 2018. https://transportation.ky.gov/Program-Management/Pages/2017-STIP-Book.aspx

Ohio-Kentucky-Indiana Regional Council of Governments (OKI)

- 2012 2040 Regional Transportation Plan. Accessed July 27, 2018. http://www.oki.org/transportation-planning/2040-transportation-plan/
- 2012 Fiscal Year 2018-2021 Transportation Improvement Program. Accessed July 27, 2018. http://www.oki.org/transportation-planning/transportation-improvement-program-tip/

APPENDIX A – EXHIBITS

- Exhibit 1 LOS at Intersections Along KY 237
- Exhibit 2 High Crash Segments and Spots
- Exhibit 5 Project Location Map
- Exhibit 6 Interchange Alignment for Alternatives 1-A and 1-B
- Exhibit 5 Interchange Alignment for Alternatives 2-A and 2-B
- Exhibit 6 Williams Road Alternatives
- Exhibit 7 Alternative 2-A, The Selected Alternative
- Exhibit 8 Environmental Resources



Exhibit 1: LOS at Intersections Along KY 237

LOS A or B 2016 Existing Condition LOS C or D LOS E or F

2040 Forecasted No Build Condition I-275 and Graves Rd. Interchange Boone County, KY KYTC Item No. 6-8953



Note: Presented values are the 'worst case' results between AM and PM analysis.



Exhibit 2: High Crash Segments and Spots



High Crash Spots >1



CRF of 0.0 - 0.99



Crash data was for a five-year period, from 1/1/2012 to 12/31/2016.

I-275 and Graves Rd. Interchange Boone County, KY KYTC Item No. 6-8953









Exhibit 4: Interchange Alignment for Alternatives 1-A and 1-B





Exhibit 2: Interchange Alignment for Alternatives 2-A and 2-B





Exhibit 6: Williams Road Alignments



Alternatives 1-A and 2-A - Pavement Alternatives 1-B and 2-B - Pavement Alternatives 1-A and 2-A - Disturb Limits

Alternatives 1-B and 2-B - Disturb Limits

I-275 and Graves Rd. Interchange Boone County, KY KYTC Item No. 6-8953











Exhibit 7c: Alternative 2-A, The Selected Alternative





Disturb Limits

Boone County, KY KYTC Item No. 6-8953







Pavement Disturb Limits 275 and Graves Rd. Interchang Boone County, KY KYTC Item No. 6-8953









Boone County, KY KYTC Item No. 6-8953

0.5

0

Miles

1





Disturb Limits

KYTC Item No. 6-8953





Exhibit 8a: Environmental Resources

☆	Residential Relocation Stream	I-2	I-275 and Graves Rd. Interchange Boone County, KY		Story	
٠	Impacted Noise Receptor		KYTC Item No. 6-895	53		
	Wetland			Miles	A 20 5	237
	Disturb Limits	0	0.25	0.5	-2121,	A POST



Exhibit 4b: Environmental Resources



Disturb Limits

I-275 and Graves Rd. Interchange Boone County, KY KYTC Item No. 6-8953



APPENDIX B – PUBLIC INVOLVEMENT

Newspaper Tear Sheet for the Public Meeting Advertisement	B1
Handout Given to Each Public Meeting Attendee	ВЗ
Comment Form Given to Each Public Meeting Attendee	B5
Public Meeting Sign-In Sheets	B7
Returned Public Meeting Comment Forms (Redacted)	B19
Letter Sent to KY 20 Residents Regarding Additional Safety Improvements	B169
Responses to the Letter Sent to KY 20 Residents	B173

4C • BC-KENTUCKY - COMMUNITY • NOVEMBER 2, 2017



(OF FILING OF SETTLEMENT)

COUNTY OF BOONE

, DIANNE MURRAY, CLERK OF BOONE DISTRICT COURT IN AND FOR THE COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE FOLLOWING SETTLEMENT OF ES-TATES HAVE BEEN FILED IN THE BOONE DISTRICT COURT, AND ANYONE DESIRING TO TAKE EXCEPTION TO SAID SETTLEMENT MUST DO SO ON OR BEFORE TUESDAY, DECEMBER STH @ 1:10 PM.

SETTLEMENT	ESTATE	FIDUCIARY
FINAL	WILMA L GRANT	JAMES GRANT SMITH 2190 HARTLAND BLVD, INDEPENDENCE
FINAL	WARREN JOHN SMITH	VICKIE BOSLEY 4094 CIRCLEWOOD DRIVE, ERLANGER
FINAL	ROY LEE ORLING	JAMES TOLL 932 CHANCELLOR DR, FLORENCE
FINAL	PEARL CHITWOOD	GEORGE CHITWOOD 1687 FAIRSIDE COURT, FLORENCE
PERIODIC	ROSEMARY FORTNER	KATHY JO NORRIS 4090 CIRCLEWOOD DRIVE, ERLANGER
FINAL	WILLIAM H MERRELL	HAROLD LEE MERRELL 1891 KINGS CHURCH ROAD, TAYLORSVILLE
PERIODIC	ROBERT C NORTHCUTT	GARY REYNOLDS 1567 SINGH ST, FLORENCE
FINAL	THELMA ANN OGBURN	MARK E OGBURN 2298 BEAVER ROAD, UNION
FINAL	SONALI SISODIA	SANJEEV THAKUR 13236 COPPERMILL DR. HERNDON

GIVEN UNDER MY HAND THIS 25TH DAY OF OCTOBER, 2017.

DIANNE MURRAY, CIRCUIT CLERK BY: AMBERLY HARRIS, D.C.

VISIT CLASSIFIEDS online at cincinnati.com

Post jobs

CINCINNATI_{com}





An affiliate of the CINCINNATI com network

ONLY CARS.COM HELPS YO HE DRAMA CAR, **LHD** HOUT AL Ŧ Ш ()

B1

Existing Concerns

- Traffic backing onto I-275 at North Bend Interchange
 - Traffic congestion along much of KY 237
- Traffic cop required daily at Worldwide Blvd and KY 237 intersection from October to January
- High crash spots at numerous locations along KY 237, the ramps at Hebron Interchange, and Graves Road
- Accommodating considerable growth in and around the project area
- No pedestrian or bicycle facilities along Graves Road
- Historic farm along Graves Road Stream just west of Graves Road
 - Impacts to existing utilities

Proposed Improvements

- Construct new interchange on I-275 at Graves Road
- Extend third westbound lane on I-275 past Graves Road
- Widen and realign Graves Road to avoid historic farm and minimize impacts to streams
- Shift Williams Road/Graves Road intersection away from new ramps
- Improve intersection at Graves Road/KY 20
- Make safety improvements at Hebron Interchange
- Provide sidewalks along new Graves Road from KY 20 to KY 237



Anticipated Project Schedule*

- Final Design.....Begin Spring 2018
- Detailed Plans.....Available Summer 2019
- Right of Way.....TBD by forthcoming 2018 Highway Plan
- Utility Relocation....TBD by forthcoming 2018 Highway Plan
- Construction.....TBD by forthcoming 2018 Highway Plan

Schedule is dependent on securing funds in the next funding cycle: * No funding is currently allocated for future phases of work. January to April 2018 Should you have any additional questions or concerns about the project, please contact:

Covington, KY 41017 Mike.Bezold@ky.gov 421 Buttermilk Pike **KYTC District 6** Mike Bezold, P.E. (859) 341-2700







PUBLIC MEETING



Item No. 6-8953.00 **BOONE COUNTY**

I-275 at GRAVES ROAD **NEW INTERCHANGE**









FOR ALL KENTUCKIANS
Welcome to the Public Meeting for the reconstruction of a new I-275 Interchange at Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. This meeting will be an open format with **no formal presentation**. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

This project is located near the existing Graves Road / I-275 Overpass (approximately 1 1/2 miles west of the I-275 North Bend exit). The preferred alignment is shown on the adjacent map.

Located around the room are display stations with representatives from the Department of Highways and their consultants who will address questions and explain the information presented. Each station has a map of the project corridor as well as other information gathered to this point. The displays depict Graves Rd in purple, as well as the two Williams Rd Alternates — Alternate A in Red and Alternate B in Blue. Please provide any written comments that you may have on the comment form provided. Written statements will be accepted during the meeting and until December 1st, 15 days after the hearing. We encourage you to share your thoughts on the project and to identify any information that might be missing from the current exhibits. Your comments will help in making decisions on how to move forward with the project design.

Project Purpose and Need

The purpose of this project is to improve mobility and safety in a rapidly growing area adjacent to I-275 between Interstate Exits 8 and 11 in northern Boone County.

The existing KY 237 interchange with I-275 (Exit 8) is experiencing substantial traffic congestion, including traffic backing up onto I-275 from the KY 237 westbound off-ramp. The surrounding area is expected to see continued traffic growth over the foreseeable future due to growth at the Cincinnati/Northern Kentucky International Airport and the associated industrial/business facilities. Additionally, residential developments north and south of I-275 will continue to generate further strain on the surrounding roadway network.



KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:	Phone:	Phone:	
Address:			
City, State, Zip:			

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)			
NAME				
PROPERTY ADDRESS				
MAILING ADDRESS				
EMAIL ADDRESS				
PHONE #		MOBILE #		

What describes your main interest in this project?

- o Resident
- o Landowner
- o Business Name of Business_____
- o Concerned Citizen
- Other_

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:







Β7

Name	Address	Phone # / Email
Ron Loovey	2183 TREETOP LN	859-918-1101/LOONSO
Robin Bancro (A	6	Mancotta duora
BOB SCHERER	147 BARNWOSD ETTENDES	bob @schroder, met
LEO & JEANNE DOLAR	2304 PINNACLE G., HEAR	N DOLANLEO @FUSEN
WILLIAM & MOORE	PETERSBURG	\$7-992-7034 \$7-992-7034
Terry 2. Kelley	1917 Coach Trail Dr 4104	859-586-0518
MARY BIJINS	2309 Kenyon, Hebion	marybruinschotmail.com
Jennifer McBride	1285 Rivermeade Hela	on standishife ad
Matthew hochita	1218 Captan R.I Floren	e muchtalebanece. 1/157.00
Cathy bankows	2515 Watt Rd Sunlingten	Ar9-9129378-
Charles Martsberry	995 Sartridge DR. H	ebron. 859-835-7613.
Doyald E. Kogen	2939 PETERSBURG RI	586-2425
Jan Noau	Par Box 900 Butin	ton Hors
Andy Wallenhorst	4846 Dartmark Dr.	859 628 1661
Brian Hall	6054 L Was Park Dr	859 496 4685
trypr	1480 Bloomn Son Ct	MCPrypracutlook.C
Carolyn Hollis - hipon	Burlington, Ky 41005	859-689-4010





41

Name	Address	Phone # / Email
Jue mason	2200 FOR057 POND DR	859 586 1442
LARRY BARDES	2355 GRAVES Rd	812-907-0957
Jun Pote,	1382 Graves RD	859-653-4545
Fryan Applegate	2251 William Rd	859-586-2577
Terry Depenbrock	3083 Millakin Pl	859-586-5645
Caymond Stabboud Of	2211 Williams Rd.	859-689-4590
atherine Caroock	21441 Willams Rd	502-64/5-8161
USA KLER	1759 Petersburg Rd	859-4667192
Ally & Sund' Lum	1253 Rivermande	859-586-7920
BethBidleman	1990 Wedgewoodig	8592409767
Brandi Burcham	2651 Graves Rd	859-802-4296
Laura Davies	2179 Williams Rd	859-689-7735
Dallas Robertson	1880 STAHI RA	8596897733
For Donilers	786 Sellerhind Ul	un 859586-72TO
Nathan Hanking O	2915 Undds Rd	058-250-0321
Drum Sheavshang	2900 Watts Rd.	859-322-4636
Matthew Swyder	2490 Hilliard dr	920-539-2345
Elma Benne	3247 Peteroburg Rd. Bu	2 859-689-7792
Laverna Johnson	3243 Petersburg Rd.	489-7113
PAUL MARSH	2481 FRONTIER RD	TRUL DANJEL . MARSHE GMATL



Name	Address	Phone # / Email
CAROLYN AlexANDER	2439 FRONTIERDRK	41048
MANGES SACUBSON	2346 GRANDIN OT HEBRO	N 859.918-1705
FRANK JONES	2200 WILLIAMS	689-4443
Chauntae Applegate	2251 Williams Rd	859-586-2577
Garry + Pat Mobley	4048 Petersburg Rd	859-586-6943
Allen E. Jon 25	H820 Elkweed Dr	859-322-4318
Phyllis Anderson	5700 Woolper Rd	859-466-570
Jerry Greene	3263 Kingsley Dr.	859-866-9805
Mike + Karen Blaker	1525 North bend Rd.	859-586-736D
Jim & Becky Bordick	3648 McCall PI	859-586-8528
Hap Watton	1653 Tanner Rd	869 689 -7709
David Burcham	2651 Graves Rd	859-801-5110
Mark Looy	1593 Battery Cir	859-302-6693
Bonnie Hampton	2055 Treetop	859-586-5565
Shanon Codams	5565 Petersburg Rd	859-468-2792
Lamona Croushorz	1663 Cherry Blosson Cf	85-9-466-2164
Frank+Edith Brudy	2182 Treety have Hole	859-689-1855
MAX > Patti Montajo	-2110 Williams Pd. Hebri	Frg 743-2889.
Laurie Delaney	6620 Elgin Rd. Bur.	859-801-4704
Zachasy T. Bishop	5294 Refersburg Rd	757-333-1831
/	1	B9





Name	Address	Phone # / Email
JoetLinda Butsch	2341 Graves Rd. Hebronky	859-547-9416 lindabutsche
Karib Costello	BCR	(953)334-2/96 kantella
Sash Brotherton	2379 Graves Re Huba	Brothertow212002QYahow.Co
JoHnnyt JEAN NOEL	3/12 PETERSBURGRA	859-689-4737
Rich Gellesher	2257 TITETOP Jane	richtgallagher@hotmai
Ronald a. Stud	1854 Graves Rd	859.689 7664
Caul Renderson	3121 Petersburg Rd	85-689-4097
Joseph Farmer	2919 Watts Rd	859 640 - 5385
JUAN B. Scott	2593 GREAVES EN	dylanscotthetrone gmail.com
Pat Dordnun	1993 Crachtrail Dr	859-586-1802 GOODYNTUNIA@GMAIL.Com
Idd & Juli Roberts	2712 Watts Road	859 (250-7302 Jroberts @Zullacmpa
Steve Purdy	1912 Whetherstone Ridge	MOREL3 (AUL.COM
Cathy Holyt	2244 Kyle Dr	
Jim Marin Watteteld	3302 trysley Dr	JIMV25@fuje.het
Nathaniel Houser	1236 Monroe Drive	beringseall@gmail.com
Konald Suit	1690 BITSUAN CIT HEPRO	SMITH BIRPLYJSCHOL.CON
Larry Sheanshem	2900 Walts Rd Barlighu	Psy- Jusheanshay @castellinicon
DAN Toberghe	2108 SherIDAN DR. 41048	853 750 4041
Danette Kappelman	2854 Wetts Rd 41005	Ba-859-620-0110
Chint 2	Say Kinny M. 41010	43-643-170







Name	Address	Phone # / Email
Cara Lavigne	2868 Damasus Rd Hebron	lavignege agmail.com
Barbara Jacobson	2346 Grandin Rd Hebron	859-918-1705
Joe/Pypy Ralh	1923 Cardinal Way	854-684-7899
J-Can Jones	2200 Williamsk	770-235-2900
Pay of ARULING AM	1754 GRAVES RD	859-393-2189
Com logice	JOGS WILLIAMS P	859-620-546
[BOB MUSIA	2630 Petensburg Rd	859-466-5884
Tom Finler	2734 Watts Rd	859-512-036
MATT SCHUMM	2868 WATTS RD	(513)-500-4030
BILL GOODMAN	1993 COARITRANDR.	(859) 586-1802 goodyntunia@GMAIL.COM
Pam Jones	8764 Sentry Florence	859-283.5486
SHARON FINKE	2730 WATTS RD.	859-652-5961
Gary & Judy Combs	2605 Graves Rd	859-802-0077
Till Charles	2373 Summerupards Dr.	854-647-9522
Aundung	VN-M G	858 3946200
Steve Hedges	2223 Forest Pond	859-466-2535
MAAR KURZENDOEHFER	1359 WHITETAN GEEN C.	859-393-4470
LAURA STUPAR	2303 OAKVIEW Ct	STUPAKLM @ NOTMAIL. CON
Im Branner	8346 Woodcreek	Jim, Brannen Equical
David Thorburn	3287 KINGSLET DR	dthorburne dreeshomes.com
		B11







Name	Address	Phone # / Email
Connie Sims	2619 GRAVES Rd	859-496-1099 Casims 1226 annaile Com
1302 1602-	UNG Red avoid Die	513-207-2202
FAY WHALEY	2319 GRAVES RD	859-816-8079
M.A. Wole /	Porsan Path	859-586-6590
Bob Check	1917 Tanners Cone Oct	859-689-1454
PAU CROUSHORE	1663 Cherry Blosson Ct	513-225-6666
Margaret McGlasson	2674 North Bend Pd	859 689 4056
JUNI TEPE	2731 WATTS RD	859-586-8823
LARRY BELLE 3	247 Petersday Rd	FM-609.7792
BOB JONAS	B.C. Planning Commission	rjonas@boonecountyky.org
Pale Holladay	3358 Peterslugka	859-689-4920
JoanHolladay	3358 Peterspungkof	859-689-4928
SHAWN SZMS	2619 GRAVES	859- 393-6750
Jeanenne Stamper	3134 Bullittsville Rd	859-689-7872
KarlaZachman	1908 Boymoodway	Karlakid@yahoo.con
Wardo Amita	2857 Watt Pd, 4 1000	WRAYSMITH OFUSE.
Jane S. Sineto	2,857 20 DT 75 Rg 41005	L _j / 1
Brian Heck	1420 Bur Oak Ot. 410	13 bheckegoettle.
Jade Kedden	2536 Broad Leaf Cf 4104	* pdesredden@gmau
hrissy Robinson	2720 watts Rd.	Phrissy (0/6700)
		gna, B20M



	Name	Address	Phone # / Email
	Jume Joyce Arcova	2093 Juaca Pd.	859-689-7636
	ChrisRobinson	2720 Watts Rel	859-991-5272 CRobinson @ Altry. ME
	Carol W. Kalwood	1354 Williams Rol	534-506 & 630-7066 Caldwkikkwood@gmene .com
	Michael R Kilewood, Sr.	1354 Williams Rol	
	Eddie Conrod	2903 Petersburg Rd	689-7958
	Michael Chitokke	2689 WAtts Re	8595865199
	Suzanne Di Ho	6060 Jefferson Bur/	859-486.0225
	Berin Smith		
	RIPAN REARDON	1703 TEAKNOUD LN	859-689-1884
	EMILY BLACKBURN	2171 SUNCHASE BLVD	902-609-018C
4	JennyWassler	4098 Idlebrook	859 9/60623 gmal.co
	Seve Traves Spelding	2272 Williams Kd Hebronke	859-689-7111
	GEORY BMTA	144 N Bend HIC	548
	Any Budz	1441 N. BEND	
	Justin Bailey	1648 South cross Dr. va Hebron	(834) 534-5999
	Mark Arlinghaus	2639 Graves Rd.	513-969-0299
	J BARTTL	6433 Englang Rd	
	Christy BIGGS	2893 Graves Rd	586-1727
	ROB HAINS	6 TREVILLA CT. Ft. Thomas	E59 750-2242
	LARRY GOODRIDGE	2928 PETERSBURG	RD 859689-4684
	roll		B13







22

Name	Address	Phone # / Email
Gary Keller	2065 Glennich Dr	gary Keller 26 & & Small
Melissa Finke	2734 Watts Rd	thinfinke plahoo, un
Charles Bysery	2848 watts Rd	Charles, buttery a) gmail.com
Cynthia Buttery	2848 Watts Rd	Cynthia, buttery algomail.com
DAVID SCHIPPER	2752 WATTS	DAVE AND TAMALA @ CMAL. CC
TAMMY SCHIPPER	2752 WATTS	11
ROA WIECH	1565 N. Bend Rd	Wiechrwiech@gmal.com
Jim Kind	1604 Southcross, Hebra	859-918-1231
BOB + KEREN JONES	2911 WATTSRO	859-586.9585
Luke Roberts	2706 watts Rd	859-814-1081
tara Quinn	2706 Watts Rd	899-466-8068
Kathy Bailey 3	251 Haves Dr	859.534.5861
Jan laylor	2305 Kenyon Ct	859 816-3936
Shonda Stevens	2876 Watt Rd	839-609-0715
Ronelon Dopier	2876 Watto RD	839-609-0715
Chapper Duckim	ZAST BAURR - BURL. KY	8595866443
Dang Anchew	2579 GRAUCS	ANDREWIZO25@ MSN. COM
C. J. Kebinser	2720 votts Kd	CINZ697 Quancilicon
Jim Judy Dolink	1234 North Bead Heling	859-391-7833
James abolston-Snth	1209 Cosspointe Drittebran	859 689 0173



Name	Address	Phone # / Email
Michael + Betty hors	1537 White Blossom Ct	859-586-2546
Russell Stamper	3134 BullittsvilleR	859 -689 - 7872
Alison Norken	59 Wat Crifter dune Au	TO CO
MICHAEL GROVER	3171 MILLAKIN PLACE	859-586-4003
Valerie Anthony	MG2 Coachtrad Dr	859-250-3840
Evan Anthony	1262 Coachtrail 12	513-659-9918
Daniel Menetrey	1624 E Crittenden Ave Fort	859-250-0551
Donna Conner	2890 Draves	859 322 5821 donnacon
Dianna Caldwell	2274 Treetophn	859.322-1290 a remax, not
Ron + Sally Burcham	1804 Graves Rd	859-689-7642
Mite Bailex	10606 Bud Rd	855-743-2270
Sylvia Hughes	2579 Glaves Rel	859-322-0888
Eleanos Chimp	2885 Manon By	859-689-7085
Jul Mylen	820 Dudey Ro For	859 3418651
Randy Graves	Box 135, 2807 Graves Rd	812-584-9492
Waseen Hanna	1964 Montpelier Drim	513-973-2041
Merissa Mapier	2872 Watts Rd	navecatora hotmail.com
Paul Lagemon	2401 GrAVES Rel	PAULAgeman Dymail
SANDRA LAGEMAN	2401 GRAVES RD.	859-689-4140
DON QUALLS	2402 GRAVES R.	359-689-4939
		B15



Name	Address	Phone # / Email
MARK Goe HANG	2081 TREETOP LAWE HEBRON	1 859.630.3525; Magaetting gm
Kathy King	\$\$ 1604 Southeross pr. Hebra	859 630 859-918-123)
DAVID A. Taylor	2872 WattsRd.	859-586-4058
JASUN Compton	3067 Petersburg Rd	859 360 4841
PAUC TEPE	2731 WATTSK	859-586-8823
Joanne Cleme	1718 Grandenien Dr.	Hebron 3rm mortono
SLOTT RENNINGTON	BOONE CO PUBLIC WORKS	857 689-5778 859-334-3600
Margaret Finne //	3045 Miller Cf Burlington	857 586-9041
Amanda Arlinghaus	2639 Graves Rd.	937-269-7295
ROY SMITH	2327 GRAVES RD	859-689-1539
Amanda Smith	2327 Graves Rd	859-468-3332
Terry Alexander	2439 Frontier Dr	614-906-4213
B: IT Vermillion	1232 ThistleRidge Dr	859-689-9415
Dar STIDER	SGOT PETUSIBURE ROAD.	887-468-7862
Jen Hallogan	3261 Campaign Hebron	859-620-7379
RONALD SCOTT TEECARD	EN 2745WATTS RUAD	859-640-8585
Nathan Bruins	2309 Kenyon	513 287 2696
ROBIN Kidder	3942 Petersburg Rd	859 466-4117
Cec Grions	3053 Peel Rd. Burlington	859-384-2805
Cosetta Workman		859-699-6317



Name	Address	Phone # / Email
Emily Pooner	KYTC	KYTC
MIKE BEZOLD	KYTC	
Sherry Deters	ICYTC	
Shelly Harden	KUTC	KYTC
Deffrag Vichalus	KYTC	
SCOTT GABBARD	KYTC	
Kob Doukr	JAND 3 HMB Circk	502-695-9800
Mike Hancock	3 HMB Circle	a ci ci
KEN SPERRY	11	502 - " "
Range Turner	KYTC	
Michael Leathers	KARE 3 HMB Circle	502-695-9800
Matt Sipes	3 HMB Circle	
MITCH GREE	()	Υ(
Brad Johnson	h	h
DANE BLACKBURN	KYIC	5
Ellen Westermeyer	KYTC	
BRANDON SEITER	XYTZ	
Narry Mend	((
Rob Davis	D	
Nikki Hill	(11)	



Name	Address	Phone # / Email
Kyle Rust	KETC	KYTC
Carol Callen. Remit	es KYTC	KYTC
Bern Paris	LYTC	LYTC
Jakerst flegen	KITE	341.2700
Tom Springer	QKe	502 585-2222
Sharm James	KYTC	KYTC

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – 1-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

What describes your main interest in this project?

Resident

Ø	Landowner		
	Business	Name of Business_	
	Concerned	Citizen	
	Other		

By moving intersection of New GRAVES Rd and new World wide Blvd. for ther West in location of A+B intersection point as depicted on the preliminary drawing # 06-8953.00 would straighten the new Graves Rd. This would allow rage to be at the Western boundary of our property. This would eliminate possibility of land lock Issues and continued use of remaining parcel

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

See above response. I manked the area on the map in black.

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

We have a septic system + geothermal wells mour property with the reach field in the present location of New GRAVES RD. I also maintain multiple bee hives on the property which requires moving + restablishment.

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

The present map doesn't show the blue stream on our property that Connects to the Stream shown South Coming under the interstate I275 We are in the Wolper Creek water shed not Sand Run. Moving the road more west moves it out of the blue stream currently not depicted on our proputy

Do you have any additional information or comments concerning this project?

The current substation being used as an excluse not to bend road further west bas plenty frontage on present Graves Rd to be used. Pogleg intersection of World wide Blvd. and present Graves Rd. would not appear to be needed if intersection is moved burther west.

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:



ting Concerns

at North Bend Interchange such of KY 237 at Worldwide Blvd and KY 237 intersecry ous locations along KY 237, the ramps at iraves Road ble growth in and around the project area s Road

- 3 Road
- S

ed Improvements

e on I-275 at Graves Road ne on I-275 past Graves Road Road to avoid historic farm and minimize

aves Road intersection away from new

aves Road/KY 20 s at Hebron Interchange lew Graves Road from KY 20 to KY 237



Anticipated Project Schedule*

- Final Design.....Begin Spring 2018
- Detailed Plans......Available Summer 2019
- Right of Way......TBD by forthcoming 2018 Highway Plan
- Utility Relocation....TBD by forthcoming 2018 Highway Plan
- Construction......TBD by forthcoming 2018 Highway Pla

* No funding is currently allocated for future phases of work. Schedule is dependent on securing funds in the next funding cycl January to April 2018

Should you have any additional questions or concerns about t project clease contact:

KYTC District 6 Mike Bezold, P.E. 421 Buttermilk Pike Covington, KY 41017 (859) 341-2700 Mike.Bezold@ky.gov





KENTUCK	Y TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS
	NEW INTERCHANGE – 1-275 AT GRAVES ROAD
	BOONE COUNTY
	ITEM NO. 6-8953.00
	COMMENT FORM
	THURSDAY, NOVEMBER 16, 2017
	(Please Print)
Name:	
1 1011100	
Address:	
City, State, Zip;	
0.0, 0.00, 0.0	

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)				
NAME				
PROPERTY ADDRESS				
MAILING ADDRESS				
EMAIL ADDRESS				
PHONE #				

What describes your main interest in this project?

- a Resident
- e Landowner
- Business Name of Business
- o Concerned Citizen
- o Other_

125.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

The LEAST destructive to the postpeople on GRAVES Rd. The ave which will direct as much traffic From 237 but will spread out the Flow so there aren't backups and Graves From Thanksiving until the New YEAR.

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

AGAIN LEAST destructive to HISTORICAL HOUSES. THERE NAM BE UNIALED COLAVES NEED to TAIK WITH RANNY + DEBRE GRAVES.

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

REALISTIC TIMEERAME to COMPLETION.

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCH	KY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS	
	NEW INTERCHANGE – I-275 AT GRAVES ROAD	
	BOONE COUNTY	
	ITEM NO. 6-8953.00	
	COMMENT FORM	
	THURSDAY, NOVEMBER 16, 2017	
	(Please Print)	
Name:		_
Address:		
City, State, Zip:		

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

What describes your main interest in this project?

✤ Resident

8	Landowner		
	Business	Name of Business	
	Concerned	Citizen	
	Other		
	-		

VES

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

_ FREFERENCE SHOULD BE SELECTED BY PERIODATE IN MUTCHES
A A A A A A A A A A A A A A A A A A A
AREA DUT SOULD POSSIBLY TO ALTO DO THOPHILLED STATE
THE ALL SU IN IDECAMILLE SUDOL IN A WNW
DEFETION THEN BEND SOLUTE TO CURRICATELY PROPERTY HERE
I WINDSECTION
WITH WILLIAMS RD. (THIS WOULD BE LEVEL)

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

KEALIGNED	OLD GRAVE	s Rado c	LOTS M	CROSS M	N SEPT	ת הא	JK 2	Lesken	
FIELD									<u> </u>
								-	

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

QUESTION THE WEED FOR FIVE LANCE SOUTH OF THE INTERSECTION. TWO IS SUFFICIENT WITH HOL ADEQUATE SHOULDERS. EXPECT DISCUSSION ON ACQUISITION OF ANY PROPERTY MAKER RESIDENCE IS IN IMMEDIATE PROXIMITY TO THE PROJECT. THANK YOU.

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY	Y TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS	
	NEW INTERCHANGE – I-275 AT GRAVES ROAD	
	BOONE COUNTY	
	ITEM NO. 6-8953.00	
	COMMENT FORM	
	THURSDAY, NOVEMBER 1	
	(Planso Print)	-
Name:		
Address:		
City, State, Zip:		
	,	

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^{4t}) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

What describes your main interest in this project?

- 🔏 Resident
- X Landowner
- o Business Name of Business
- Concerned Citizen
- o Other

JS Proposed 1, Iali

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

ectod ai ZCKS On -

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

mues 0244 NN Estray. Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property: Sant have NA æ. OUN Quint

Do you have any additional information or comments concerning this project?

Where ヘアイ はっく housh 5 ears ñ7d Ke hty K We Time selling with Nave Mar-E this barging 60er us

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCH	XY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS
	NEW INTERCHANGE – I-275 AT GRAVES ROAD
	BOONE COUNTY
	ITEM NO. 6-8953.00
	COMMENT FORM
	THURSDAY, NOVEMBER 16, 2017
	(Please Print)
Name:	
Address:	
City, State, Zip:	

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

What describes your main interest in this project?

- X Resident
- Landowner
 Business Name of Business
 Concerned Citizen
 Other

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

To Whom It May Concern:

My home is located at **Example 1**. My family and many other families located on Watts Road are affected by this plan. My argument is Why Watts Road? If the effort of the project is to cause the least upheaval, then this plan fails that effort.

It was apparent at the public meeting the "elephant" that is the Graves farm. Could it be that this land is being held in reserve for the expansion of industry? Anybody can see that the exchange could be extended through the farm land south of I-275 to intersect with Petersburg Road at Bullittsville Road. The concerns: <u>Historic farm along Graves Road</u> and <u>Stream just west of Graves Road</u> could and would easily be avoided. As is, the proposed plan will cross the stream five times. Litton Lane could also be extended to join this exchange.

When asked about sound barriers for properties on Watts Road, one representative responded that no monies had been appropriated for that purpose. I find this difficult to comprehend. How can this be? Yet the proposed improvements include sidewalks. You are invading the homes of many, with little or no concern for the sounds that traffic will constantly produce in our living rooms, but instead value sidewalks and bicycle facilities above the daily impact we will be forced to endure.

Concerning is the fact that our property will be cut in half, as well as others on this road. We purchased this property fifteen years ago because it offered the acreage we sought and the tranquility that came with it. The value in our home is the land. This will leave us with less value for our home and traffic at our backdoor. Compensation? How could you possibly compensate us for our loss?

Sincerely,

B32

-

-





10

1.14

KENTUCKY TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1⁻¹) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

What describes your main interest in this project?

- K Resident
- X Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_

Ves the traffic and population have
increased the need for a new interchange.
Unfortunately, the people from KY 237 and
north of 1275 are completely infavor but their
homes are not the ones being effected by the new,
yvadi.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

I have attached a letter explaining my Do	sition
and my concerns reparding this project but	in short
my home for the last 15 years is being distroyed.	MV .
property, which is beautiful is being separated by	i the road
Teaving my home devalued and undesirable h	recourse "
of it's Broximity to the new exchange.	

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

November 27, 2017

6



RE: New Interchange –I-275 at Graves Road

To Whom It May Concern:

I have been a lifetime resident of Boone County and have witnessed many changes to the community over my 46 years. My childhood home was purchased by the Greater Cincinnati International Airport when I was in my twenties. This was my first real encounter with how the expansion of the community could personally effect my personal life; the place where my former home used to stand is now part of the airport property and I imagine to be located near the tunnel on Kentucky 20. While I realize the airport is a prominent feature of the Northern Kentucky area, specifically Boone County, it is sad to see people lose their homes in order to expand the commercial components of our community.

Nearly 15 years ago, my husband and I searched for a home with some acreage in the Hebron area. We were both teachers and wanted to find a home close to our families, close to our teaching jobs, and with land to raise our children. We were extremely excited when we found a home on Watts Road that was built on a little over 2 acres of land. The property was perfect for a swing set and a small vegetable garden in the back yard, it also had a small creek running through the back of the property that was perfect for us and our outdoor-loving children. The road itself was fairly quiet, the type of road that was so narrow that it was difficult to pass another car without inching into the ditch or pulling into a neighbor's driveway. We had found a place that we could raise our children and spend the rest of our lives.

Recently, our perfect little home has come into question. The county has grown tremendously and there has been an increase in traffic, specifically from companies such as Amazon located on Worldwide Boulevard and Litton Lane. This increase in traffic has brought the county to idea of creating a new interchange on I-275 at Graves Road. Although this is called the Graves Road exchange, it goes directly through the middle of my back yard on Watts Road. This interchange is designed environmentally so that it does not affect the water ways, which pushes it further into my yard. It splits our 2+ acres of property so that we have a beautiful creek in the back section of the interchange which will not even be connected to the front piece of land, making it completely obsolete. The proposed road will be in my back yard and completely visible from the deck on the back of our house. When talking with gentleman from the Transportation Cabinet at the Public Meeting, we were also informed that there is no plan to create any sort of visual or sound barrier between the proposed road and the existing houses. This

separation of our property and proximity of a road to our house takes away everything that once made our house perfect for raising a family and living out the rest of our lives.

At this point, even though we hate to lose our home that we worked so hard to find and have worked our lives to afford, our home will not be the same and has lost a great deal of its value. Although the county is likely working to purchase as little property as necessary, we hope that it is evident that the split of our acreage and the proximity of the road to our home has obviously decreased the value of our home but even made it an undesirable place to live. While we realize there will be a purchase of the piece of land directly necessary for the road and the second piece of land separated from the house, we hope that when the surveying is completed it will also be obvious that it is necessary to buy the remainder of the property along with the house. At this point, our home that we've have worked for has been taken away due to the expansion of the commercial activity within the county. We are only asking to be compensated for all of our property and our home so that we can begin searching for a nice, country home on a couple of acres that has not yet been effected by the commercial growth and expansion of businesses.

Sincerely,

B38

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #	IV	10BILE #

What describes your main interest in this project?

 describes your main interest in this project.
Resident
Landowner
Business Name of Business
Concerned Citizen
Other
A New Interchange and Road Needed.

Looks N:Ce

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

No preference	

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Not that KNOW

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

NIK

Do you have any additional information or comments concerning this project?

Concerned About tinffic largersing on 20 without Improve Ment	Er St Pilink
New Interchange Needs to be Simi Fiendly, ZZZ Sch al Worlds	J. RLA
is terrible of All the Curves.	CE DIVID
(polegand that down 11 1 Will 1 1 m m m	
New were not pull Engline and Trattic at 737	. WE NEED
	Some thisa
Life protect toom anneosistes ment 1 the two second second	

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
N	
PRO	ESS
MA	ING ESS
EI ADC	NL ESS
PH	NE #
Wbat	scribes your main interest in this project?
	esident
	andowner
0	usiness Name of Business
	oncerned Citizen

& Other "Quality of Life" Leins dectroyed in Boonse Co.

Yes a wew Gaves Rd interchange is Nocessprey to Replace the ICircular Night-Marc Church and e is Nocessprey to Replace the 1239 interchange NOTE: This will be necessary if this proposed Plan moves forward Further J-237 will have to be upgraded the H (Jour) lawes up to this interchange NO-Graves Rd. interchange CF275 is necessary i

2, Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Aleither of the Alternatives Shown For Williams Rd. ARN Acceptable, Hunaver, it is Noted that the preliminary plan shows excessive Relocation of the existing Graves Rd ("footprimet", this is particularly The case between the Park West, uncture and I-275 not vehossary.

3. Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

emotery -NAT LL: HSVFilly

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Why do you have preferred AlterNAtive Marked. ON BULLINSVILLE RIP BULLINSVILLE Christian Church is historical. It was built 1880.

5. Do you have any additional information or comments concerning this project?

4

Aug Graves Rd @1275 interchange Should de a "Carbox copy" of the I-1237 @ I 275 interchange @ Hebrow Several Farms Are historical in Boone Co. Our 400 Ar. farm has been in existence Since 1800's. We have lived here farming since 1950's.

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- Resident
- Landowner
- o Business Name of Business_
- o Concerned Citizen
- o Other_____

O Loop Class 10 100 His Life	
Ves The current flow of traffic due to wordwide	
huge and is preater than the curvent roads	
DUSINESSES IS yr care man ie carrier and	_
Can bandle.	_

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

the. back low M/GUI Vrefer and Tones. Montauas lines O - pmpe -44 f-the native O-f þ mirm'r image the MOT like prese not 1)0 n yet-0 lin ternative

Per day. Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cometeries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

٢	to Alternative "C" is able to handle trathice demands
L	AN ANUTICE IS WORD TO THE TOTAL
F	at increased traffic Plan and population with least
Н	(IT THE CUSED TRAILE THE CONTRACT TO THE CONTRACT OF
Г	The age is have the town of the the
	INDUCE AN TUNNING TUNNS. THE RECOVER ALL ALL
-	A Herocie "
	(DADILIVE WITH) WITH WITH THE C
F	

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:



B46

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print) Name: Address: City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- ✓ Resident
- d Landowner
- o Business Name of Business
- Concerned Citizen
- o Other_

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

tions

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1¹) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)			
NAME			
PROPERTY ADDRESS			
MAILING ADDRESS			
EMAIL ADDRESS			
PHONE #			

- k Resident
- & Landowner
- o Business Name of Business
- Concerned Citizen
- o Other_

<u>4</u>*ES*

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

NO

NO

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed 1-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1¹) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)	
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- & Resident
- 𝖉 Landowner
- Solution Business Name of Business
- Concerned Citizen
- Other_



Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

NEITHER BUT	BLUE	BELAUSE O	OF MY PROPERTY
LOCATION			
		<u>.</u>	

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)



Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

I'VE RAN A BUSINESS OUT MY PROPERTY FOR
OVER IS YRS AND AM CONCERNED FOR THE
FUTURE OF MY DRGANIZATION. THIS COULD EFFECT
OUR FAMILIES INCOME.

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)			
NAME				
PROPERTY ADDRESS				
MAILING ADDRESS				
EMAIL ADDRESS				
PHONE #				

- 🔀 Resident
- 🗙 Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_

a major traffic and a condents are_ have seen and The worst We lived We in - States (-M-F, midwest

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

pprove of Move forward ick as possible Manner Construction is. starting in lots a Section .

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUC	KY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS	
	NEW INTERCHANGE – I-275 AT GRAVES ROAD	
	BOONE COUNTY	
	ITEM NO. 6-8953.00	
	COMMENT FORM	
	THURSDAY, NOVEMBER 16, 2017	
	(Please Print)	
Name:		
Address:		
City, State, Zip:		

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- Resident
- o Landowner
- Business Name of Business_
- Concerned Citizen
- o Other_

Do you think	a new Graves R	oad interchai	nge is needed	? Yes / No.	If no, please ex	xplain why.
yes, it	is very	Much	needed	The	gnowth	on Hebra
VIAS	suppassed	the ro	ad on	237.	where we	needa
ana	WAY M	4 017	T	lants		

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

NOF CHRItca M 5 VIM) 3 NDI e a u cated NONG De PV WIIM ne βM

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

VIVIV VDUV this time Ŧ NA 1

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed 1-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)				
NAME	1				
PROPERTY ADDRESS					
MAILING ADDRESS					
EMAIL ADDRESS					
PHONE #		MOBILE #			

- Kesident
 - o Landowner
 - Business Name of Business_
 - Concerned Citizen
 - o Other_

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

NEITHER ONE IMPACTS ME NOW - BUT I AM WONDERING IF THERE WILL EVENTUALLY BE ANOTHER WAY OUT OF TREETORS SUBDIVISION THAT WILL TIE IN TO WILLIAMS BOAD OR GRAVES. OTNERWISE THERE IS TOO MUCH TRAFFIC ON SEQUOIA DR TO GRAVES-

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

WHAT WILL BE THE SPEED LIMIT ON GRAVES? 1 SORESEE 4 DEADLY INTRESECTION AT SEQUOIA 4 GRAVES

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- Q Resident
- o Landowner
- o Business Name of Business
- Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why. Some mmerrial ON 27 With AMINA

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

evenue TIPS VIOT act mo

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Not HAAF am AWAK

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)				
NAME					
PROPERTY ADDRESS					
MAILING ADDRESS					
EMAIL ADDRESS					
PHONE #					

×	Resident			-		
	Landowner					
	Business	Name	of Business			
	Concerned (Citizen				
	Other					

YES

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

THES	DOES	NOT	AFFECT M	ъ.		
·					 	
					 	<u>_</u>
				б	 	

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

THE TREES ON MY PROPERTY HIDE THE CLURHOWSE
& BRIDGE I BUILT FOR MY GRAND CHILDREN
THES WILL THE GRAVES ROAD EXIT WILL
DIVIDE MY PROPERTY AND LEAVE THESE
UN US ABLE.

Do you have any additional information or comments concerning this project?

THIES NEW ROAD NITH ALSO ELTOTE
THE AREA MY LRAND CHILDREN RIDE FOUR
WHEELERS AND PLAY.
THERE IS PROPERTY BEHIND LIBERTY CROSSINGS
THAT COMES ALMOST DIRECTLY INTO BULLITS JSUE The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:
Mike Bezold, P.E.
Kentucky Transportation Cabinet – District 6
421 Buttermilk Pike
Covington, KY 41017
ROAD, HAS THIS PEEN CONSTOERED, I' HOMES. BOZ

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)				
1					
NAME					
PROPERTY ADDRESS					
MAILING ADDRESS					
EMAIL ADDRESS					
PHONE #	MOBILE #				

What describes your main interest in this project?

Resident

- Landowner
- Business Name of Business_
- Concerned Citizen
- o Other

Yes

No

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

No Passesaanue

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

N/A

Do you have any additional information or comments concerning this project?

Neon THIS Dans ASAP !! THAMICS

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1¹) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:



- Resident
- Landowner
- o Business Name of Business
- Concerned Citizen
- o Other_

yes.		 	 	
0		 	 	

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Either way, I will be effected. My home is across
From Worldwide Drive

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

AN

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS NEW INTERCHANGE - I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print) Name: Address: City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^t) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- x Resident
- o Landowner
- o Business Name of Business
- R Other Semi-Regular Driver on Graves Road

Yes, it is necessary to help direct industrial traffic	away	
from 237. However, traffic at top of the Graves	Rd. I	N
feeding into the lane to the sight in order to merge onto 237	Wìl	
overload the roundabout traffic that is already congested.	Please	move
that merser farther below the roundabelt.		

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

No Preference - Do	not use	Williams Rd.	

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

above Traffic issue-see

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

MA	
· · · · · · · · · · · · · · · · · · ·	

Do you have any additional information or comments concerning this project?

NA	

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print) Name: Address: City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- & Resident
- X Landowner
- o Business Name of Business
- Concerned Citizen
- o Other_

wish it wasn't. Aveg destrains the think vou are

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

the Current One Use Mowing Down trees you are making it

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

effected my Property is further North Tan not another Eye Sore on the landscorpe of the the Name from Hobron to Urban Change

Do you have any additional information or comments concerning this project?

Kon need to do a much better lob unbanizion Area It is just plain getting (Aupon San example of 1.4 ZAULICAMA lessen_ th-

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFOR	MATION (PLEASE PRINT)
NAME		
PROPERTY		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		MOBILE #

- **Resident**
- 6 Landowner
- Business Name of Business_
- Concerned Citizen
- o Other

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS	
NEW INTERCHANGE 1-275 AT GRAVES ROAD	
BOONE COUNTY	
ITEM NO. 6-8953.00	
COMMENT FORM	
THURSDAY, NOVEMBER 16, 2017	
(Plansa Print)	
Name:	_
Address:	_
City, State, Zip:	

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^t) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)		
NAME			
PROPERTY ADDRESS			
MAILING ADDRESS			
EMAIL ADDRESS			
PHONE #		MOBILE #	

accertions from more than the second for the second s
Resident
Landowner
Business Name of Business
Concerned Citizen
Other

Re lievena The congrestion on 237 due to warehouse; prevented. would be

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)	
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- X Resident
- o Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_
Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Address:

City, State Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^{s}) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516 030, falsely completing, making, or altering this document with the intent to defraud, deceive or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- Resident
- o Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other

- Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

Noo The autocoph at a third the	
15. The current roads are unable to accompate all	
of the recent development in Hebron. The traffic has	
been a major (ssue.	P-1

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

have a american a sale to the the
LI TIME & DICTORENCE TO ODDIN "[." This alternative would fillow
the loop of the second second the second sec
The DUCK of the current property lines of Mightoya's and Jones
The next preterred alternative is "A" which is the mirror increase of "rill
ahoraorban Vibential Do Alar
LARBERT ADDOLLELY DU NOT MANT OUTOD "A" THERE IS DAMAGE
the mad it he also is a full the count of the second of th
FIE TURA WITT BE AME TO ALCOMODALE THE ESTIMATED A MAULT of crive or
day and would prease a parable same of the interaction of cours per
uny cina would create a normate (some of thing to reave our anneways.

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

Alternative "(" Seems like the past potopo since it will be ald-
to accompodate the increased traffic local Additionally this action
has the least impact in family farms Due to the includes
traffic demands. Alternate "C" with le be lost DO NOT I ANT OF OF
DE LECT DE LEC

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS NEW INTERCHANGE - I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print) Name: Address. City, State, Zi

Welcome to the Public Meeting for the proposed I 275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- 🗙 Resident
- 🗙 Landowner
- Business Name of Business_
- Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? (Yes/ No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

IT'S VERY CLOSE TOO, TENOT ON OUR SEPTIC TANK AND SAND FILTER.

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

THE ROAD NOT ONLY CHITS OUR HOME OFF OUR 28 ACRES AND LEAVES IT AN A YERY SMALL PIECE OF LAND, BUT ALSO DESTROYS THE REASON THAT WE BUILT WHAT WE DID, WE HAVE A GLASSED IN PATIO AND AHOTTUB, AND A FAMILY ROOM WITH 144 SQUARE FOOT OF WINDOWS AL OVERLOOKING OUR WOODS, THIS ROAD DESTROYS OUR VIEW AND PRIVACY. IF IT CAN'T BE MOVED FARTHER SOUTH, WE FEEL THATYOUS HOULD PURCHASE THE HOUSE, WE HOVE BEEN HERE FOR 51 YEARS. The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

.

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)		
NAME			
PROPERTY ADDRESS			
MAILING ADDRESS			
EMAIL ADDRESS			
PHONE #			

- Resident
- Landowner
- Business Name of Business
- Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed (Yes /No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

ALT A cannot handle 4500 (Brad Johnson quete) cars/day - It Will cructe a horrid bottom neck, in addition more of us will be oble to expit our driveways. I propose ALT C included with this letter. It avoids splitting our farms, and the terrain is not difficult for leveling,

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please use ALT C 10; it eliminates traffic botton necks. It follows property lines in the back of (North) Jones and Mantayes (Map enclosed)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

I do not like ALT A or B as Williams Rd cannot handle treffic from 419 homes to be Built at Traditions, por Kingleys, nor Thornwilde; Build at the back of Jones & montages, allowing access also to Jde Arlinghas Nomes traffice

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Mike Bezold, P.E. Kentucky Transportation Cabinet – District 6 421 Buttermilk Pike Covington, KY 41017 12

Æ



B83

, in the second s

.

.

B84

Name: Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1¹) of this Public Meeting. A selfaddressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONT	ACT INFORMATION (PLE	ASE PRINT)
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #	MOBILE #	
What describes your main into Resident Landowner Business	erest in this project?	I Live on Gnaves Rd VIG - Treetops We up to Gnaves. My prop Could Be affected dep

on how you deter

Inical - I don't

With

design -

- Name of Business Business C
- **Concerned** Citizen a
- Other

/ AINAN

nichtimare + truchs have no place OWN their

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

counc up to the Fire Station hill please address on ice kink in the winter cans Stuck with even tow trucks stuck @ A150 - I'm concorke + hono noise once you evand lanes + Trathic Vow hal a thing will be done to provent traffic from South) from aething three Treefops to get to inter change The project team appreciates your input and will use it to assist with the decision-making process as SAUTH

the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Mike Bezold, P.E. Kentucky Transportation Cabinet - District 6 421 Buttermilk Pike Jou Adress Covington, KY 41017 Mun off ? Currently we have an open ditch & Water Bain off ? Currently we have an Open ditch & Water

I do think the traffic in Hebron needs to be addressed. And, a second interchange to 275 will likely help with the traffic that blocks up heading to the current 275 interchange. It is dangerous for the traffic to back up down 275 at the Hebron exit. And trucks are sitting everywhere with no place to go. They pull off on the roadside, park in our grocery parking lots, behind subway, and along the road by speedway. They need a place to park, eat, and shower.

Growth is a good thing but now we have some issues to address. Unfortunately for me I live right on Graves Rd. Looking at your design it doesn't appear you will actually take any of my property. However, it is a known fact living by a highway that is going to have a good amount of traffic, 4 lanes, and noise, is not going to help me when it comes to resale. In fact I can expect to lose up to 20% of the value of my home. Combine this with airport noise and wow! I have lived here 17 years and never expected a four lane road to be built behind me. There are studies one can refer to which proves the new road will indeed reduce the value of my home up to 20%. So I have mixed feelings about the purposed road. We do need it but I hate to lose up to 20% value of my home. I'm assuming unless you actually take property there is no compensation for this type of loss.

I have a huge concern regarding noise. I don't want noise to bother me and I already know it is going to impact resale. I also have a concern about water runoff. We get the water from the top of Treetops. I hope you will note grade when building this road and possibly improve the runoff process currently in place. We just have a ditch and the water runs like rapids in a good storm. And on a few occasions the water has rose above and crossed over Graves Road. Also the steep hill going up to the fire station is a sheet of ice in the winter. People get stuck and get out of their vehicles. I look out my kitchen window and pray they don't get hit. So hopefully the area behind my home will be built up to remove some of the steeper climb. Thinking you will probably design the road to be built up higher is why I have a water runoff concern. We really can't take any more water running down on us. It tears up our lawn equipment, and stands in our yards. And finally, I am concerned folks from Thornwilde, Deer Creek, North Point and other lower subdivisions will all cut through Treetops via Treetop lane to Sequoia to Graves to get to the new interchange. This will increase traffic in our actual subdivision creating additional noise, safety concerns for children,

joggers/walkers, pets, and drivers. For most of these drivers Treetop lane would be quicker than using Williams Rd.

4

I understand something has to be done to address traffic. This traffic is certainly annoying. And I'm hoping the new road would give some much needed improvement. I just wish I hadn't purchased right on Graves Rd. Others located further away (from the actual lanes of the road) may not have a loss in value of their homes.



Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- Resident
- Landowner
- Business Name of Business
- Concerned Citizen
- Other_

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

NO Preference

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

LIVING ON GLAVES RO (South SIDE OF BRIDGE) I (WE) ARE VERY DIS REASED WHAT THE IDEA OF AN ENTRANCE RAMP SO CLUSE TO OUR PROPERTY, WE WOULD PREFER THAT WE WERE BOUGHT OUT, INSTEAD WE ARE ALSO CONCEDNED WITH EMERGENCY ALLESS (IF NEEDED) BEING CUT OFF BY THE REMOVAL OF THE EXISTING GRAVES Rd. Bridge.

1.15

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Mike Bezold, P.E. Kentucky Transportation Cabinet – District 6 421 Buttermilk Pike Covington, KY 41017

B90

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed 1-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)	
NAME		ľ
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- Resident
- Landowner
 Business Name of Business_
 Concerned Citizen
 Other_____

Do you think a new Graves Road interchange is needed? Yes (No) If no, please explain why.

a new At 20 will not carry the truthing or will need to be rebuild.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

NO

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

NONE

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- 🕵 Resident
- 🗙 Landowner
- o Business Name of Business
- 🖌 Concerned Citizen
- o Other___

Yes, 1	My daily	1 commute i	5 Rt. 20	/Graus/	Worldwide	70 23
and	back 1	every day.	Somethin	s needs	To be done	to the
the	e current	traffic is	SUP 5.	7		

C

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

			17 V 1 S 1 - 0 - 1 -	112
	A			
least number of	t Tamilies	mo papertie	_ ک	
		<u> </u>		

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)



Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

ODP

Do you have any additional information or comments concerning this project?

I think the project is way bigger than it needs to be, both
Size lexpense and impact on too many people's lives. Leave Grows
along from the fire station to 277. Traffic there is not that bad.
Make the changes to Graves only from the fire station to the
other side of 275 and put the ramas on Graves. If you must connect to
Bulletsuille Rd, do so at the correct spot and not take out so many homes.
The project team appreciates your input and will use it to assist with the decision-making process as $This$
the design advances. Please return this form tonight at the registration desk or mail by December 1, should
2017 to:

Mike Bezold, P.E. Kentucky Transportation Cabinet - District 6 residents, not displace 421 Buttermilk Pike Covington, KY 41017

them.

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

•	Resident	
	Landowner	
	Business	Name of Business
	Concerned	Citizen
	Other	

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

relieve 237 concestion Yes widen out interchance and in to the 4 lan tox puyers reques chet. Droper) m me au 2 tazour q 1x YULS

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

I prefer the lad Route Ai	TA. Eventualy Tree-top Lane is probably	
going to join Williams	5 Road. This geometry will	
make it pasier.	, (

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

when to ever to do to 237 the one lang roundabil
setup eoverpored has been a traffic deback especially
as you close Graves Road due to road work
Sendon't some one to watch the traffic - it backs up forwith
lights to Industriant Park to the other side of Thornwilds -it is said

Congestion from 16 45 to \$30 and one reverse in evenings it backs up Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

 	 	<u></u>	 	 	 _
 	 -				

Do you have any additional information or comments concerning this project?

Duyou want to fix 237 first. Your first
attempt was a failure. You may want to fix it
before you turn it into a parking lot by closing Graves.
Many people in Treating and Thornwikle as out Graves because
traffic is at a crawl every day. Rip out the but lanes that whit and
any use and make a proper 4 lane . Bud to handle the traffic flow

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- ✓ Resident
- o Landowner
- o Business Name of Business
- S Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFOR	MATION (PLEASE PRINT)
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		MOBILE #

- Resident
- Landowner
- Business Name of Business_
- Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Yes/ No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Red-Alternate A		 	
	<u> </u>	 	
		 <u>.</u>	

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

No.

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

None

Do you have any additional information or comments concerning this project?

I sincerely hope that in adding the long A light is added at
the intersection of North Bend Rd (237) and Graves Rd.
Keeping A roundAbout would be a major mistake when more
lanes are added,

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY	Y TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS	
	NEW INTERCHANGE – I-275 AT GRAVES ROAD	
	BOONE COUNTY	
	ITEM NO. 6-8953.00	
	COMMENT FORM	
	THURSDAY, NOVEMBER 16, 2017	
	(Please Print)	
Name:		
Address:		
City, State, Zi		

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1⁻¹) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- 👞 Resident
- o Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Yes/ No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red/ Blue. Why do you prefer this alternative and/or not prefer the other alternative?

less chui	irromental impaut	

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Γ Λ A	
· · · · · · · · · · · · · · · · · · ·	

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

15 formal 461 e nts (O.S. 6 JW CESI

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A selfaddressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #	MOBILE #	

6U U -	describes your manner in the
D	Resident
	Landowner
	Business Name of Business
	Concerned Citizen
	Other

Do you think a new Graves Road interchange is needed? (Yes) / No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

RON

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

NAERDUS and

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed 1-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^t) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- Resident
- Candowner
- Business Name of Business
 - o Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Oin-VANYAIN

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

Nahaa

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- o Resident
- o Landowner
- o, Business Name of Business_
- Concerned Citizen
- o Other

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

hastructure no lo the Nards

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

rustion inales

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

no

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

bre

Do you have any additional information or comments concerning this project?

hould Sparing be-used and with Con

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #	MOBILE #	

- o Resident
- o Landowner
- o Business Name of Business
- 🔀 Concerned Citizen
- o Other

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

YES - BOONE COUNTY SMOULD HAVE .	MAPE 2	237
4 LANES ALL THE WAY DOWN TO RT. 8.	THEY DI	D NOT
AND IT MAS CREATED MAJOR TRAFFIC	ISSUES	on
237.		
	· · · · · · · · · · · · · · · · · · ·	

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

- JUDGING I WOULD ASJUMO REN WOULD COST LESS DUE 70' LENGTH. A.SO.B WOULD CUT THROUGH A MORSE FARM ISHICH BELIEVE OREATES SOME CHARACTER AND REATIVELY UNIDUE

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

AM AWARE DF NONE THAT I

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

DOEJ NOT APPLY TO MY PROPERTY

Do you have any additional information or comments concerning this project?

PLANSING CORKANIS/100 THE BOONE COUDTY TO GET THINGS RIGHT TIME FARST TIME 65/7H NEED TO CONCERN THEMSELVES INSD/111 JUST AREES COMPANY ANSD PRANC AND NOT LLC

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- 🜮 Resident
- Landowner Business Name of Business Concerned Citizen Other_____
YES, THERE IS HEAVY TRAFF COMMING FROM WALDWORE BLVD WHICH SAVSES BACKUPS ON GRAVE RP PAST WILLIAMS DO AND BACKUPS ON WILL VAMAS Q V. THE ALTA (RED) WOULD 306V THIS PROBLEM.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

ALT, A(RED) 15 THE RD, I PREFER. ALT, B(BLUE) 16 NOT THE GNE THAT WILL IMPROVE MY PROPERTY ALT B(BLUE) WILL DISTROY MY PROPERTY, TAKE AWAY MY FARMING INCOME OTHER THAN MY RETIREMENT INCOME. IF MY PROPERTY IS CUT BY YOUR PLAL "B" HOWWILL I MANE MY FARM EQUIPTMENT FROM ONE SIDE OF THE

ROAP TO THE OTHER SIDE, IF HEAVY TREFEL (VERY LAST), NO WAY. Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

- U	
2	THE BLUE ALTE CUT MY PROPERTY (BAD IDEA), THERE IS A LARGE
0	ZOWMP ON THE EAST SIDE OF MY PROPERTY IN THE PROPOSED
Ċ	JUBPINISON THAT WILL HAVE TO THE REMOVED I HAVE TOLD BOONE COP
	PTZ FBOOT IT BERORE, NO ACTION.

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

DON'T KNOW OF CHANGE EXCEPT ALT A (RED) ISTHEREST INAY 10 GO, PLAN ALT B (BLUG) WILL DISTROY MY PROPERTY ANDELIMINATE MY FARMING INCOME. WHY WOULD YOU WANT TO DO THAT?

Do you have any additional information or comments concerning this project?

IT APEARS TO ME THAT ALT B(BLUE) WOULD BE AGREATER COST TO THE STATE THAN ALT A(RED), COST COUNTS, USE ALT ARED IF YOU WANT A GOOD TRAFFIC FLOW

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)	11月
NAME		
PROPERTY ADDRESS		-
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- Resident
- o Landowner
- Business Name of Business
- Concerned Citizen

December 2, 2017

KYTC District 6 Mike Bezold, P.E. 421 Buttermilk Pike Covington, KY 41017

Dear Friends from KYTC, Boone County residents and Community of Graves and Williams Roads,

The need for a Graves Road interchange is to alleviate traffic congestion and provide industrial park businesses the convenience to produce and deliver products quickly and easily. Worldwide Blvd businesses provide jobs for our area and are good neighbors. Our community has witnessed unprecedented growth not only with industry but an abundance of new homes mainly in the Thornwilde/Treetops communities. Residents appreciate this opportunity to give input for our new Graves/Williams roads interchange. Personally, our home will not be affected by the new interchange. Hopefully the outcome for us is a quicker access to Interstate 275, improve safety and property values. Boone County elected officials are to be commended for masterfully handling this and many other roadway projects...

The proposed reconstruction of Graves Road will force the relocation of Williams Road intersection. November 16th public meeting allowed our community to give thoughts and concerns since we live here and will benefit the most. Although that does not come without sacrifice for some.

After studying the map given to us and explanations by people like Carol Callan-Ramler, without a doubt <u>Alternate Plan A</u> is the best choice for Williams Road. It hugs close to the new west bound expressway ramp and the new Graves Road as it continues in a north-east direction. Construction could benefit if the two new roads run parallel and adjacent as <u>Plan A</u> suggests. I am concerned about those two homes located near beginning of new <u>Alternate Plan A</u> from existing Williams Road, can the westbound ramp be slightly moved to clear those homes?

<u>Alternate plan B</u> cuts thru the middle of numerous properties that still are working farms with cattle and horses. As a community we all enjoy seeing these animals, it gives a touch of Bluegrass right here in our own neighborhood. If <u>Plan B</u> were used those properties will most likely be swallowed up by more residential or industrial growth. We need to keep balance of green space with new development if possible.

It appears with either <u>Plan A or B</u> quite a few homes and properties will be sacrificed in the process of construction. Those properties most affected should receive counseling to relocate and fair compensation. Ideally there would be a plan in place for borrowing money at a very low rate or possibly a zero-interest rate. This planning would go a long way for those property owners to recover and have a positive outcome. There must be a way to make it happen for both sides!

We appreciate the presentation, video and map handouts. Hopefully by April 2018 we will be another step closer to a better life for all of our community.

Respectively,

KENTUCKY TRANSPORTATION CABINET - DEPARTMENT OF HIGHWAYS **NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017** (Please Print)

Name:

Address: City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A selfaddressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)					
NAME					
PROPERTY ADDRESS					
MAILING ADDRESS					
EMAIL ADDRESS					
PHONE #	MOBILE #				

- Resident
- o Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

ALT. & has limited Revelopment opportunity on its SE side, Does Not ARONESS the Near 90° toon Williams Road new and looks to Acceptate it with its costiguization This is a Langerous toon now and if Alt A stays as A 2-lane it would a problem. Alt B offens More Revelopment opportunity on each sile and it leaseds traffic that Alt A causes Near & though ask would be the

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

W- like the connection AT fiquere GRAVES KY 20 Re- CON RUAR_ that alimontes A Rifficelt intersection

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)				
NAME				
PROPERTY ADDRESS				
MAILING ADDRESS				
EMAIL ADDRESS				
PHONE #				

- o Resident
- Landowner
- Business Name of Business
- Concerned Citizen
- o Other

Do you think a new Graves Road interchang	ge is needed	Yes No. If n	o, please e	xplain wh	у.
EXISTING IN TEA CHAU	NOE ON	NORTH	BEND	KOAD	
ESPECIALLY WITH	ALL	WALENOUS	DAY, Er Ar	WAT	Exi

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

LED AFFECTS FEWER LANDOWNERS EXISTIN & SPAULDING, + OVF MONTO WOULD EACH BE FARMS MALF WHICH RE DUCES VALUE MORE CUY YMAN JUST TAKING WUPLE ACRES.

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

OUL KNOWLEDGE TV. NOY

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

WARD PROBLEMS ASAP TRAFFIC OR ON 237 FOR AMAZON PRINELT AIRPORT

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCK	Y TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – 1-275 AT GRAVES ROAD	
	BOONE COUNTY	
	ITEM NO. 6-8953.00	
	COMMENT FORM	
	THURSDAY, NOVEMBER 16, 2017	
	(Please Print)	1
Name:		
Address:		
City, State, Zip:		-

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)						
NAME						
PROPERTY						
ADDRESS						
MAILING						
ADDRESS						
EMAU						
ADDRESS						
ADDRESS						
PHONE #		MOBILE #				
1						

- o Resident
- Landowner
- Business Name of Business_
- Concerned Citizen
- o Other_

1	Do you th	ink a new (Graves Road	interchange is	needed Yes	No. 1	f no, please explain why.
		100	MUCH	TRAFFIC	eN	237	JNTERCH ANDE
_							

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

BED ALT A
THIG PLAN TRES NOT OUT THROUGH FADME
BUT GOES TOWARDS EPOSS AFFECTS
EWER PEDRIE

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)				
NAME				
PROPERTY ADDRESS				
MAILING ADDRESS				
EMAIL. ADDRESS				
PHONE #				

- Resident
- Q/Landowner
- o Business Name of Business
- Concerned Citizen

or Other Taxpayer and Farmer

Do you think a new Graves Road interchange is needed? Yes (No.) if no, please explain why. don't believe this is the right placement for the 1-275 Interchange I loss that it would be es Rd tert april letero it is I catled further west. This is In ment hero/Hho will be. This inthehange will be reddated be and One construct it. you can holes close tu magstion by creating Lanes over whild they want to load and unlited. to

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red/ Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Yes, Red ALTA would be less disruptive to home owners. The majority of Red ALTA is owned by a developen and does not live in our community. Red ALT would be less expensive. It would have less of an impact on the environment. Forest streams wildlife and family forms would not be destroyed. Why didn't you offer Tree Top dame as an alternative routs ? It will be a direct pall that was open up onto environ Rd. at the yway stop.

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

ere is a molel on nur. properti been told-th with water and proplied the Williams Rd Community. to be evaluate to bacco bain that nee oriety to see if it meets hen requir in n register.

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

-(prou blue anothat in going there is a bia Ues. torse faim- (had was not- (here belook

Do you have any additional information or comments concerning this project?

home. This is where our childre in AUN. Idren come and ride andthi and We hope that it well anto. enjour 02 ela_ naise h m

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:



- o Resident
- o Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other !!

• • • • • • • • • • • • • • • • • • • •	1 (F)	
LIES OPFINITELU	4 To 14	5
	2016 ^{- 19} 960	
	Acres to app	

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

.1.4

LI CHOOSE ODION	Rea. This cloes not he	ed to be
through the golf (ourse be prefer that lead	the RAMA
Came SEF OF Grave	5 Road, There is Ao reaso	n-to Pan
More that a QDWD	I DIMAMO When it is not e	Gillipped Fa
H. L. bither ONP 530.	corxprate,	
IN THE REPORT TRUE TO A		

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

FOODLE TOUL LAD	10 CEKINI COMUN	a drugt sou	they
	1000 Andrew Atte	to to be AL	- IN-
ALL LIVELT LATE	A CARA ALCING		- 07
the side of	NOVES BOULTHE	re 15 pino	4 012
PPON LIOND.	TIGAS NOUCHIC	UR	
- FRANCERE			

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16. 2017

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)	
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- **e** Resident
- Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

ar Const OPA

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

We are	B Worse	Totent 1	facility	that Utiliza
all our ac	rayl. Wi	the F	as inf -	gracery of Hay
and C	razing of	m	houses	

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

tr Qu

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCK	Y TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS
	NEW INTERCHANGE – I-275 AT GRAVES ROAD
	BOONE COUNTY
	ITEM NO. 6-8953.00
	COMMENT FORM
	THURSDAY, NOVEMBER 16, 2017
	(Please Print)
Name:	
Address:	
City, State, Zip:	

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- 🗶 Resident
- Landowner Business Name of Business Concerned Citizen Other

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

RED-	LESS	INTRU	SIVE	ROUTE	e	BLUE	CUTS	PROPLES	
	PROPE	RTY ;	er t	HALF.					

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

I	Do	NOT	KNOW .				
				 	 _	_	

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

A./A			
NH	 	 	

Do you have any additional information or comments concerning this project?

A CIGHT AND	SOUND	GREEN	SARRIER	NEEDS	TO
A SLOTI AL	PETUISELL P	ELDOENCE	REAR	YARDS	AND
BE DUILI	SRIVILRY N	NYLPICIO	P ECPB	CEPIL-V	ON
NEW IFEGIFORAY	ATY WELL	MJ ICAMI	1 R 7 1 ~	DEMP	
THE SOUTH E	EAST STOL	OF NAW	12040 1		

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	MOBILE #

- Resident NEARBY
- o Landowner
- o Business Name of Business
- Concerned Citizen
- o Other

Do you think a new Graves Road interchange is needed? Yes No. If no, please explain why.

e was this Two alternatives to relocate Williams Road are shown on the display. Do you have a preference Red/ Blue. Why do you prefer this alternative and/or not prefer the other alternative? busic 103. me

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET - DEPARTMENT OF HIGHWAYS NEW INTERCHANGE - I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print) Name: Address: City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1¹) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)	ł
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

What describes your main interest in this project?

Resident
 Landowner
 Business Name of Business
 Concerned Citizen
 Other

Ton much Reads 710 Slx 10011 n sader al Unieha 100 DOICE

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red/ Blue. Why do you prefer this alternative and/or not prefer the other alternative?

na Vo. tarners need 1. Mal Sead Nn Avellor Sot. Sproche Inill linit SOOC Libur NATE Togo To Put in the their Blick of these Farks?? 448 Willians aliady is- the Hin 1005 SANCE Dath Clint rontly rosides (or USUS) HILS ACCUL Shauld hube 4hIG roli-20-

Purchased allore property de one of These is Horse FARM. They compete Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.) Maticnally and have vistors from different (builtries to lock at their horses, to this new KENTUCKY? Know Ho the base (Apital of the board of the base failed heant that type of poblicity? Gerong Horse Farms out? The red one is also shorter a woold lost THY PAYERS Loss provide

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Mar ausneit Scupe have much more improvedents Most Pronorthos to them

Do you have any additional information or comments concerning this project?

was told as the monting "school preas" moded bether acress to Graves. There is bus that aressis Thilliams Reads George to Graves! That the Golf course owner of the Low Sing Development 010 Williams 11 this is for Prevale Gain' thi Pritte Gr BIUD AW 1/10 alraddy port in a nother road ales. avent projects Annictury ylen 40 Graves a former LAND OWNER'S he MES & Property when you don't have / need, why disiup

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- Resident
- o Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_

Ves	t, t, t,	The	War	chouse	tre	thic	nerds	its
	own	Q CC	CSS	route	to	elim	inalc	(ongest
	fur	homeo	wner	tra	ffic	on	Route	237

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Prefer R	oute A, u	which does	not take very much
homeowner	property.		
Pakas P		A 11 1	
option D	DCUCP12	Arlinghaus	Duilder only.

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

This	is	YON	job to	90 9	isk	these	questions
40	the	home	COWNER	s Vou	the	state	necds
	40						
	<u>do</u>	Your	due	diligen	ce.	Poor	trasparen

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS NEW INTERCHANGE I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print) Name: Address:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^t) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

What describes your main interest in this project?

• Resident

City, State, Zip:

- o Landowner
- Business Name of Business
- Concerned Citizen
- o Other_

	• {
It is needed only because, Hmazon S	en s
ave touming to make the tarm onto	a
rural road	

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

		Δ	N		
Red tollo	ws existing	Road	- Does	NOTARSHOU	
tamely 7	arma that	bave,	pelonged	to	
Local Re	udents for	gener	ations		
		7			

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

×			*			
We realize	HMILIZON S	> \$ 15	. LMOR	DVton	10	1
BOONC CO	ulty but	- 50° av	e the	Veside	ents a	md
Their proper	Fies Book	1e Ctu	plann	ing is		
notorious f	or not bu	cikling 1	MAras	structu.	re, fl	lt
before develor	pment or :	thinking	long	Ferm	•	
•				1		

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET - DEPARTMENT OF HIGHWAYS NEW INTERCHANGE - I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print) Name: Address:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFOR	MATION (PLE	ASE PRINT)
NAME		SAME	ABOVE_
PROPERTY ADDRESS			
MAILING ADDRESS			
EMAIL ADDRESS			
PHONE #		MOBILE #	

- Resident
- Landowner
- o Business Name of Business
- Concerned Citizen
- o Other

LEF NO -	
SHOULD HONE BEEN THOUGH	
ABOUT BELIKE AMAZEN BULLET	201
	16.16

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

NOT $\mathcal{O}\mathcal{O}$ PERSONAL TAKP. LANT Dropertzes/ FARMS Boono Prause PISS OOR 21annin NRON Â.

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)						
NAME							
PROPERTY ADDRESS							
MAILING ADDRESS							
EMAIL ADDRESS							
PHONE #	1	MOBILE #					

- 9 Resident
- o Landowner
- o Business Name of Business_
- Concerned Citizen
- Other

Yes.	 	 		 	
/	 	 			
	 	 	<u>.</u>	 	
	 	 		 _	

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Mha

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

entrance into Treetops from the N)en) JHAVED ROOM

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed 1-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLE	ASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	
What describes your man and a compared of the second of th	
Business Name of Business Concerned Citizen	B14

yes - the noads need to be updated to	handle not only
The volume, but the truth traffic	Too of ten, truch
Cannot exit to Rt 20 due to their size -	causing them to
overdue. Trying to excit Growes- the	is update is far

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Alt 7	- Ru	d- 9+	mai	n tain	sa	semblar	ice of	the	original	William
	une	OWCS N	not C	ut fa	rimo	in that	b		0	

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

NIA	
/	

Do you have any additional information or comments concerning this project?

Senoldant you leading look N7 A Inward to driving on V tool Finished road

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Diago Drivet)

Name:	
Address:	

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A selfaddressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)				
NAME			_	
PROPERTY ADDRESS				
MAILING ADDRESS				
EMAIL ADDRESS				
PHONE #		MOBILE #		

- Resident
- o Landowner
- Name of Business o Business
- o Concerned Citizen
- o Other

Warehouse the Arc on 237 is too much

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Loss impact ou NOD, OWWERS

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A selfaddressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)				
NAME				
PROPERTY ADDRESS				
MAILING ADDRESS				
EMAIL ADDRESS				
PHONE #		MOBILE #		

- Resident
- o Landowner
- o Business Name of Business
- · Other alwale treffic conjection on 237
Do you think a new Graves Road interchange is needed Yes No. If no, please explain why.

les

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red/Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

D

Do you have any additional information or comments concerning this project?

projed NOCK no

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET - DEPARTMENT OF HIGHWAYS NEW INTERCHANGE - I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 Name: Address:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1¹) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)						
NAME							
PROPERTY ADDRESS							
MAILING ADDRESS							
EMAIL ADDRESS							
PHONE #	MOBILE #						

What describes your main interest in this project?

City, State, Zip:

237

Do you think a new Graves Road interchange is needed? Yes No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Red			

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:



- Resident
- o Landowner
- o Business Name of Business
- Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

See	attached	Comment	Sheet	

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

See	attached	Comment Sheet

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

See	attached	Comment	Sheet	

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

See	attached	COMMENT	Sheet	

Do you have any additional information or comments concerning this project?

comment sheet SEP hed $\Omega +$

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

Question 1:

To help alleviate congestion possibly, but why are other alternatives not looked at. Traffic would not be as bad if the bridge over I-275 would be moved to the east and a four lane road be build through the Amazon parking lot. All the Industrial Park related traffic could use this rout as well as residential traffic once the Williams Road improvements are done.

Question 2:

The blue alternative makes the most sense. With Williams Road even at the current design it has become a dangerous road to travel. Traffic violates the 35 MPH limit already by an average of 20 MPH or more. By adding another dimension to the curvature of Williams Road, as well as a near right hand curve at Worldwide Blvd shows how flawed this design is. But why does the Blue (B) change has to have the curve behind the Montoya property? Why can it not be straight through, avoiding most of their farm, and again eliminating most of the curve at Worldwide/Graves Rd?

Question 3:

During this entire informational meeting, I did not hear one solid committal to reducing the noise impact on current residents directly affected by moving the bridge, putting in the ramps to the west, as well as adding a west bound extension to I-275 past Graves Road. All I got was "we are looking into the possibility of expecting erecting noise/sound reducing walls." And "the cost will have to be justified based on how many properties are impacted." If you don't have those answers by now then it is clear that no walls will be built. This is as important as any construction or road design and to not have any solid decisions at this time tells me not to hold my breath waiting for any.

Question 4:

Not applicable

Question 5:

I live at

and it is the

When

we build out home in 1990, traffic on eitner road was very limited and easily tolerable. Now, and ever since Boone County's Judge Executive and the Planning and Zoning Dept has permanently ruined my property value and any outdoor activities. Today you cannot carry on a conversation outside without yelling, as well as having to turn up the volume on the television. Sleeping at any time of the day is affected by the constant roar of road noise and semi's. This project will only make things worse as the west bound ramp is near my property and traffic will be trying to get up to speed well after they pass my house. Because of my close proximity to I-275 we have been robbed and burglarized twice. We don't have any sense of safety or peace of mind. Please, not only consider but build a suitable noise reducing wall.

B154

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name: Address: City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- O Resident
- o Landowner
- Business Name of Business
- o Concerned Citizen
- o Other

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue) Why do you prefer this alternative and/or not prefer the other alternative?



Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Not	+0	my	Knowl	edge.	 	 	 	

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

None	-Huat	I	Knaw	0.40	 	 	 			
 					 		 		-	
		<u>.</u>			 	 -	 			
					-	 	 	_		

Do you have any additional information or comments concerning this project?

how

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCK	Y TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD
	BOONE COUNTY
	COMMENT FORM
	THURSDAY, NOVEMBER 16, 2017
	(Please Print)
Name:	
Address:	
City State, Zip:	-

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- **F** Resident
- o Landowner
- Business Name of Business_
- o Concerned Citizen
- o Other_

bo you think a new Graves Road interchange is needed? (Kes) No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Hue Why do you prefer this alternative and/or not prefer the other alternative?

Blue But Would Prefer Alternative "C". The Road Should Came Off	-
Graves Rd By Worldwick Blud and Go Straight Along The "Old Westz" Fairy-	76
Thornwilde Elementary Schools and then Turn South To Ment, W. Hisins R. d.	
The New Rd Sald Be an the Developers Land, I should NOT have to Lose	M
Front Yourd To Meet Road improvements To Accomidate Developers Increased	Nel

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

The Road Needs To Ga Across The Developers Land

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

From Graves (At Nouldwide) Straght To Thounarlde Alternative. Elementary

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)			
NAME			
PROPERTY ADDRESS			
MAILING ADDRESS			
EMAIL ADDRESS			
PHONE #		MOBILE #	

- 🗴 Resident
- o Landowner
- o Business Name of Business
- Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Yes / No. If no, please explain why.

Mh splutely The traffic is already terrible

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

The blue looks more direct but either would work

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^s) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- X Resident
- 🗙 Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Ves No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red /Blue. Why do you prefer this alternative and/or not prefer the other alternative?

THERE IS NO WAY POSSIBLY THAT WILLIAMS ROAD CAN HANDLE THE INCREASING TRAFEIC ON ALTA. WITH THE CURRENT CAPACITY OF THE ROAD

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM THURSDAY, NOVEMBER 16, 2017 (Please Print)

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		

- 🗙 Resident
- o Landowner
- o Business Name of Business
- o Concerned Citizen
- o Other_

Do you think a new Graves Road interchange is needed? Yes No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Blue Decane the Red route uses too much of Williams road
Which is very narrow and has a dangerous trant turn in it.
It is a blind 90° turn which needs to be fixed if the
Red route is chosen. It is a head on collision waitin
to happen

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

better And the Blue route could he Snonch be straighte.

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY	Y TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD	
	BOONE COUNTY	
	ITEM NO. 6-8953.00	
	COMMENT FORM	
	THURSDAY, NOVEMBER 16, 2017	
Name:		
Address:		
City, State, Zip:		

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1st) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

CONTACT INFORMATION (PLEASE PRINT)		
NAME		
PROPERTY ADDRESS		
MAILING ADDRESS		
EMAIL ADDRESS		
PHONE #		MOBILE #

P/	Resident	
	Landowner	
	Business	Name of Business
	Concerned	Citizen
	Other	

Do you think a new Graves Road interchange is needed? Yes? No. If no, please explain why.

Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

tastion, move will impac 4 of or

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:

KENTUCKY TRANSPORTATION CABINET – DEPARTMENT OF HIGHWAYS NEW INTERCHANGE – I-275 AT GRAVES ROAD BOONE COUNTY ITEM NO. 6-8953.00 COMMENT FORM

Name:

Address:

City, State, Zip:

Welcome to the Public Meeting for the proposed I-275 Interchange with Graves Road in Boone County. The purpose of this meeting is to present the preferred alternative and gather public input regarding the proposed improvements, address project concerns, and confirm property ownership. Please be aware that the proposed interchange and adjacent improvements are awaiting final approval from FHWA and KYTC.

We appreciate your attendance and encourage you to complete and return this comment sheet this evening or by mail within fifteen (15) calendar days (December 1^t) of this Public Meeting. A self-addressed stamped envelope is available. A court reporter is available to accept and document all oral comments.

Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

Please note that the existing property lines shown on the meeting displays are preliminary only, developed from PVA mapping and records. As the project advances into final design, survey crews will be locating the property corners for each of the affected parcels. If you own property that is affected by the project, please help us improve communication during this phase of the project by supplying the following information:

	CONTACT INFORMATION (PLEASE PRINT)
NAME	
PROPERTY ADDRESS	
MAILING ADDRESS	
EMAIL ADDRESS	
PHONE #	

- Resident
 - Landowner
 - Business Name of Business
 - Concerned Citizen
 - Other

Do you think a new Graves Road interchange is needed? Yes (No.) If no, please explain why.



Two alternatives to relocate Williams Road are shown on the display. Do you have a preference? Red / Blue. Why do you prefer this alternative and/or not prefer the other alternative?

Are there any issues or resources not identified on the exhibits that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

Please note below any information depicted on the exhibits this evening that has changed or is incorrect relative to your property:

Do you have any additional information or comments concerning this project?

The project team appreciates your input and will use it to assist with the decision-making process as the design advances. Please return this form tonight at the registration desk or mail by December 1, 2017 to:



TRANSPORTATION CABINET

Greg Thomas, P.E. Secretary

Department of Highways District 6 Office 421 Buttermilk Pike Covington, Kentucky 41017 (859) 341-2700

Wednesday October 31, 2018

<name> <address> <city>, KY <zip>

Subject:

New Graves Road Interchange Construction at I-275

<name>:

The Kentucky Transportation Cabinet (KYTC) is evaluating the construction of a new interchange on Interstate 275 (I-275) near the existing Graves Road structure over I-275. The study limits for the proposed interchange include I-275 from Exit 8 (KY 237) to Exit 11 (Petersburg exit), as well as portions of KY 237 and KY 20 near the proposed intersection. Information regarding the interchange project was presented at a public meeting in fall 2017. However, additional safety improvements specific to KY 20 are now being proposed to be added to this project.

Based on data collected for the existing roadway, the section of KY 20 between Idlewild Road and Graves Road shows a higher than average accident rate when compared to similar rural, two-lane roads throughout the state. Please see the attached map of the study area including the proposed improvements to KY 20. Improvements to Graves Road, including a new interchange on I-275, could increase traffic on the KY 20 roadway and potentially increasing existing safety concerns if no improvements are made.

Therefore, KYTC and the Federal Highway Administration have agreed to include minor corridor safety improvements to KY 20 as part of the Graves Road Interchange Project. These proposed improvements on KY 20 will require the acquisition of less than an acre of additional right of way for the project. The improvements are intended to be safety enhancements, not a reconstruction of the roadway to increase capacity. The type of work you can expect to see along KY 20 will include:

- improved warning signage throughout the corridor
- slight pavement widening and pipe extensions to eliminate drop offs at the edge of pavement
- changes in roadway pavement elevations to improve roadway banking
- tree cutting to improve sight distance at some of the roadway curves



Matt Bevin Governor



TRANSPORTATION CABINET Department of Highways District 6 Office 421 Buttermilk Pike

> Covington, Kentucky 41017 (859) 341-2700

Greg Thomas, P.E. Secretary

Matt Bevin Governor

Once again, this is not a major reconstruction, but safety improvements for the roadway corridor. This letter is intended to provide an update on proposed KY 20 improvements that were not presented at the Graves Road Interchange Project Public Meeting last year.

Please note that you might begin to see surveyors along this road gathering information to help determine the extent and location of these safety improvements.

If you have any comments, questions, or need any additional information on this project, please contact:

> Mike Bezold, P.E. Kentucky Transportation Cabinet District 6 421 Buttermilk Pike Covington, KY 41017 Mike.Bezold@ky.gov (859) 341-2707 ext. 233

In order to be included in the environmental document for the project, comments must be received by December 14, 2018.

Sincerely,

Mike Bezold, P.E. Branch Manager for Project Development

GMB Cc: Stacee Hans Scott Schurman Eric Rothermel Michael Leathers Robert Dowler



EQUAL OPPORTUNITY EMPLOYER M/F/D"



Graves Road Interchange: KY 20 Safety Improvements

Kentucky Transportation Cabinet



Ν

0.5

☐ Miles

1

 From:
 Bezold, Mike M (KYTC-D06)

 To:
 Joey Mosley

 Cc:
 Hans, Stacee D (KYTC-D06); Michael Leathers

 Subject:
 FW: Graves Road Interchange Project

 Date:
 Thursday, November 15, 2018 10:39:07 AM

 Attachments:
 -WRD000.jpg 3563 Pettersburg.pdf

Please show this on the KY 20 plans when they get developed.

Mike Bezold P.E. D-6 TEBM Project Development (859) 341-2707 ext 233

From:

Sent: Thursday, November 15, 2018 10:24 AM To: Bezold, Mike M (KYTC-D06) <Mike.Bezold@ky.gov> Subject: Graves Road Interchange Project

Hello Mike:

I am the owner of 3563 Petersburg Road (KY20) and received your letter dated. 11/7/18. Please include me in any additional information (environmental document) regarding this project.

I am excited for the improvements to begin and am hoping the huge tree very close to the road edge and at the entrance of my property will be removed.

It is definitely an obstruction to view. My drive is directly across from Sunchase Meadows entry.

Let's get the work started!!



Michael Leathers

From:	Joey Mosley
Sent:	Monday, December 10, 2018 1:07 PM
To:	Matt Sipes; Michael Leathers
Subject:	FW: New Graves Road Interchange Construction at I-275

Importance: High

From: Bezold, Mike M (KYTC-D06) <Mike.Bezold@ky.gov>
Sent: Monday, December 10, 2018 10:56 AM
To: Joey Mosley <jmosley@hmbpe.com>
Subject: FW: New Graves Road Interchange Construction at I-275
Importance: High

Some additional safety issues to consider on KY 20,

Mike Bezold P.E. D-6 TEBM Project Development (859) 341-2707 ext 233

From: Sent: Friday, December 07, 2018 4:57 PM To: Bezold, Mike M (KYTC-D06) <<u>Mike.Bezold@ky.gov</u>> Cc: <u>bruce.hemmerich@twc.com</u>; <u>bruce.hemmerich@gmail.com</u> Subject: New Graves Road Interchange Construction at I-275 Importance: High

Hi Mike,

It was very nice talking to you last week about the New Graves Road Interchange Construction at I-275. This email is meant to provide a little more clarity about water streaming over one side of Petersburg Road to the other creating an impassable road and dangerous road conditions because the driveway culvert pipes on the opposite from my house are far too small. The smallest pipe is covered with gravel while the other with concrete.

Water comes out of a pond through a concrete structure that looks to be about 30 inches square. Then all of that water floods over the road and enters into the blue lick stream running along Petersburg Road (lot one in the Sunchase Subdivision) right near my property at 3594 Petersburg Road.

To me, the remedy to this flooding safety issue is simple and in expensive. Replace the two small culvert pipes with two larger ones.

The flooding is not caused by the water coming from the Sunchase Subdivision. I have video clearly showing the water flooding over from the water basin because it has no where else to go due to the under sized culverts. I have videos of the road flooding, as needed. It becomes impassable.

Pic 1 - This driveway and culvert are right across the street from my driveway

Pic 2 - Shows the small culvert right after the water leaves the water basin in Pic 3

Pic 3 - Shows what I call a basin of water. You cannot see it in the pic, but there is a much larger square culvert. Its too far back and on someone else's property for me to measure. Pic 4 – Recent flooding – view from front of my house

Pic1





Pic 4





Thanks,



APPENDIX C – MEMORANDUM OF AGREEMENT



Matthew G. Bevin Governor COMMONWEALTH OF KENTUCKY TRANSPORTATION CABINET Frankfort, Kentucky 40622 www.transportation.ky.gov/

Greg Thomas Secretary

MEMORANDUM

TO:	Greg Thomas by PC Secretary
THROUGH:	Andy Barber, P.E. State Highway Engineer
THROUGH:	Kevin Moore, Executive Directors Office of Legal Services
FROM:	Daniel R. Peake, Director Division of Environmental Analysis
DATE:	February 7, 2019
SUBJECT:	Memorandum of Agreement Defer Archaeology for Proposed I-275/Graves Road Interchange Boone County, Kentucky KYTC Item No. 6-8953.00

Attached for your approval as to form and legality is one copy of the Memorandum of Agreement (MOA) that describes deferral of Phase I archaeological survey on four parcels because landowners denied access to their property.

The MOA outlines the steps to be taken once access is available to these and any other unsurveyed parcels that will be impacted by the project. The Advisory Council on Historic Preservation is also being provided an opportunity to participate in the MOA.

This office requests that the Office of Legal Services review and sign approving as to form and content and then forward through the others listed above in routing to Secretary Greg Thomas for approval. Once the MOA is signed, please return the document to the Division of Environmental Analysis for further coordination.

If you have any questions regarding this request, please contact me.

c: Scott Schurman, Sharon James (D-6), Carl Shields, DEA Project File



An Equal Opportunity Employer M/F/D

MEMORANDUM OF AGREEMENT AMONG FEDERAL HIGHWAY ADMINISTRATION, KENTUCKY STATE HISTORIC PRESERVATION OFFICER AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

New interchange and safety improvements for I-275 and Graves Road, Boone County, Kentucky

Kentucky Transportation Cabinet Item No. 6-8953.00

WHEREAS, the Federal Highway Administration (FHWA) provides funds from the Surface Transportation Program to the Kentucky Transportation Cabinet (KYTC) for the purpose of preserving and improving conditions on federal-aid highways; and,

WHEREAS, KYTC, using these funds, seeks to build a new interchange at 1-275 and Graves Road and make associated safety improvements on Graves Road in Boone County; and

WHEREAS, KYTC is responsible for the development and implementation of the project and, as such, FHWA has invited KYTC to be a signatory to this Agreement; and,

WHEREAS, FHWA previously consulted with the Kentucky State Historic Preservation Officer (KY SHPO), in accordance with Section 106 of the National Historic Preservation Act, (16 U.S.C. § 470 now cited in 54 USC 306108), and its implementing regulations (36 CFR Part 800), and concluded the consultation with a determination of No Adverse Effect to Historic Properties and the KY SHPO; and

WHEREAS, a Phase I Intensive Archaeological Survey was conducted on most of the new rightof-way (ROW) within the proposed project footprint in 2018; and

WHEREAS, access to the four (4) parcels were denied to the archaeological surveyors; and

WHEREAS, FHWA and KYTC have determined it appropriate to defer archaeological investigations on these parcels until after access is granted or the right-of-way has been purchased; and

WHEREAS, the FHWA and KYTC have agreed that the project may have an Adverse Effect upon archaeological sites eligible for inclusion in the National Register of Historic Places (NHRP); and

WHEREAS, it is agreed that it is in the public interest to mitigate potential adverse effects of the project on archaeological sites determined eligible for listing in the NRHP; and
NOW, THEREFORE, the FHWA and the SHPO agree that the project shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties, and further agree that these stipulations shall govern the project and all of its parts until this MOA expires or is terminated or all stipulations have been implemented.

STIPULATIONS:

The FHWA, with the assistance of KYTC, shall ensure that the following stipulations are carried out:

I. Archaeology

The KYTC, through consultation with the SHPO, shall ensure that all archaeological work required by this MOA will be carried out by Preservation Professionals meeting, at a minimum, the <u>Secretary of the Interior's Professional Qualification Standards</u> (48 FR 44738-9) (Secretary's Standards) as defined in the most recent version of the Kentucky SHPO's <u>Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports</u> (SHPO Specifications).

A. Phase I Archaeological Survey

- Phase I archaeological survey will be conducted for all unsurveyed parcels within the project right-of-way, prior to the initiation of any ground disturbing activities, such as utility relocations or construction, to determine if they contain archaeological sites that are eligible for listing in the NRHP. Upon completion of the survey, a report will be prepared in accordance with the SHPO Specifications and will be submitted by the FHWA to the SHPO for review and comment.
- 2. If an archaeological site contains prehistoric artifacts, the FHWA will initiate consultation with Indian Tribes deemed appropriate by the FHWA.

B. Phase II Archaeological Testing

If the Phase I survey identifies archaeological sites considered by the FHWA, in consultation with the SHPO, to be potentially eligible for listing in the NRHP, they will be further tested for eligibility.

C. Archaeological Mitigation

- If sites are determined to be eligible for the NRHP through Phase II testing and will be impacted by the project, the KYTC will, in consultation with the SHPO, develop a Research Design and Recovery Plan (Plan) in conformance with the Secretary's Standards. The Plan will be submitted to the SHPO for review and concurrence. Unless the SHPO comments or objects within thirty (30) days of receiving the Plan, the KYTC will implement the plan as soon as possible.
- 2. Procedures for addressing the treatment of human remains and grave goods shall be guided by the Advisory Council on Historic Preservation's (ACHP) Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (adopted by the ACHP February 23, 2007), the KYTC's Right of Way Manual Section 1300, and other applicable state and local laws. If human remains, associated burial items, sacred items, or items of cultural patrimony are found during Project activities, construction activities in those areas will be halted and the FHWA shall provide written notification and documentation to the SHPO and federally recognized American Indian Tribes that may attach religious or cultural importance to the affected property. The FHWA shall consult with these parties to discuss avoidance, minimization of disturbance, or protocols for disinterment.

II. Resolution of Disagreements

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FHWA shall consult with such party to resolve the objection. If FHWA determines that such objection cannot be resolved, FHWA will:

- A. Forward all documentation relevant to the dispute, including the FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. FHWA will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

> C. FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

III. Duration

This MOA shall remain in effect for five years following its execution. If the Project has not been completed and all stipulations of this MOA implemented within this time, the term shall be extended an additional year then, and each anniversary date thereafter, unless either signatory objects. Parties to the MOA have the right to terminate or cancel this agreement at any time upon thirty (30) days written notice to the other parties.

IV. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

V. Termination

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation IV, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories. Once the MOA is terminated, and prior to work continuing on the undertaking, FHWA must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the course of action it will pursue. Execution of this MOA by the FHWA and KY SHPO and implementation of its terms evidence that FHWA has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

Federal Highway Administration

By 019 6.1

Thomas Jr., Administrator, Kentucky Division L. Nelson,

Date

2-27-19

Date

Kentucky State Historic Preservation Officer

By

Craig A. Potts, State Historic Preservation Officer

INVITED SIGNATORY:

Kentucky Transportation Cabinet

By

Greg Thomas, Secretary

Date

APPROVED AS TO FORM AND LEGALITY, KENTUCKY TRANSPORTATION CABINET

By

Office of Legal Services

Date

APPENDIX D – COORDINATION

FHWA Scope Verification Meeting Minutes	D1
SHPO Response to the Cultural Resources Survey Addendum	D3
SHPO Response to the Archaeological Survey	D5
SHPO Response to the Cultural Historic Resource Baseline Survey	D7
Coordination Response from the Kentucky State Clearinghouse	D9
Coordination Response from the KDFWR	D13
Coordination Response from the USFWS	D15
Coordination Response from the KSNPC	D23
Coordination Response from the KYAGR Regarding PACE Easements	D41
Land Evaluation Site Assessment (LESA) from the NRCS	D43

KYTC/FHWA NEPA Scoping Meeting Minutes

Date of Meeting:	November 2, 2017
Attendees:	Eric Rothermel – FHWA-KY Division Stacee Hans – KYTC District 6 Scott Schurman – KYTC DEA
KYTC Item No:	6-8953
County:	Boone
Route:	I-275
Logical Termini Limits:	KY 20 and KY 237

Project Purpose and Need: The purpose of the project is to improve mobility and address congestion issues near the I-275 /KY 237 interchange in Boone County. Representative of the overall growth being experienced throughout Boone County, the project vicinity is rapidly growing and contains a mix of both residential neighborhoods and large commercial warehouses and distribution centers. The additional development puts a strain on existing roadways. During peak travel times, traffic congestion on KY 237 has caused traffic to back up on I-275 mainline. Additional projected growth in both commercial and residential traffic will continue to deteriorate travel conditions.

Project Design Status:

The project design team is currently evaluating an additional interchange on I-275 near the existing Graves Road. Funding for the Interchange Justification Study was provided via state funds and a matching contribution from Boone County Fiscal Court, thus demonstrating their interest and commitment to the project. The intent of an additional interchange is to alleviate existing traffic congestion on KY 237 and provide an additional access point to I-275.

Key Discussion Points:

- Project area is highly developed and continues to experience rapid growth. Previous KY 237 project (6-152) was completed late 2000's and has already reached capacity.
- I-275 in the project area carries approximately 60,000 vehicles per day.
- Amazon, UPS and FedEx and other commercial businesses have major warehouse facilities on KY 237 near the interchange at I-275.
 - Traffic accessing these facilities frequently causes congestion during peak hours and the holiday season.
 - Boone County currently stations police/enforcement officers on this roadway during peak times to facilitate traffic flow.
- Additional housing units are zoned in subdivisions off of KY 237 and KY 8. As additional units are built, residential traffic will continue to grow and overburden existing roadway network.

• Traffic congestion on KY 237 sometimes causes traffic exiting off of I-275 onto KY 237 to back up into mainline I-275, thus creating a major safety concern.

NEPA Documentation:

NEPA baselines will be conducted for this project. These baselines will include:

- Archeological Overview
 - A subsequent Phase I Archeological Survey will be required once a preferred alternate has been selected.
- Historic Architecture Eligibility and Effects Report
- Hazmat Phase I
- Socio-economic Baseline
- Noise Study

A public meeting will be held on November 16, 2017.

NEPA Determination: It is anticipated that the project will be evaluated as a *Categorical Exclusion 3*.



MATTHEW G. BEVIN GOVERNOR

DON PARKINSON

SECRETARY

TOURISM, ARTS AND HERITAGE CABINET KENTUCKY HERITAGE COUNCIL THE STATE HISTORIC PRESERVATION OFFICE 410 HIGH STREET FRANKFORT, KENTUCKY 40601 PHONE (502) 564-7005 FAX (502) 564-5820 www.heritage.ky.gov REGINA STIVERS DEPUTY SECRETARY

CRAIG A. POTTS EXECUTIVE DIRECTOR & STATE HISTORIC PRESERVATION OFFICER

January 14, 2019

Mr. Daniel R. Peake, Director Division of Environmental Analysis Kentucky Transportation Cabinet 200 Mero Street Frankfort, Kentucky 40601

KentuckyUnbridledSpirit.com

Re: Archaeological Survey for Proposed Safety Improvements Associated with the Interstate 275 and Graves Road Interchange in Boone County, Kentucky KYTC Item No. 6-8953

Dear Mr. Peake,

Thank you for one copy of the above-referenced archaeology report. The report discusses a survey of Areas of Potential Effect (APE) proposed for safety improvements. Field methods included pedestrian survey and shovel test excavation of approximately 2.64 acres. No archaeological sites were documented. The author recommends a determination of *No Historic Properties Affected*.

Two previously recorded archaeological sites, 15Be21 and 15Be529, are mapped as being within or immediately adjacent to portions of the APE. Carl Shields provided photographs of these portions of the APE via email on January 14, 2019, upon request. We recommend in the future that the contractor provide photographs of portions of the APE where sites may be, or may have been, located within the report. Additionally, we request confirmation when the contractors have submitted updated site forms for 15Be21 and 15Be529.

We concur with the recommendation of *No Historic Properties Affected* and accept this report without further revision. We look forward to receiving two archival copies of the report.

Should you have any questions, please feel free to contact Nicole Konkol of my staff at nicole.konkol@ky.gov.

Sincerely,

Craig A. Potts, Executive Director and State Historic Preservation Officer

CP KHC # 53265 cc: George Crothers (OSA); Carl Shields (KYTC); Gavin Davies (Cultural Resource Analysts)

Kentucky

An Equal Opportunity Employer M/F/D



MATTHEW G. BEVIN GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET KENTUCKY HERITAGE COUNCIL THE STATE HISTORIC PRESERVATION OFFICE

THE BARSTOW HOUSE 410 HIGH STREET FRANKFORT, KENTUCKY 40601 PHONE (502) 564-7005 FAX (502) 564-5820 www.heritage.ky.gov July 05, 2018 REGINA STIVERS

CRAIG A. POTTS EXECUTIVE DIRECTOR & STATE HISTORIC PRESERVATION OFFICER

Mr. Daniel R. Peake, Director Division of Environmental Analysis Kentucky Transportation Cabinet 200 Mero Street Frankfort, Kentucky 40622

Re: An Archaeological Survey for the Proposed Interstate 275 and Graves Road Interchange in Boone County, Kentucky by Richard L. Herndon of Cultural Resource Analysts, Inc., Lexington, Kentucky. KYTC Item Number 6-8953.00

Dear Mr. Peake,

Thank you for your letter regarding the above-referenced report. This investigation of 95.00 acres extending from just south of Bullittsville, KY north and east approximately 2.6 miles to KY 237 entailed visual ground surface inspection and the hand excavation of screened shovel test probes (STPs). During the survey, one previously unrecorded archaeological site (15Be720) was documented. Portions of three previously recorded sites (15Be472, 15BeBe529 15Be655) were also located within the current project area. Sites 15Be472 and 15Be655 were revisited but could not be relocated. Site 15Be529 was not revisited as it as it was recently recorded and determined not to be eligible for listing in the National Register of Historic Places (NRHP). Survey access was denied for four parcels (12, 42, 45, 82), which will have to be surveyed later for the survey of the project area to be considered complete.

Site 15Be720 is an early to mid-twentieth century farm/residence that includes a standing residence and barn in dilapidated condition. In total, 23 historic artifacts were recovered from five positive STPs located north, east, and west of the residence. Due to the scarcity of artifacts and the lack of intact deposits, the author assessed Site 15Be270 to have limited research potential and therefore ineligible for listing in the NRHP. As no archaeological resources listed in or eligible for listing in the National Register of Historic Places apparently exist within the project area, the author made a recommendation of no further archaeological work for the surveyed portion of the project area.

We concur with the survey findings and with the recommendation made. We accept this report without revision. We look forward to receipt of one (1) additional bound copy of the report for archival purposes. Should you have any questions, feel free to contact Bill Huser of my staff at 502.564.7005, extension 4563 or at william.huser@ky.gov.

Sincerely,

Craig A. Potts, Executive Director and State Historic Preservation Officer

CP: KHC # 51833 cc: George Crothers (OSA); Carl Shields (KYTC); Charles Niquette (CRAI)

KentuckyUnbridledSpirit.com



An Equal Opportunity Employer M/F/D

D5



MATTHEW G. BEVIN GOVERNOR

DON PARKINSON SECRETARY TOURISM, ARTS AND HERITAGE CABINET KENTUCKY HERITAGE COUNCIL THE STATE HISTORIC PRESERVATION OFFICE

410 HIGH STREET FRANKFORT, KENTUCKY 40601 PHONE (502) 564-7005 FAX (502) 564-5820 www.heritage.ky.gov REGINA STIVERS DEPUTY SECRETARY

CRAIG A. POTTS EXECUTIVE DIRECTOR & STATE HISTORIC PRESERVATION OFFICER

February 7, 2018

Mr. Danny Peake, Acting Director Division of Environmental Analysis Kentucky Transportation Cabinet 200 Mero Street, 5th Floor Frankfort, KY 40622

Re: Cultural Historic Resource Baseline Survey for the I-275 & Graves Road Interchange Justification Study in Boone County, Kentucky (CRA Spurlock, Poole, Reynolds) Item No. 6-8953.00

Dear Mr. Peake:

Thank you for your submission of the above-listed survey report. Pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. Sec. 470f) and implementing regulations at 36 C.F.R. Part 800, the Kentucky Heritage Council (SHPO) received for review and comment information regarding the above-referenced project. We understand that there were a total of 67 historic resources identified within the Area of Potential Effect (APE), one of which, BE 95 (Site 36), has already been listed on the National Register of Historic Places (NRHP) and CRA recommends the boundaries be expanded to include BE 817. We concur that BE 95 and BE 817 (Site 36) retains enough integrity to maintain its NRHP listing and that sites 1-34, 37-67 appear to not be eligible for inclusion on the NRHP. Even with the boundary increase none of the project alternates will affect this historic resource. We believe that BE 96 (Site 35) appears to be eligible for inclusion on the NRHP under Criteria B and C, as it is associated with a prominent family in Boone County and for its example of Queen Anne Style architecture despite the rear additions and replacement windows. We feel that the house still retains enough of the other aspects of integrity such as setting, location, feeling and association for it to be listed. With that being said the any of the project alternates will not affect this historic resource. We concur with CRA's and KYTC's finding of No Adverse Effect to historic properties for the proposed project.

We look forward to receiving survey forms for all sites identified in the project area. Should the project plans change, or should additional information become available regarding cultural resources please submit that information to our office as additional consultation may be warranted. If you have any questions please contact Christina Sabol of my staff at 502.564.7005, ext. 4562.

Sincerely,

Craig A. Potts, Executive Director and State Historic Preservation Officer

CP: cs #50839 cc: Amanda Abner (KYTC-DEA)

KentuckyUnbridledSpirit.com

An Equal Opportunity Employer M/F/D



CHARLES G. SNAVELY Secretary

MATTHEW G. BEVIN GOVERNOR

ENERGY AND ENVIRONMENT CABINET DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY

300 Sower Boulevard FRANKFORT, KENTUCKY 40601 April 7, 2017

Nathan Bowman HMB Professional Engineers Inc, 3 HMB Circle US 460 Frankfort, KY 40601

Re: SERO 2017-3

IJS Study at I-275 and Graves Rd. KYTC Item No-6-8953, HMB Project #1290.00 Boone County, KY

Mr. Bowman

The Energy and Environment Cabinet serves as the state clearinghouse for review of environmental documents generated pursuant to the National Environmental Policy Act (NEPA). Within the Cabinet, the Commissioner's Office in the Department for Environmental Protection coordinates the review for Kentucky state agencies.

We received your correspondence on March 9, 2017. Your letter requested a review of the IJS Study at I-275 and Graves Rd. in Boone Country, KY. The following comments are submitted in reference to this project.

Comments from the Division of Water:

Any road construction activity along Graves Road has potential to impact Woolper Creek and/or Sand Creek. Any road construction along KY 20 has potential to impact Woolper Creek. Neither of these streams are special use waters. Sand Creek is unassessed. Woolper Creek, in this area, is impaired for the Warm Water Aquatic Habitat Use due to the pollutants Cause Unknown, Nutrients, Organic Enrichment and Total Suspended Solids, and the Primary Contact Recreation Use due to E. coli. In my opinion, due to the existing development in this area, additional impacts to either Sand Creek or Woolper Creek would be minimal. Best management practices shall be utilized to reduce runoff from the construction project into nearby streams. Questions should be directed to Andrea Fredenburg, Water Quality Branch, (502) 782-6950, <u>Andrea.Fredenburg@ky.gov</u>.



Kentucky Revised Statute KRS 151.250, provides for exemption for the Department of Highways; therefore, a "Stream Construction Permit for Construction In or Along a Stream" will not be required. No formal approval is required for Water Withdrawal Permitting or Water Management Planning. Questions should be directed to Julia Harrod, Watershed Management Branch, (502) 782-6967, Julia.Harrod@ky.gov.

Division of Water files identified domestic groundwater water well users in the vicinity of the proposed project. The Groundwater Section of the Watershed Management Branch recommends the project be made aware of the requirements of 401 KAR 5:037 and the need to develop a Groundwater Protection Plan (GPP) for the protection of groundwater resources within that area. Questions should be directed to David Jackson, Watershed Management Branch, (502) 782-6986, DavidA.Jackson@ky.gov.

Comments from the Division of Waste Management:

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered, they must be properly addressed. If asbestos, lead paint, and/or other contaminants are encountered during this project, they must be properly addressed.

Comments from the Division of Air Quality:

Kentucky Division for Air Quality Regulation **401 KAR 63:010** Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the <u>Fugitive Emissions Fact Sheet</u>.

Kentucky Division for Air Quality Regulation **401 KAR 63:005** states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the <u>Open Burning Brochure</u>.

The Division would like to offer the following suggestions on how this project can help us stay in compliance with the NAAQS. More importantly, these strategies are beneficial to the health of citizens of Kentucky.

§ Utilize alternatively fueled equipment.

- § Utilize other emission controls that are applicable to your equipment.
- § Reduce idling time on equipment.

Comments from the Department of Fish & Wildlife Resources

The Kentucky Fish and Wildlife Information System indicate that the federally listed Indiana bat (Myotis sodalis) is known to occur within 10 miles of the project site. The U.S. Fish and Wildlife Service-Kentucky Field Office may have specific guidelines regarding possible tree clearing on-site for the proposed project. The state-listed Redback Salamander (Plethodon cinereus) is known to occur within one mile of the project site. Please be aware that our database system is a dynamic one that only represents our current knowledge of various species distributions.

KDFWR recommends that you contact the appropriate US Army Corps of Engineers office and the Kentucky Division of Water prior to any work within the waterways or wetland habitats of Kentucky. Additionally, KDFWR recommends the following for the portions of the project that impact streams:

- Channel changes located within the project area should incorporate natural stream channel design.
- If culverts are used, the culvert should be designed to allow the passage of aquatic organisms.
- Culverts should be designed so that degradation upstream and downstream of the culvert does not occur.
- Development/excavation during low flow period to minimize disturbances.
- Proper placement of erosion control structures below highly disturbed areas to minimize entry of silt into area streams.
- Replanting of disturbed areas after construction, including stream banks, with native vegetation for soil stabilization and enhancement of fish and wildlife populations. We recommend a 100 foot forested buffer along each stream bank.
- Return all disturbed instream habitat to a stable condition upon completion of construction in the area.
- Preservation of any tree canopy overhanging any streams within the project area.

To minimize impacts to the aquatic environment, the KDFWR recommends erosion control measures be developed and implemented prior to construction to reduce siltation into waterways and/or karst features located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed.

This review is based upon the information that was provided by the applicant. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications, or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

If you should have any questions, please contact me at (502) 782-6739.

Sincerely,

Ronald T Price

Ronald T. Price State Environmental Review Officer Kentucky Department for Environmental Protection



TOURISM, ARTS AND HERITAGE CABINET KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES

Matthew G. Bevin Governor

Don Parkinson Secretary #1 Sportsman's Lane Frankfort, Kentucky 40601 Phone (502) 564-3400 1-800-858-1549 Fax (502) 564-0506 *fw.ky.gov*

Regina Stivers Deputy Secretary

Gregory K. Johnson Commissioner

March 10, 2017

HMB Professional Engineers, Inc. Attn: Nathan Bowman 3 HMB Circle US 460 Frankfort, KY 40601

RE: IJS Study at I-275 and Graves Road Boone County, Kentucky KYTC Item No. 6-8953 HMB Project # 1290.00

Dear Mr. Bowman:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) has received your request for information pertaining to the subject project. The Kentucky Fish and Wildlife Information System indicates that the federally-listed Indiana bat (*Myotis sodalis*) is known to occur within 10 miles of the project site. The U.S. Fish and Wildlife Service-Kentucky Field Office may have specific guidelines regarding possible tree-clearing on-site for the proposed project. The state-listed Redback Salamander (*Plethodon cinereus*) is known to occur within one mile of the project site. Please be aware that our database system is a dynamic one that only represents our current knowledge of various species distributions.

KDFWR recommends that you contact the appropriate US Army Corps of Engineers office and the Kentucky Division of Water prior to any work within the waterways or wetland habitats of Kentucky. Additionally, KDFWR recommends the following for the portions of the project that impact streams:

- Channel changes located within the project area should incorporate natural stream channel design.
- If culverts are used, the culvert should be designed to allow the passage of aquatic organisms.
- Culverts should be designed so that degradation upstream and downstream of the culvert does not occur.
- Development/excavation during low flow period to minimize disturbances.
- Proper placement of erosion control structures below highly disturbed areas to minimize entry of silt into area streams.
- Replanting of disturbed areas after construction, including stream banks, with native vegetation for soil stabilization and enhancement of fish and wildlife populations. We recommend a 100 foot forested buffer along each stream bank.
- Return all disturbed instream habitat to a stable condition upon completion of construction in the area.



• Preservation of any tree canopy overhanging any streams within the project area.

To minimize impacts to the aquatic environment, the KDFWR recommends erosion control measures be developed and implemented prior to construction to reduce siltation into waterways and/or karst features located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed.

I hope this information is helpful to you, and if you have questions or require additional information, please call me at (502) 564-7109 extension 4472.

Sincerely,

Doug Dawson

Doug Dawson, Environmental Section Chief

Cc: Environmental Section File



United States Department of the Interior

FISH AND WILDLIFE SERVICE Kentucky Ecological Services Field Office J C WATTS FEDERAL BUILDING, ROOM 265, 330 WEST BROADWAY FRANKFORT, KY 40601 PHONE: (502)695-0468 FAX: (502)695-1024 URL: www.fws.gov/frankfort/



Consultation Code: 04EK1000-2017-SLI-0207 Event Code: 04EK1000-2017-E-00751 Project Name: I-275 Interchange at Graves Road February 14, 2017

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies federal trust species that may occur within the boundary that you provided in the IPaC application. For this list to most accurately represent the species that may potentially be affected by the proposed project, the boundary that you input into IPaC should represent the entire "action area" of the proposed project by considering all the potential "effects of the action," including potential direct, indirect, and cumulative effects, to federally-listed species or their critical habitat as defined in 50 CFR 402.02. This includes effects of any "interrelated actions" that are part of a larger action and depend on the larger action for their justification and "interdependent actions" that have no independent utility apart from the action under consideration (e.g.; utilities, access roads, etc.) and future actions that are reasonably certain to occur as a result of the proposed project (e.g.; development in response to a new road).

The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.) to provide information as to whether any proposed or listed species may be present in the area of a proposed action. This is not a concurrence letter; additional consultation with the Service may be required.

We must advise you that our database is a compilation of collection records made available by various individuals and resource agencies available to the Service and may not be all-inclusive. This information is seldom based on comprehensive surveys of all potential habitats and, thus, does not necessarily provide conclusive evidence that species are present or absent at a specific locality. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please contact the

Kentucky Field Office if you need assistance regarding potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and associated information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12. We recommend that Biological Assessments and biological evaluations be submitted to the Kentucky Field Office following the guidance at: http://www.fws.gov/frankfort/PreDevelopment.html.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Proposed projects that do not have a federal nexus (non-federal projects) are not subject to the obligations under section 7 of the ESA. However, section 9 of the ESA prohibits certain activities that directly or indirectly affect federally-listed species. These prohibitions apply to all the individuals subject to the jurisdiction of the United States. Non-federal project proponents can request technical assistance from the Service regarding recommendations on how to avoid and/or minimize impacts to listed species. The project proponent can choose to implement these recommendations in the proposed project design to avoid an ESA violation.

In addition to species covered under the Endangered Species Act (ESA), birds covered under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) should be considered during project reviews. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish & Wildlife Service (50 C.F.R. § 10.12 and 16 U.S.C. § 668(a)). For more information regarding these acts go to: <u>http://www.fws.gov/migratorybirds/RegulationsandPolicies.html</u>.

The MBTA currently has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within a NEPA document (if there is a federal nexus) or a Bird- or Eagle-specific Conservation Plan, or both. Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds to the project-related stressors; proponents should also implement a rigorous plan to monitor the effectiveness of conservation measure. For more information on avian stressors and recommended conservation measures go to: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/BirdHazards.html.

In addition to MBTA and BGEPA, Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit http://www.fws.gov/migratorybirds/AboutUS.html.

We appreciate your concern for federal trust species and encourage Federal agencies to include conservation of these species into their project planning. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



Project name: I-275 Interchange at Graves Road

Official Species List

Provided by:

Kentucky Ecological Services Field Office J C WATTS FEDERAL BUILDING, ROOM 265 330 WEST BROADWAY FRANKFORT, KY 40601 (502) 695-0468 http://www.fws.gov/frankfort/

Consultation Code: 04EK1000-2017-SLI-0207 **Event Code:** 04EK1000-2017-E-00751

Project Type: TRANSPORTATION

Project Name: I-275 Interchange at Graves Road **Project Description:** The proposed project is an interchange along Interstate 275 at Graves Road in Hebron, KY.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



Project name: I-275 Interchange at Graves Road

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Boone, KY



Project name: I-275 Interchange at Graves Road

Endangered Species Act Species List

There are a total of 11 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Clams	Status	Has Critical Habitat	Condition(s)
clubshell (<i>Pleurobema clava</i>) Population: Wherever found; Except where listed as Experimental Populations	Endangered		
fanshell (<i>Cyprogenia stegaria</i>) Population: Wherever found	Endangered		
Orangefoot pimpleback (<i>Plethobasus</i> <i>cooperianus</i>) Population: Wherever found	Endangered		
Pink mucket (<i>Lampsilis abrupta</i>) Population: Wherever found	Endangered		
ring pink (<i>Obovaria retusa</i>) Population: Wherever found	Endangered		
Rough pigtoe (<i>Pleurobema plenum</i>) Population: Wherever found	Endangered		
Sheepnose Mussel (<i>Plethobasus</i> <i>cyphyus</i>) Population: Wherever found	Endangered		
Flowering Plants			



Project name: I-275 Interchange at Graves Road

Running Buffalo clover (<i>Trifolium</i> stoloniferum) Population: Wherever found	Endangered	
Mammals		
Gray bat (<i>Myotis grisescens</i>) Population: Wherever found	Endangered	
Indiana bat (<i>Myotis sodalis</i>) Population: Wherever found	Endangered	
Northern long-eared Bat (<i>Myotis</i> septentrionalis) Population: Wherever found	Threatened	Incidental take of the northern long-eared bat at this location is excepted by the 4(d) rule and is, therefore, not prohibited under the ESA.

http://ecos.fws.gov/ipac, 02/14/2017 02:29 PM



Project name: I-275 Interchange at Graves Road

Critical habitats that lie within your project area

There are no critical habitats within your project area.

http://ecos.fws.gov/ipac, 02/14/2017 02:29 PM

Matthew G. Bevin Governor



Charles G. Snavely Secretary Energy and Environment Cabinet

> Jason L. Weese Director

Commonwealth of Kentucky Kentucky State Nature Preserves Commission 801 Teton Trail Frankfort, Kentucky 40601-1403 502-573-2886 Voice 502-573-2355 Fax

March 20, 2017

Nathan Bowman HMB Professional Engineers, Inc 3 HMB Circle Frankfort, KY 40601

Data Request 17-074

Dear Mr. Bowman,

This letter is in response to the two data request you sent on March 7, 2017 for the I-275 Interchange Study in Boone County, Kentucky. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Kentucky State Nature Preserves Commission occur near the project area on the Burlington USGS Quadrangle as indicated in the files provided to us. Please refer to the **attached reports** to view the results of the data requests.

Element Occurrence Records 1-mile (all records) – 16 5-mile (aquatic) – 25 5-mile (federal) – 18 10-mile (birds & mammals) – 14

Trifolium stoloniferum (Running buffalo clover, federally endangered, KSNPC threatened) is known to occur in/near the project area. This plant grows in mesic soils that receive filtered light. If suitable habitat is to be disturbed, a thorough search should be conducted by a qualified biologist in the months of May through July. The optimal time to search is in May, during its flowering period. Areas to search include stream banks, bars, and terraces, footpaths, dirt roads, and grazed bottomlands.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Kentucky State Nature Preserves Commission, including any portion



Data Request 17-074 March 20, 2017 Page 2

thereof, may not be reproduced in any form or by any means without the express written authorization of the Kentucky State Nature Preserves Commission." The exact location of plants, animals, and natural communities, if released by the Kentucky State Nature Preserves Commission, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Kentucky State Nature Preserves Commission's Heritage Branch (801 Teton Trail, Frankfort, KY, 40601. Phone: (502) 573-2886).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

If you have any questions, or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Ian Horn Geoprocessing Specialist

Enclosures: Data Report and Interpretation Key



Data Key for Element and Occurrence Reports (v. 9.05)

Kentucky State Nature Preserves Commission Natural Heritage Program Data Services

Many of the data fields on the enclosed report are easily understood. Other fields, however, use abbreviations and formats that are not always self-explanatory. A key to these fields follows. Your report may contain some or all of the following data fields.

BESTSOURCE:	Best available reference to the occurrence: literature citation, collector, collection
	number, museum or herbarium code, etc.
COMMENTS:	Additional information about the occurrence including identification, taxonomy, or date
DIDECTIONS	Directions to an occurrence. This field is masked for sensitive occurrences: contact
DIRECTIONS.	KSNPC in these cases.
DISTANCE:	Distance from a center point to an occurrence's latitude and longitude. Units coded as M
	(miles), K (kilometers), and F (feet). This field is masked for sensitive occurrences;
	contact KSNPC in these cases. Omitted for G, U, and Q precision occurrence records.
ELCODE:	Element (species) code.
EOCODE:	Element (species) code, occurrence number (last three digits), and state.
EODATA:	Occurrence population data: date of observation, number of individuals, health, size of
	colony, flowering data, etc.
EORANK:	Judgement of occurrence quality: A = excellent, B = good, C = marginal, D = poor, E =
	verified extant but quality not judged, H = historically known from site but no known
	observation or collection since 1975, $F =$ failed to find (site was revisited and none
	observed but still likely to use the area – further searching needed), X = extirpated from
	site.
FIRSTOBS:	Year of first known observation or collection.
GENDESC:	Description of an occurrence's habitat.
GRANK:	Estimate of element abundance on a global scale: $G1 = extremely rare, G2 = rare, G3 =$
	uncommon, G4 = common, G5 = very common, GH = historically known and expected
	to be rediscovered, $GU =$ uncertain, $GX =$ extinct. Subspecies and variety abundances
	are coded with a 'T' suffix; the 'G' portion of the rank then refers to the entire species.
HABITAT:	General description of the element's habitat across its range.
IDENT:	Whether the identification has been checked by a reliable individual and is believed to
	be correctly identified: $Y = identification confirmed and believed correct, N = No,$
	identification determined to be wrong despite reports to the contrary, ? = Whether
	identification is correct or not is confusing or disputed, blank or $U =$ unknown whether
VENDC.	Rentulication correct of not, assumed correct.
KSNPC:	Kentucky State Nature Preserves Commission status: N or brank = none, $E =$ endan- gored T = threatened S = special concern H = historic X = extirpated
LASTORS	generic month data) of most recent known observation or collection
	I atitude in degrees minutes and seconds
LAT. LONG	Landuc in degrees minutes and seconds. Lat/long fields are masked for sensitive
Lond.	occurrences: contact KSNPC in these cases
PREC	See PRECISION
PRECISION.	Precision of the latitude longitude directions and plotted location: $S = location$
THEODIOT	accurate to within three seconds of latitude-longitude $M = location$ accurate to within
	one minute of latitude-longitude, $G = $ precision within about 8 km or 5 miles, or to place
	name precision only. $C = known to occur within a county but specific location unknown.$
	W = known to occur within a watershed but specific location unknown. U or blank =
	accuracy of location unknown or not specified.
	The accuracy of an occurrence's location is designated by the precision code assigned to
	the record. Only 'S' precision occurrence records are reliably mapped at or near their

	precise locations. While an attempt is made to map 'M' precision occurrences as accurately as possible, the plotted locations, lat, long, directions, bearing, and distance data fields may or may not be correct. 'G', 'C', and 'W' precision occurrence locations are very unreliable and only should be used to indicate the possibility that the species is in the area.
SPROT:	See KSNPC.
SRANK:	Estimate of element abundance in Kentucky: $S1 =$ extremely rare, $S2 =$ rare, $S3 =$ uncommon, $S4 =$ many occurrences, $S5 =$ very common, $SA =$ accidental in state, $SE =$ exotic, $SH =$ historically known in state, $SN =$ migratory or nonbreeding, $SR =$ reported but without persuasive documentation, $SRF =$ reported falsely in literature, $SU =$ uncertain, $SX =$ extirpated.
USESA:	U.S. Fish and Wildlife Service status: N or blank = none, LT = listed as threatened, LE = listed as endangered, PE-Proposed Endangered, C=Candidate.
OTHER STATUS:	SOMC = Designated by the U.S. Fish and Wildlife Service as a Species of Management Concern.
WATERBODY:	Name of the 11-digit Hydrologic Unit Code EPA Waterbody in which the occurrence is plotted.
WATERSHED:	See WATERBODY.

Page 1 of 5 03/20/2017		KSNPC n	nonitored s ₁	pecies v	vithin 1	s 1 mile of i	tandard Oct the I-275	currence Repo Interchang	ort e Study	Project in Boon	ie County, Kentu	icky.			DR# 17-074 1 mile	0
EOCODE EOID	SNAME EO Type	SCOMNAME	еваик	SEANK	USFSA USFSA	REACO SUTATS	L Dent	ASTOBS	ЕОВУИК БВЕС	COUNTY	7.5 MINUTE QUADRANGLE	s LAT	DNO	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky Vascular Plants PDFAB40250*107 12868	Trifolium stoloniferum	Running Buffalo Clover	8	S2S3	E-	ΓE	Y 200)9-05-28	s	Boone	Lawrenceburg	390549N (3844610W	050902030204 - Garrison Creek-Ohio River	Garrison Creek, NE of 1-275 exchange 11 state highway 338 exit, ca. 0.5 mi E from the first major tributary.	
Freshwater Mussels IMBIV 10020*023 2673	Cyprogenia stegaria	Fanshell	GIQ	s	ш	Ë	861 Х	80-pre	× 0	K enton Campbell Boone	Covington Newport Burlington Addyston	390524N I	0843115W	050902030201 - Town of Newport-Ohio River 050902011208 - Ninemie Creek-Ohio River Garrison Creek-Ohio River Garrison Creek-Ohio River 050902030202 - Dry Creek-Ohio River	Ohio River, at Cincinnati, OH, Hamilton Co.	Medium to large streams and rivers with moderate or strong current in coarse stand and gravel and depth ranging from and depth ranging from Goodrich and Van Der Schalie 1944, Neel and 1967, Johnson 1980, Gordon and Layzer 1989).
IMBIV16111*006 4529	Epioblasma obliquata obliquata	Catspaw	01T1	SI	ш	Е	Y 197	J0-bre	х о	Kenton Campbell Boone	Covington Newport Addyston Burlington	390524N	0843115W	050902030201 - Town of Newport-Ohio River 050902011208 - Ninemie Creek-Ohio River Garrison Creek-Ohio River 050902030202 - Dry 050902030202 - Dry Creek-Ohio River	Ohio River at Cincinnati, Hamilton Co., Ohio.	Inhabits medium to large rivers in riffles, shoals, and/or deep water in swift current (Bogan and Parmalee 1983, Parmalee 1967, Wilson and Clark 1914).
IMBIV16184*009 9096	Epioblasma torulosa rangiana	Northern Riffleshell	G2T2	S1	ш	Ξ	791 Y	73-pre	х о	K enton Campbell Boone	Covington Newport Addyston Burlington	390524N	0843115W	050902030201 - Town of Newport-Ohio River 050902011208 - Ninemile Creek-Ohio River 050902030204 - Garrison Creek-Ohio River 050902030202 - Dry 050902030202 - Dry 050902030202 - Dry	Ohio River at Cincinnati, Hamilton Co., Ohio.	Riffles or shoals with current and substrate of sand and/or gravel in small to moderate-size rivers (Clarke 1981, Watters 1987).

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

DR# 17-074 1 mile

HABITAT

te 2 of 5 20/2017 CODE	SNAME	KSNPC m Scomname	NNK NUL	NNK cries	SA	MER of the stand	ard Occurr I-275 Int	ence Report	RANK U Study F	roject in Boo	ne County, Kentu 7.5 MINITE	cky.			DR# 17-074 1 m
/21110*012 33	Lampsilis abrupta	Pink Mucket	6	s 👼			d-0861	2	a ×	Kenton Campbell Boone	Contraction Covington Newport Addyston Burlington	390524N	0843115W	050902030201 - Town of Newport-Ohio River 050902011208 - Ninemile Creek-Ohio River 050902030204 - Garison Creek-Ohio River River 050902030202 - Dry Creek-Ohio River	Ohio River, at Cincinnati, OH, Hamilton Co.
31030*027 .0	Obovaria retusa	Ring Pink	G	S	ц	X	1838		×	Kenton Campbell Boone	Covington Newport Addyston Burlington	390524N	0843115W	050902030201 - Town of Newport-Ohio River 050902011208 - 0150902011208 - 050902030204 - 050902030204 - 0509020202 - Dry 050902202 - Dry 050902202 - Dry Creek-Ohio River	Ohio River at Cincinnati, Hamilton Co., Ohio.
34020*025 4	Plethobasus cooperianus	Orangefoot Pimpleback	5	SI	Е	A	1900s		× v	Kenton Campbell Boone	Covington Newport Burlington Addyston	390524N	0843115W	050902030201 - Town of Newport-Ohio River 050902011208 - Nimemile Creek-Ohio River 050902030204 - Garrison Creek-Ohio River Creek-Ohio River 050902030202 - Dry 050902030202 - Dry 050902030202 - Dry 050902030202 - Dry	Ohio River at Cincinnati, Hamilton Co., Ohio.

Large river species that inhabits gravel and sand Parmalee 1983. Goodrich and Van Der Schalie 1944, Neel and Allen 1964. Stansbery 1976).

Large rivers in habitats ranging from slit to boulders. but apparently more commonly from gravel and cobble. Collected from shallow and deep water with current velocity ranging from zero os with (Ahlstedt 1983, Began and Parmalee 1983, Buchanan 1980), but never standing pools of water (Laurisen 1987).

Usually found in large rivers in sand and gravel substrates (Ahlstedt 1983, Bogan and Parmalee 1985, Miller, A.C. et al. 1986).

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

DR# 17-074 1 mile

	DNG	0843115W
ucky.	E LAT	390524N
e County, Kenti	7.5 MINUTE QUADRANGL	Covington Newport Burlington Addyston
roject in Boon	COUNTY	Kenton Campbell Boone
udy F	EOBANK	×
port 1ge St	PREC	U
d Occurrence Re 275 Interchai	LASTOBS	1844-pre
tandar the I-	IDENT	×
s ile of	SUTATUS OTHER	
n 1 m	VSESO	ILE
withi	тояче	ш
pecies	SEANK	S1
monitored s	евулк	G1G2
KSNPC	SCOMNAME	Clubshell
	SNAME EO Type	Pleurobema clava
03/20/2017	EOCODE EOID	IMBIV35060*038 10662

Page 3 of 5 03/20/2017

EOID	EO Type		ев	ษร	isn Ias	TO ATS IUI	LASTOBS	ЕО БВ	COUNTY	QUADRANGLE	LAT	FONG	EPA WATERBODY	DIRECTIONS	HABITAT
IMBIV35060*038 10662	Pleurobema clava	Clubshell	G1G2	S1	Ξ	*	. 1844-pre	x o	Kenton Campbell Boone	Covington Newport Burlington Addyston	390524N 0:	843115W 843115W 800 800 800 800 800 800 800 800 800 80	5690203030201 - Town of Newport-Ohio River 56902011208 - Simemile Creek-Ohio Siver 56902030204 - 56902030204 - Sirrison Creek-Ohio diver 56902030202 - Dry Creek-Ohio River	(Ohio River) at Cincinnati, OH.	This species is an inhabitant of small streams and rivers Goodrich and Van Der Schale 1944; Ortmann 1919,1925, although in Kentucky it is known from moderately large invers. Other deeply buried in the substrate and consequently. difficult to find (Watters 1987).
IMBIV35240*006 3812	Pleuroboma plenum	Rough Pigtoe	ច	SI	E	*	18000	× o	Kenton Campbell Boone	Covington Newport Addyston Burlington	390524N 0)	843115W C C C C C C C C C C C C C C C C C C C	55992030201 - Town of Newport-Ohio River 550902011208 - Vinemile Creek-Ohio 56092030204 - jarrison Creek-Ohio jarrison Creek-Ohio 15092030202 - Dry 1eek-Ohio River	Ohio River a Cincinnati (Hamilton County).	Medium to large rivers in sand, gravel, and coble substrates (Ahlsteft 1984, Bogan and Parmalee 1983, Clarke 1981, Neel and Allen 1964).
IMBLY35250*017 9012	Pleurobema rubrum	Pyramid Pigtoe	G2G3	SI	E SON	X IC	1 800s	× O	Kenton Campbell Boone	Covington Newport Addyston Burlington	390524N 0.	843115W C 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	55992030201 - Town of Newport-Ohio River 550902011208 - Vinemile Creek-Ohio Vinemile Creek-Ohio Viver 150902030204 - Virek-Ohio River 5609030202 - Dry 5609030202 - Dry 5609030202 - Dry	Ohio River at Cincinnati.	Inhabits medium to large rivers and usually occurs in sand or gravel bottoms in deep waters (Ahlstedt 1984, Murray and Leonard 1962, Parmalee et al. 1982).

Fishes

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

mile
-
17-074
DR#

Standard Occurrence Report KSNPC monitored species within 1 mile of the 1-275 Interchange Study Project in Boone County, Kentucky.

Page 4 of 5 03/20/2017

SI E(008	VAME O Type actosteus spatula	SCOMNAME Alligator Gar	G G G B G RANK	SRANK	OTHER Some Speck	≺ IDENT	LASTOBS		COUNTY Cambbell	7.5 MINUTE QUADRANGLI Newnort	E LAT 390457N	LONG 0843359W	EPA WATERBODY 050902030201 - Town	DIRECTIONS Ohio River across from	HABITAT Sluggish pools and
	number of constants		5	5		-		2	campoen Kenton Boone	Newport Covington Withmavile Addyston Hooven Lawrenceburg Burlington			of Newport-Ohio River Nosoport-Ohio River Nisemile Creek-Ohio River 050902030204 - darison Creek-Ohio River 050902030202 - Dry Creek-Ohio River 056902030202 - Dry	Hamilton Co., Ohio.	outgesn upos and backwaters of large rivers, backwaters, and oxbow lases (Bur and Warren 1986, Page and Burr 1991, Etnier and Starnes 1993).
ota lo	<i>a</i>	Burbot	G	S2	×	×	1960-04-11	×	Boone	Burlington	390544 N	0843951W	05690230202 - Dry Creek-Ohio River	OHIO RIVER, 3.5 MI UPSTREAM OF LOCK NO 37, 2 MI DOWNSTREAM FROM CONSTANCE.	Kentucky specimens generally come from medium to large-size invers. In the north, they inhabit cool, large and deep rivers and lakes (Becker 1983, Pfleger (D75, Scott and Crossman 1973, Smith 1979, Traurman 1981).
ethoc	lon cinereus	Redback Salamander	GS	S3	S	×	1983-04-13	×	Boone	Burlington	390454N	0844144W	0509020302 - Dry Creek-Ohio River	Along Elijahs Creek, 1.3 mi S of Taylorsport.	A woodland species that occurs in deciduous and mixed forest types. Adults are found under logs, rocks, bark, moss and debris.
y	adus sandwichensis	Savamah Sparrow	3	S2S3B, S2S3N	×	*	1999-06-19	Σ	Boone	Burlington	390303N	0844037W	05(0902030806 - Upper Gunpowder Creek	Greater Cincinnati - Boone Co Airport.	Open areas, especially grasslands, tundra, meadows, bogs, firmilands, grassy areas with scattered bushes, and marshes, including salt marshes in the Belding and Rostratus Groups (subtropical and temperate zones) (B83COM01NA).

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

DR# 17-074 1 mile

medium-size rivers where it lives deeply buried in sand and gravel bound together by the roots of

Occurs in small to

HABITAT

aquatic vegetation (Bogan and Parmalee 1983; Ortmann 1925, 1926; Parmalee 1967; Stantsbery 1976). This small mussel is easy to overlook because of the habitat occupied.

390524N 0843115W 050902030201 - Town Ohio River at Cincinnati. of Newport-Ohio River EPA WATERBODY DIRECTIONS 050902011208 -Ninemile Creek-Ohio River Garrison Creek-Ohio River 050902030202 - Dry Creek-Ohio River 050902030204 -LONG 7.5 MINUTE QUADRANGLE LAT Standard Occurrence Report KSNPC monitored species within 1 mile of the I-275 Interchange Study Project in Boone County, Kentucky. Newport Addyston Burlington Covington Campbell COUNTY Kenton Boone × EOBANK G ьвес LASTOBS 1870-pre Y IDENL OTHER SUTATUS E VSESU × TOAPS SRANK SXB BRANK SCOMNAME Rayed Bean Villosa fabalis SNAME EO Type IMBIV47050*003 Page 5 of 5 03/20/2017 EOCODE 6547 EOID

Historically known from Kentucky

Breeding Birds

Grasslands, especially prairies, dry meadows, pastures, fields around airports and (in Alaska) scattered woodlands at inthefinite, very rarely in migration along shores and muddats (B33COM01NA). N edge of the Greater Cincinnati Airport, about 3 mi S of the Ohio River. 390342N 0844004W 05090203022 - Dry Creek-Ohio River Burlington Boone Н Σ Y 1950-06-04 Η SHB G Upland Sandpiper Bartramia longicauda ABNNF06010*002 9059

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESED ANAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.
J	HABITAT	Call (1895) indicated that in the Ohio River at the falls it occurred in the greatest profision where the bottom is clean rock or rock with abundant "confervoid" vegetation.	Observations on the habitat include specimens taken from recently exposed bars and pools with sand, gravel, and rock substrates (Haag and Palmer-Ball, pers comm).	Usually found in medium inhabits substrate ranging from silt to rubble and from silt to rubble and deep water (Ahlstedt 1984, Bogan and Parmalee 1983, Parmalee 1983, Parmalee 1957), Parmalee 1957, Parmalee 1957, Parm
DR# 17-074 aquati	DIRECTIONS	Ohio River at Lawrenceburg, IN,	Ohio River at Lawrenceburg, Dearborn Co., IN.	Ohio River, Constance, 4 mi below Cincinnati.
	EPA WATERBODY	050902030802 - Taylor Creek-Ohio River	050902030802 - Taylor Creek-Ohio River	050902022 - Dry Creek-Ohio River
ý.	LONG	0845042W	0845042W	3843807W
Kentuck	LAT	90522N (90522N (90442N 0
in Boone County,	7.5 MINUTE QUADRANGLE	Lawrenceburg	Lawrenceburg	Burtington
udy Project	COUNTY	Boone	Boone	Boone
nange Sti	EOBANK	н	н	×
teport Interch	ькес	×	M	×
d Occurrence Report of the I-275 Interv	LASTOBS	1900-pre	1944-pre	1895-11-01
Standarc n 5 miles	IDENT STATUS STATUS	*	*	>
ss withi	VSESO	SOMC	SOMC	E
specie	тояче	∞ 	4 N	ш
status	SEVAR	838 83	S3S	$\overline{\mathbf{x}}$
ored aquatic	СВУИК	ß	G4Q	ម
KSNPC monite	SCOMNAME	Onyx Rocksnail	Varicose Rocksnail	Spectaclecase
	SNAME EO Type	Leptoxis praerosa	Lithasia verrucosa	Cumberlandia monodonta
Page 1 of 7 03/20/2017	EOCODE EOID	Extant in Kentucky Aquatic Snails IMGASK5100*002 3068	IMGASK6100*018 9563	Freshwater Mussels IMBIV08010%021 2112

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESE DATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

G3 S333 T LE Y 190-05-31 S X Bone Lavrencebug 30451N G44453M G600339801 Idevidu. ne correr of circle Out traits, and second contractions G3 S233 T LE Y 2004-05-11 S D Bone Lavrencebug 303580 G400339801 Anga Ashys Fork, ca 10 eventemels, and second contractions eventemels, and second contract
G3 S2S3 T LE Y 2004-05-11 S D Boone Lawrenceburg 390538N 084438W Koolper Creek, ani SW of Idlewid. G3 S2S3 T LE Y 2004-05-11 S F Boone Lawrenceburg 390503N 0844944W 05090230802 - Taylor Along Ashbys Fork, ca 1.0 G3 S2S3 T LE Y 2004-05-11 S F Boone Lawrenceburg 390503N 075-10 mi sat of its mouth (025C, 390503N) G3 S2S3 T LE Y 2004-05-11 S C Boone Lawrenceburg 390503N 39051N 39051N G3 S2S3 T LE Y 2009-05-28 S C Boone Lawrenceburg 390540N 0351N 340459N(025A, 30050N) G3 S2S3 T LE Y 2009-05-28 S C Boone Lawrenceburg 390540N 0351N 340459N(025A, 30050N) G3 S2S3 T LE Y 2009-05-28 S C Boone Lawrenceburg 390540N 037040P Garrison Creek.0NE of Harrison Creek.0NE
G3 S23 T LE Y 2004-05-11 S F Boone Lawrenceburg 390503N 084944W 050902030802 - Taylor Along Second Creek ca monto NCSC: 390503N, 844944W (025C) 390503N, 844944W (025C) 39051N, 844954W (025C) 39054N, 94455N, 9445N, 9445N, 9445N, 94455N, 9445N, 94455N, 9445N, 9445N, 9445N, 9445N, 9445N
G3 S233 T LE Y 2009-05-28 S C Boone Lawrenceburg 390549N 0844610W 050902030204- Garrison Creek, NE of Garrison Creek Ohio 1-275 exchange 11 state River highway 338 exit.ca. 0.5 mi Efrom the first major tributary.

Fresh

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

al	HABITAT	Usually found in medium to large rivers where it inhubbits substrate ranging from silt to rubble and boulders in slow to swift currents of Ahlstedt 1984, Bogan and deep water (Ahlstedt 1984, Bogan and Parmalee 1983, Buchanan 1980, Nelson and Freidig 1980, Sometimes found in or near vegetation beds, and in mud bweren boulders adjacent to swift water (Stanbery 1966), May become exhibished in wing dams (Nelson and Freidig 1980).	Medium to large streams and views with moderate to strong current in coarse stand and gravel and depth ranging from shallow to deep (Goodrio and Van Der Schalie 1944, Neel and Alten 1964, Parmalee 1967, Johnson 1980, Gordon and Layzer 1989).	Inhabits medium to large rivers in riffles, shoals, and/or deep water in swift current (Bogan and Parmalee 1983, Parmalee 1967, Wilson and Clark 1914).		
DR# 17-074 feder	DIRECTIONS	Ohio River, Constance, 4 mi below Cincinnati.	Ohio River, at Cincinnati, OH, Hamilton Co.	Ohio River at Cincinnati, Hamilton Co., Ohio.		
	EPA WATERBODY	05090202 - Dry Creek-Ohio River	050902030201 - Town of Newport-Ohio River 050902011208 - Niremile Creek-Ohio River 050902030204 - Garison Creek-Ohio River River Creek-Ohio River Creek-Ohio River	056902030201 - Town of Newport-Ohio River 056902011208 - Niremile Creek-Ohio River 050902030204 - Garison Creek-Ohio River 050902030202 - Dry 050902030202 - Dry Creek-Ohio River		
×.	DNOT	0843807W	0843115W	0843115W		
, Kentuck	E LAT	390442N	390524N	390524N		
in Boone County	7.5 MINUTE QUADRANGLI	Burtington	Covington Newport Burlington Addyston	Covington Newport Addyston Burlington		
dy Project i	COUNTY	Boone	Kenton Campbell Boone	Kenton Campbell Boone		
hange Stu	EOBANK	×	×	×		
Standard Occurrence Report niles of the I-275 Interc	BBEC TASTOBS	Y 1895-11-01	Y 1980-pre	Y 1970-pre		
within 5 r	OTHER USESA	Е	Ε	Е		
is pecies	TOAPS	ш	ш	ш		
leral statu	SEANK	2	2 21	11 S1		
APC monitored fee	СВУИК	Э Э	5	5		
KSN	SCOMNAME	Spectaclecase	Fanshell	Catspaw		
	SNAME EO Type	Cumberlandia monodonta	Cyprogenia stegaria	Epiohasma obliquata obliquata		
Page 2 of 5 03/20/2017	EOCODE EOID	IMBIV08010*021 2112	IMBIV10020*023 2673	IMBIV16111*006 4529		

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

Page 3 of 5 03/20/2017		KSNPC monitore	d federal s	status p	ecies w	s ithin 5 n	standard C niles of t	Occurrence Rep the I-275 Int	ort erchang	Study Proj	ect in Boone Cou	nty, Kentuck			DR# 17-074 feder	_
EOCODE EOID	SNAME EO Type	SCOMNAME	сваик	SRANK	TOAPS	OTHER OTHER	IDENL	LASTOBS	ЕОВУЛК БВЕС	COUNT	T.5 MINU ⁷ Y QUADRAN	TE GLE LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
IMBIV16184*009 9096	Epioblasma toruloxa ranglana	Northern Riffleshell	G2T2	2	ш	<u>щ</u>	ы Х	973-pre	U U	K enton Campbo Boone	Covington Covington Addyston Burlington	390524N	0843115W	5/9902030201 - Town of Newport-Ohio River 5/6902011208 - 5/6902011208 - 5/9902030204 - Garrison Creek-Ohio River 3/6902030202 - Dry 5/6902030202 - Dry Creek-Ohio River	Ohio River at Cincinnati, Hamilton Co., Ohio.	Riffles or shoals with current and substrate of sand and/or gravel in sand lo moderate-size rivers (Clarke 1981, Watters 1987).
IMBIV21110*012 603	Lampsilis abrupta	Pink Mucket	G	S1	ш Ш	8	*	980-pre	o o	K enton Campb Boone	Covington Newport Addyson Burlington	390524N	0843115W	5/9902030201 - Town of Newport-Ohio River 55/9902011208 - 55/902030204 - Kiver 55/9902030204 - Garrison Creek-Ohio River 55/9902030202 - Dry Creek-Ohio River	Ohio River, at Cincinnati, OH, Hamilton Co.	Large rivers in habitats ranging from slit to boulders, but apparently more commonly from gravel and cobble. Collected from shallow and deep ware with current velocity ranging from zero to swift from zer
IMBIV21110*030 7546	Lampsilis abrupta	Pink Mucket	G2	SI	Ш	TE	Y	895-10-30	M	Boone	Burlington	390442N	0843807W	050902030202 - Dry Creek-Ohio River	Ohio River, Constance, 4 mi below Cincinnati.	
IMBIV31030*027 1740	Obovaria retusa	Ring Pink	5	SI	ш	Щ	X	838	U	K enton Campb Boone	Covington Newport Addyston Burlington	390524N	0843115W	5509020330201 - Town of Newport-Ohio River 550902011208 - 550902011208 - Kiver 550902030204 - Garrison Creek-Ohio River River Storecologo202 - Dry Creek-Ohio River	Ohio River at Cincinnati, Hamilton Co., Ohio.	Large river species that inhabits gravel and sand pars (Bogan and Parmalee 1983, Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Stansbery 1976).
IMBIV31030*035 8492	Obovaria retusa	Ring Pink	GI	SI	ш	E	Υ 11	895-10-30	×	Boone	Burlington	390442N	0843807W	050902030202 - Dry Creek-Ohio River	Ohio River, Constance.	

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

al	НАВІТАТ	Usually found in large rivers in sand and gravel substrates (Ahlstedt 1983, Bogan and Parmalee 1985, Miller, A.C. et al. 1986).	Usually found in large rivers in current on mud, or grave bottoms at depth of 1-2 meters or more (Baker 1928, Parmalee 1967, Gordon and Layzer 1989).	This species is an inhabitant of small streams and rivers (stoodich and Van Der Schalle 1944; Ortmann 1919,1925), although in Fartuckyr it is known from moderately large rivers. Often deeply and consequently difficult to find (Watters 1987).	Medium to large rivers in sand, gravel, and cobble substrates (Ahlstedt 1984, Bogan and Parmalee 1983, Clarke 1981, Neel and Allen 1964).
DR# 17-074 feder	DIRECTIONS	Ohio River at Cincinnati, Hamilton Co., Ohio.	Ohio River, Constance, 4 mi below Cincinnati.	(Ohio River) at Cincinnati, OH.	Ohio River at Cincinnati (Hamilton County).
	EPA WATERBODY	050902030201 - Town of Newport-Ohio River 050902011208 - Nimemile Creek-Ohio River Garrison Creek-Ohio River 050902030202 - Dry 050902030202 - Dry Creek-Ohio River	050902030202 - Dry Creek-Ohio River	050902030201 - Town of Newport-Ohio River 050902011208 - Ninemile Creek-Ohio River 050902030204 - Garison Creek-Ohio River 050902030202 - Dry Creek-Ohio River	050902030201 - Town of Newport-Ohio River 050902011208 - Ninemile Creek-Ohio River 050902030204 - Garrison Creek-Ohio River 050902030202 - Dry Creek-Ohio River
	DNO	0843115W	0843807W	0843115W	0843115W
Kentucky	LAT	390524N	390442N	390524N	390524N
a Boone County,	7.5 MINUTE QUADRANGLE	Covington Newport Burlington Addyston	Burlington	Covington Newport Burlington Addyston	Covington Newport Addyston Burlington
udy Project ir	COUNTY	Kenton Campbell Boone	Boone	Kenton Campbell Boone	Kenton Campbell Boone
d Occurrence Report f the I-275 Interchange Sti	EOBVIR	×	×	×	×
	ьвес	U	М	U	U
	LASTOBS	1 900s	1895-10-30	1844-pre	1800s
Standar 15 miles o	IDENT STATUS MANTUS	×	×	≻	¥
withir	VSESU	Е	ΓE	ΓE	ΓF
pecies	TOAPS	ш	ш	Ш	ш
status	SEANK	SI	S1	sı	SI
tored federal	евуик	5	8	GIG2	G
KSNPC moni	SCOMNAME	Orangefoot Pimpleback	Sheepnose	Clubshell	Rough Pigroe
	SNAME EO Type	Plethobasus coopertanus	Plethobasus cyphyus	Pleurobema clava	Pleurobema plenum
Page 4 of 5 03/20/2017	EOCODE EOID	IMBIV34020*025 1814	IMBIV34030*068 723	IMBIV35060*038 10662	IMBIV35240*006 3812

Extirpated from Kentucky Freshwater Musses THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESE DATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

Provided to HMB

DR# 17-074 federal

DR# 17-074 federal

Page 5 of 5 03/20/2017

Standard Occurrence Report KSNPC monitored federal status pecies within 5 miles of the I-275 Interchange Study Project in Boone County, Kentucky.

HABITAT			Occurs in small to medium-size rivers where	it lives deeply buried in sand and gravel bound together by the roots of aquatic vegetation (Bogan and Parmalee 1983; Ortmann 1925, 1926; Parmalee 1967; Stansbery 1976). This small muscel is easy to overlook because of the habitat occupied.
DIRECTIONS	Ohio River, Constance.		Ohio River at Cincinnati.	
EPA WATERBODY	050902030202 - Dry Creek-Ohio River		050902030201 - Town of Newport-Ohio River	- 056902011208 - Ninemile Creek-Ohio River 056902030204 - Garrison Creek-Ohio River River Creek-Ohio River Creek-Ohio River
LONG	0843812W		0843115W	
LAT	390434N		390524N	
7.5 MINUTE QUADRANGLE	Burlington		Covington	Addyston Burlington
COUNTY	Boone		Kenton	Camptell Boone
EOBVIR	×		×	
ьвес	Σ		IJ	
LASTOBS	1895-11-01		1870-pre	
IDENT STATUS OTHER	Y		Y	
VSESO	LE		LE	
TOAPS	×		x	
SBANK	SX		SX	
евулк	G1G2		62	
SCOMNAME	Scaleshell		Rayed Bean	
SNAME EO Type	Leptodea leptodon		Villosa fabalis	
EOCODE EOID	IMBIV24020*007	11934	IMBIV47050*003	6547

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

cmammals	HABITAT	Forest and open woodland, conferous, mixed, or deciduous, primardy, in confi. In more northern and mountainous, portion of range (BSCOM01NA). Migraes, thick hores, & coastlines coastlines		Grasslands and savanna, especially where wet or begy, sedge marshes, locally in dry cultivated grainfields. In migration and winter also in brushy grasslands. (B83COM01NA)		
DR# 17-010 birds <i>&</i>	DIRECTIONS	CW block of quadrangle.	NE side of KY 1092, ca 1.85 air mi S of Winifred [topo interpretation].	W side of Open Fork Road, ca 1.4 rd mi [plotted 1.0 rd mi] S of jet KY 172.	Paintsville Lake WMA, bluff overlooking lake.	Along unnamed tributary of Famins Fork, ca 0.3 air mi W of mouth of Laurel Fork.
	EPA WATERBODY	050702040202 - Irish Creek-Blaine Creek 050702040201 - Chrenkee Creek-Blaine Creek-Blaine Creek 050702040105 - Cains Creek-Blaine Creek	050702040104 - Hood Creek 050702040102 - Lower Laurel Creek	050702030402 - Open Fork Paint Creek	050702030402 - Open Fork Paint Creek 050702030403 - Barnetts Creek-Paint Creek	051001010202 - Upper Elk Fork
ntucky.	DNG	0825037W	0825120W	0830001W	0825915W	0830750W
ounty, Ker	E LAT	380345 N	375512N	375604N	375355N	375807N
oject in Boone C	7.5 MINUTE QUADRANGLI	Blaine	Sitka	Dingus Redbush	Redbush	Lenox
ge Study Pr	COUNTY	Lawrence	Johnson	Morgan	Johnson Morgan	Morgan
Interchang	EOBVIR	ш Гр	Е	ш	щ	ш
ence Report the I-275 Int	Daga OBS	7-11 0	7-17 N	8-11	4-12	6-06
dard Occur 0 miles of	IDENT	о-1661 Х	Y 1989-0	Y 1988-0	Y 2004-0	2006-0
Stan s within 10	OTHER SUTATUS					çç
an species	USESA SPROT	ຽ 4	4 S	S	F	T SOM
mammali	NVAR	S3B,S N	S3B,S N	S3B	S1S2	S2
tvian and	СВУИК	8	G5	GS	G5	G4
KSNPC monitored (SCOMNAME	Sharp-shinned Hawk	Sharp-shinned Hawk	Sedge Wren	Common Raven	Eastern Small-footed Myotis
	SNAME EO Type	Accipiter striants	Accipiter striatus	Cistothorus platensis	Corrus corax	Myotis leibii Summer mist-net record
Page 1 of 2 03/20/2017	EOCODE EOID	Extant in Kentucky Breeding Birds ABNKC12020*003 4717	ABNKC12020*043 8568	ABPBG10010*004 283	ABPAV10110*013 11058	AMACC01130*073 12470

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESEDATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

&mammals		HABITAT			
DR# 17-010 birds/		DIRECTIONS	Take KY 650 north from Bascom for ca 0.75 rd mi. Turn left into unnamed rd.Follow rd uphill for ca 0.2 mi.	US 60 bridge over Tygart's Creek at Olive Hill.	
		EPA WATERBODY	/ 050901040101 - Headwaters Little Sandy River	/ 050901030302 - Trough Camp Creek-Tygarts Creek	
	entucky.	TONG	0830933W	0830842W	
	ounty, Ke	E LAT	380309N	381830N	
	roject in Boone C	7.5 MINUTE QUADRANGL	Sandy Hook	Olive Hill	
	ge Study Pr	COUNTY	Elliott	Carter	
	erchan	EOBVIR	ш	ш	
eport	75 Int	ьвес	s	S	
rd Occurrence Rel	Standard Occurrence Rel avian and mammalian species within 10 miles of the I-2 M	miles of the I-2	LASTOBS	2012-07-24	2001-06-22
Standa		STATUS IDENT	×	¥	
		отнек	MC	ц	
		USESA APROT	T SO	ц	
		NNVNS	Q	1S2	
		d mamn		51	01
		GRANK	64	63	
	KSNPC monitored	SCOMNAME	Eastern Small-footed Myotis	Indiana Bat	
		SNAME EO Type	<i>Myotis leibii</i> mist netting record	<i>Myotis sodalis</i> Summer roost site	
Page 2 of 2 03/20/2017		EOCODE EOID	AMACC01130*156 13665	AMACC01100*195 12300	

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED. THESED DATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

Nathan Bowman

From:	Gordon, Elizabeth (AGR) <elizabeth.gordon@ky.gov></elizabeth.gordon@ky.gov>
Sent:	Thursday, April 13, 2017 11:08 AM
То:	Nathan Bowman; Nolen, Richard (AGR)
Subject:	RE: PACE Easements in Boone County?

Natalie,

Thank you for contacting Richard and I regarding the proposed project in Boone County. There are no PACE easements in Boone County to date.

Please let us know if there is anything else we can help with.

Thanks,

Elizabeth Gordon, Director

Division of Agricultural Education, Farm Safety, and Farmland Preservation 111 Corporate Drive Frankfort, KY 40601 (502) 782-4125 office (502) 234-4169 mobile (502) 573-2543 fax Elizabeth.Gordon@ky.gov

From: Nathan Bowman [mailto:nbowman@hmbpe.com]
Sent: Tuesday, April 11, 2017 11:11 AM
To: Gordon, Elizabeth (AGR) <Elizabeth.Gordon@ky.gov>; Nolen, Richard (AGR) <Richard.Nolen@ky.gov>
Subject: PACE Easements in Boone County?

Ms. Gordon, Mr. Nolen

We are helping to prepare environmental documentation for a project northwest of Hebron in Boone county (see attached map). Could you help us identify any PACE easements which might be in the area and might be impacted by this project? Thanks so much,

-N



DELIVERING QUALITY SOLUTIONS

U.S. DEPARTMENT OF AGRICULTURE Natural Resources Conservation Service NRCS-CPA-106 (Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART ! (To be completed	by Federal Agency)		3. Date	of Land Evaluatio	n Request	5	4. Sheet 1	of 2
1. Name of Project Boone	IJS		5. Fede	ral Agency Involve	d FHW/	4		te constante da constante da Carante
2. Type of Project Roadwa	v/Transportation		6. Cour	nty and State Bo	one, Ky	,		
PART II (To be complete	d by NRCS)		1. Date	Request Received	by NRCS	2. Perm	on Completing For	7.00
3. Does the confider contain p	time (inimie statewide or by	al important familand	12	1 24 17	_	A Acres	Irrigated Average	Farm Size
(If no, the FPPA does not a	opply - Do not complete addit	tional parts of this for	m).	YES NO []		- 1 2	01 40.
5. Major Crop(s)		6. Farmable Lar	nd in Gover	nment Jurisdiction	0	17. Amou	nt of Farmland As I	Defined in FPPA
Enna Editor	long	Acres: 74	444	% 4	24.5	Acre	\$ 47,392	\$ 7.1 10
6. Name Of Land Evaluation	System Used	9. Name of Loca	al Site Assa	essment System		10. Date	Land Evaluation R	leturned by NRCS
MACS Mane	(je	Aure	-			1	1-27-17	
PART III /To be complete	d by Federal Agencyl			Alterna	tive Corr	dor For	Segment	
	a of reactar rigency)			Corridor A	Corr	ldor B	Corridor C	Corridor D
A. Total Acres To Be Conve	rted Directly			106	108		104	108
B. Total Acres To Be Conve	rted Indirectly, Or To Recei	ive Services		0	0		0	0
C. Total Acres In Corridor			-	106	108		104	108
PART IV (To be complete	ed by NRCS) Land Eval	uation information	9.		1			
A Total Acres Prime And U	Inique Farmland			8.31	3.	03	7.47	9.04
B Total Acres Statewide A	nd Local Important Farmlar	nd		3.36	5.	01	420	5.92
C. Percentage Of Familance	in County Or Local Govt.	Unit To Be Converte	bđ	U.C.RY	0.0	135	0.0/34	0.0157
D. Percentage Of Farmland	in Gevt. Jurisdiction With S	ame Or Higher Relat	tive Value	71.3523	21.	3523	7/ 3523	71.3523
PART V (To be completed	by NRCS) Land Evaluation	Information Criterior	Relative	70	1	0	17	6.0
value of Farmland to Be Se	erviced or Converted (Sca	le of 0 - 100 Points		10		u	Gr	-
Assessment Critoria (The	d by Federal Agency) Cor se criteria are explained i	ridor in 7 CFR 658.5(c))	Maximum Points		1.			
1. Area in Nonurban Use	e		15	9	0		7	7
2. Perimeter in Nonurba	n Use		10	4	C	1	S	5
3. Percent Of Corridor E	Being Farmed		20	0	C	5	0	0
4. Protection Provided E	By State And Local Governm	ment	20	0	C	>	0	0
5. Size of Present Farm	Unit Compared To Average		10	0	0	>	0	Ø
6. Greation Of Nonfarm	able Farmland		25	0	0		0	0
7. Availabliiity Of Farm	Support Services		5	5	5		5	5
8. On-Farm Investments	3		20	0	0	>	0	0
9. Effects Of Conversion	n On Farm Support Service	4	25	0	0		9	1.0
10. Compatibility With E:	ciating Agricultural Use		10	0	C		0	10
TOTAL CORRIDOR AS	SESSMENT POINTS		160	18	18	5	17	17
PART VII (To be complete	d by Federal Agency)							
Relative Value Of Farmla	nd (From Part V)		100	70	6	8	67	68
Total Corridor Assessmen assessment)	t (From Part VI above or a	local site	160	18	[3	17	17
TOTAL POINTS (Total	of above 2 lines)		260	88	8	5	84	85
1. Corridor Selected:	2. Total Acres of F Converted by F	Farmlands to be ; Project:	3. Date Of s	Selection:	4. Was	A Local S	ite Assessment Us	ed?
						TES		

5. Reason For Selection:

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Appendix H -- Special Note for Erosion Control

Appendix H -- Special Note for Erosion Control

SPECIAL NOTE FOR EROSION CONTROL

The Contractor shall be responsible for filing the Kentucky Pollution Discharge Elimination System (KPDES) KYR10 permit Notice of Intent (NOI) with the Kentucky Division of Water (DOW) and any KPDES local Municipal Separate Storm Sewer System (MS4) program that has jurisdiction. The NOI shall name the contractor as the Facility Operator and include the KYTC Contract ID Number (CID) for reference.

The Contractor shall perform all temporary erosion/sediment control functions including: providing a Best Management Practice (BMP) Plan, conducting required inspections, modifying the BMP plan documents as construction progresses and documenting the installation and maintenance of BMPs in conformance with the KPDES KYR10 permit effective on December 1, 2014 or a permit reissued to replace that KYR10 permit. This work shall be conducted in conformance with the requirements of Section 213 of KYTC 2012 Department of Highways, Standard Specifications for Road and Bridge Construction.

Contrary to Section 213.03.03, paragraph 2, the Engineer shall conduct inspections as needed to verify compliance with Section 213 of KYTC 2012 Department of Highways, Standard Specifications for Road and Bridge Construction. The Engineer's inspections shall be performed a minimum of once per month and within seven days after a storm of $\frac{1}{2}$ inch or greater. Copies of the Engineer's inspections shall not be provided to the contractor unless improvements to the BMP's are required. The contractor shall initiate corrective action within 24 hours of any reported deficiency and complete the work within 5 days. The Engineer shall use Form TC 63-61 A for this report. Inspections performed by the Engineer do not relieve the Contractor of any responsibility for compliance with the KPDES permit.

Contrary to Section 213.05, bid items for temporary BMPs will not be listed and all work will instead be included in the lump sum contract cost. The schedule of values for the project should may utilize a lump sum item for "Temporary Erosion Control" to address all items included in section 213 of the Standard Specifications.

The contractor shall be responsible for applying "good engineering practices" as required by the KPDES permit. The contractor may use any temporary BMPs with the approval of the KYTC Engineer.

The contractor shall provide the Engineer copies of all documents required by the KPDES permit at the time they are prepared.

The contractor shall be responsible for the examination of the soils to be encountered and make his own independent determination of the temporary BMPs that will be required to accomplish effective erosion prevention and sediment control.

The Contractor shall be responsible for filing the KPDES permit Notice of Termination (NOT) with the Kentucky DOW and any local MS4 program that has jurisdiction. The NOT shall be filed after the Engineer agrees that the project is stabilized or the project has been formally accepted.

Appendix I -- Right of Way Project Report (Form TC 62-75)

- Cont	KENTU DIVISION	JCKY TRANSPORTATIO Department of High NOF RIGHT OF WAY	ON CABINET ways AND UTILITIES	5	TC 62-75 Rev. 02/2018 Page 1 of 3
		PROJECT REPO	ORT		
SECTION 1: PROJECT INFORM	IATION				
COUNTY	ITEM NO.	PROJECT I	NO.		FEDERAL NO.
		PROJECT NAME			
	JJLC1	# OF FARCELS			
	COMPILE	D BY	L		DATE COMPILED
SECTION 2: PROJECT SUMMA	NRY				
# OF ENTIRE ACQUISITIONS	# OF	PARTIAL ACQUISITIC	ONS		RELOCATIONS
		W/1 Remai	inder		Residential
Vacant	Vacant	W/2 Remai	inder	No	n-Residential
Improved	Improved	W/3 or r	more		Misc. Move
		W/LL Remai	inder		Outdoor Ads
# OF PARCELS IN "MAJOR" CA	TEGORY				
# OF PARCELS IN "MINOR" CA	TEGORY				
# OF PARCELS IN MAR CATEG	ORY				
SECTION 3: PROJECT DESCRIF availability of data, recommend	PTION (overall comple led studies and analy	exity of project, specia sis) Text limited for ac	al problems tha	t may be e	ncountered, estimated chment if needed.



KENTUCKY TRANSPORTATION CABINET Department of Highways DIVISION OF RIGHT OF WAY AND UTILITIES

TC 62-75 Rev. 02/2018 Page 2 of 3

PROJECT REPORT

SECTION 4: PARCEL INFORMATION

JECHON	TANC												
	COUN	ТҮ			<u> </u>	I	TEM NO.		PROJECT NO.		FED	ERAL NO.	
INSTRUCT	TIONS: Afte	er ent	ering	inforr	natior	n in the	last availa	ble field belo	ow, click 'tab' to access additional fields.				
Parcel No.	Type Property	No Tr	No Rem	V/I ¹	P/T²	Size Tract AC/SF	R/W To be Acquired AC/SF	Type and Size of Easements SF	REMARKS Number and type of improvements before ac present use of property, current zoning, impro acquired, physical changes such as grade, access way proximity, physical effects of easements, SLI etc.	quisition, ovements , right of affected,	Complexity Rating ³	Recommended Format 62-20 Narrative	Appraisers Proposed Fee

¹**V**=Vacant **I**=Improved

²**P**=Partial **T**=Total

5	de la	A la		KENTUCKY TRANSPORTATION CABINET Department of Highways DIVISION OF RIGHT OF WAY AND UTILITIES	TC 62-7 Rev. 02/202 Page 3 of
SECTION				PROJECT REPORT	
SECTION	COUN		ITEM NO.	PROJECT NO.	FEDERAL NO.
				PROJECT NAME	
INSTRUC	TIONS: Aft	er entering inform	mation in the last available	e field below, click 'tab' to access additional fields.	
Parcel No.	Relo Type⁴	DETAILED SUM Type of Relocat	IMARY: (Text is unlimited. tion, Type of improvements	REMARKS Additional space will be added as needed.) s acquired, present use of property, type of move, anticipate	d problems, etc.

⁴RHP=Replacement Housing Payment **B**=Business **M**=Miscellaneous Move **S**=Sign/Billboard

Appendix J -- Utility Company Contacts

AREA FACILITY OWNER CONTACT LIST

Facility Owner	Address	Contact Name	<u>Phone</u>	Email
Boone County Water District	PO Box 18 Burlington KY 41005	Keith Feldhaus	(859) 586-7270	kfeldhaus@fuse.net
Boone Florence Water Commission	2475 Burlington Pike PO Box 998 Burlington, KY 41005	Carl Cassell	(859) 586-5190	ccassell@fuse.net
Cincinnati Bell Telephone - Overhead	221 E Fourth Street Building 121-900 Cincinnati, OH 45201	Dan Springelmeyer	(513) 397-7165	dan.springelmeyer@cinbell.com
Cincinnati Bell Telephone - Underground	221 E Fourth Street Building 121-900 Cincinnati OH 45201	Mark Conner	(513) 565-7043	mark.conner@cinbell.com
Duke Energy Kentucky (Gas) - Natural Gas Distribution	1262 Cox Avenue Erlanger, KY 41018	Gerry Helm	(859) 534-4405	Gerry.Helm@duke-energy.com
Duke Energy Kentucky (Electric) - Distribution	2010 Dana Avenue Cincinnati, OH 45207	Wes Needham	(513) 458-3857	Wes.Needham@duke- energy.com
East Kentucky Power Cooperative	4775 Lexington Road PO Box 707 Winchester, KY 40391	Garry Harvey	(859) 745-9601	garry.harvey@ekpc.coop
Owen Electric Cooperative - Electric	8205 Highway 127 N PO Box 400 Owenton KY 40359	Lucas McNally	(859) 393-9450	Imcnally@owenelectric.com
Sanitation District No. 1 - Sewer	1045 Eaton Drive Fort Wright KY 41017	Andy Aman	(859) 578-6880	aaman@sd1.org
Spectrum Communications	100 Barnwood Drive Edgewood, KY 41017	Chuck McCarty	(859) 687-7045	charles.mccarty@charter.com

Appendix K -- Structure Special Notes

SPECIAL NOTE FOR DYNAMIC PILE TESTING

Boone County (6-78) Graves Road Interchange at Interstate 275

1.0 GENERAL

1.1 Scope of Work The scope of work includes furnishing all labor, equipment and analyses associated with dynamic testing of driven piles as specified in this Special Note and in general accordance with ASTM D 4945, *High-Strain Dynamic Testing of Piles*. Dynamic testing involves attaching at least two strain transducers and two accelerometers to the pile near the pile head during initial driving or at a convenient location during restrike testing. A cable or wireless transmission connects the sensors near the pile head with the Pile Driving Monitoring Hardware located a safe distance from the pile, but not more than 330 ft from the pile. The piles that are to be tested must be of sufficient extra length to ensure that sensors are not driven into the ground.

1.2 Personnel Qualifications Perform dynamic pile testing utilizing the services of an independent Dynamic Pile Testing Consultant with qualified personnel as described below.

- Pile Driving Monitoring An engineer with a minimum of 3 years dynamic pile testing and analysis experience or who has achieved Basic or better certification under the High-Strain Dynamic Pile Testing Examination and Certification process of the Pile Driving Contractors Association or Foundation QA.
- Wave Equation and Pile Driving Analyses A licensed professional engineer with a minimum of 5 years dynamic pile testing and analysis experience or who has achieved Advanced or better certification under the High-Strain Dynamic Pile Testing Examination and Certification process of the Pile Driving Contractors Association or Foundation QA.

1.3 Equipment Supply equipment such as sensors, cables or wireless transmitters, etc. conforming to ASTM D 4945, *High-Strain Dynamic Testing of Piles* and furnished by the dynamic testing consultant. Prior to beginning work, submit the product name and manufacturer of the hardware and software components below for acceptance by the Engineer. If requested by the Engineer submit additional information including technical specifications, etc.

- Pile Driving Modeling Wave Equation Software
- Pile Driving Monitoring Hardware & Software
- Pile Driving Analysis Signal Matching Software

To prepare the pile for sensor attachment, provide a drill (and bit) of sufficient power, operated by either a DC battery (preferred) or a generator. A hammer drill is required for preparation of concrete piles.

1.4 Submittals and General Testing & Analysis Requirements See Tables 1 and 2 on the following page. The Engineer will respond to the Contractor regarding acceptability of submittals as soon as practical.

Submittal	Submittal	Calendar	
Number	Item	Days	Event
1	Proposed independent dynamic pile testing	45 Before	Start of
	consultant, and a listing of assigned personnel and		Pile Driving
	their experience and qualifications.		Monitoring
2	Details of the hardware and software components,	45 Before	Start of
	method of testing, and materials to be used.		Pile Driving
			Monitoring
3	Completed Pile and Driving Equipment Data Form	21 Before	Start of
	(Figure 1 of this Special Note) and the results of wave		Pile Driving
	equations analyses.		Monitoring
4	Preliminary Reports as defined in Section 3.1 of this	1 After	Completion of Each
	Special Note.		Field Test
5	Summary Report(s) as defined in Section 3.2 of this	10 After	Completion of All
	Special Note.		Field Tests

Provide all submittals and reports in .pdf format.

Table 2 - General Testing and Analysis Requirements			
Item	Requirement		
Wave Equation Analysis	Minimum of 1 and sufficient addi	tional analyses as needed to define	
	performance for all combinations of piles, driving systems and		
	subsurface conditions anticipated.		
Dynamic Testing Pile	Required Nominal Pile Resistanc	e (i.e. Ultimate Pile Capacity) as	
Resistance (i.e. Capacity)	shown in the plans and/or as directed	ed by the Engineer.	
End of Initial Driving Test Frequency	Minimum of 1 production pile for each substructure or as directed by the Engineer during the final 25 feet of initial driving		
Beginning of Restrike Test Frequency	Minimum of 1 production pile for each substructure or as directed by		
	the Engineer.		
Time Interval between End of Initial	Minimum of 72 hours unless stated otherwise elsewhere in the contract		
Driving and Restrike	documents and/or directed otherwise by the Engineer based on the		
	criteria below.		
		1	
	Soil Type	Time Delay Until Restrike	
	Clean Sands	24 hours	
	Silty Sands	48 hours	
	Sandy Silts	72 – 120 hours	
	Silts and Clays	7 - 14 Days	
	Shales	7 Days	
Pile Driving Analyses using Signal	For each End of Initial Driving Test and each Beginning of Restrike		
Matching Techniques	Test		

Perform testing and analyses in accordance with this table and ASTM D 4945, *High-Strain Dynamic Testing of Piles*.

2.0 TESTING AND ANALYSES

2.1 Preconstruction Wave Equation Analyses At least 21 calendar days before beginning pile driving monitoring submit to the Engineer the completed Pile and Driving Equipment Data Form (Figure 1 of this Special Note) and preconstruction wave equation analyses performed by the Dynamic Pile Testing Consultant in accordance with Table 2 in this Special Note and a summary report of the results. The required nominal resistance (i.e. ultimate capacity) is provided in the plans and/or elsewhere in the contract documents. Upon request, the Geotechnical Report for the structure can be provided.

The purpose of the wave equation analyses is to assess the ability of all proposed pile driving systems to install piles to the required nominal resistance (i.e. ultimate capacity) and the desired penetration depth within allowable driving stresses. Acceptability of the wave equation report and the adequacy of analyses will be determined by the Engineer. In the Wave Equation Summary Report, include:

- a. drivability graph relating pile resistance (i.e. capacity), blow count and driving stresses to depth;
- b. bearing graph relating the pile resistance (i.e. capacity) to the pile driving resistance which indicates blow count versus resistance (i.e. capacity) and stroke; and
- c. constant resistance (i.e. capacity) analysis or inspectors chart to assist the Engineer in determining the required driving resistance at other field-observed strokes.

2.1.1 Acceptance by the Engineer of the proposed pile driving system will be based upon the wave equation analyses indicating that the proposed system can develop the specified pile resistance (i.e. capacity) at a pile driving rate of 3 to 10 blows per inch (36 to 120 blows/ft.) at the end of driving and beginning of restrike, and within allowable driving compressive stress of 90% of the yield stress of the piles. Provide preliminary pile driving criteria based on wave equation analyses and any anticipated resistance (i.e. capacity) changes after driving, set-up or relaxation, subject to revision based upon dynamic pile testing field measurements.

2.1.2 If any changes or modifications are made to the accepted pile driving system, additional wave equation analyses in accordance with Section 2.1 of this Special Note will be required.

2.2 High-Strain Dynamic Pile Testing

2.2.1 Perform dynamic pile testing at the locations and frequency required in accordance with Table 2 in this Special Note.

2.2.2 Dynamic pile testing involves monitoring the response of a pile subjected to heavy impact applied by the pile hammer at the pile head. The testing will provide information on the driving stresses, pile resistance (i.e. capacity), structural integrity, and hammer efficiency.

2.2.3 Engage an independent dynamic pile testing consultant and qualified personnel in accordance with Section 1.2 of this Special Note. Prior to testing, the Engineer will review and accept the proposed independent dynamic pile testing consultant, the experience and qualifications of assigned personnel, details of the method of testing, a list of equipment, and the method of analysis of test results.

2.2.4 Perform all field testing and measurements in the presence of the Engineer or authorized representative.

2.2.5 <u>**Remote Dynamic Pile Testing**</u> where data is collected in the field and sent to the office of the Dynamic Pile Testing Consultant <u>will not be allowed</u> on this project. The testing consultant is required to have at least one person meeting the requirements for "Pile Driving Monitoring" as defined in Section 1.2 of the Special Note for Dynamic Pile Testing in the field during all dynamic pile testing. However, "wireless" technology that eliminates cables from the test pile to the data acquisition equipment will be allowed.

2.3 Field Testing

2.3.1 Equipment Perform dynamic pile testing field measurements using equipment, software and recording equipment accepted in accordance with Section 1.4 of this Special Note. Analyze the data collected at the end of initial driving and the beginning of restrike using accepted signal matching techniques and software.

2.3.2 Monitoring During Driving During pile driving, instrument the piles and monitor them with testing equipment satisfying the requirements of Section 1.3 of this Special Note. Prior to lifting the pile to be dynamically tested, provide a minimum of 3 ft of clear access to 180 degree opposite faces of the pile for pile preparation then drill and prepare holes for sensor attachment. Sensors are usually attached near the pile top.

2.3.2.1 Install two sets of strain transducers and accelerometers near the top of each pile to be tested, and use a compatible measuring and recording system to record the data during driving.

2.3.2.2 Appropriately position and fix the equipment required to be attached to the pile to the satisfaction of the Engineer.

2.3.2.3 Use a pile driving hammer and other equipment capable of delivering an impact force sufficient to mobilize the specified pile resistance (i.e. capacity) indicated in the structure plans without damaging the pile.

2.3.2.4 Use the testing equipment to monitor pile stresses during driving to prevent pile damage and ensure pile integrity and resistance (i.e. capacity). If the testing equipment indicates overstressing or damage to the pile, immediately discontinue driving and notify the Engineer and propose a new pile driving system, modifications to existing system, or new pile installation procedures. Acceptance by the Engineer of any proposed changes to the pile driving system or pile installation procedures will be based upon the results of additional wave equation analyses in accordance with Section 2.1.2 of this Special Note.

2.3.3 Preparation of the Pile Head The preparation of the pile head for the application of dynamic test load may involve, where appropriate, trimming the head, cleaning, and building up the pile using materials that, at the time of testing, safely withstand the impact stresses. Provide an impact surface that is flat and at right angles to the pile axis.

2.3.4 Dynamic Measurement and Analysis Begin monitoring of pile driving when pile driving begins. Record and process the data immediately in the field by the pile driving monitoring equipment and software. Unless monitoring indicates that additional driving will damage the pile, continue pile driving and monitoring until both the specified pile tip elevation and the specified pile resistance (i.e. capacity) are reached. When the level of the sensors is within 1 foot of any obstruction endangering the survival of sensors or cables, halt driving to remove the sensors from the pile. If additional driving is required, remove the obstruction or splice the pile and reattach the sensors to the head of the next pile segment prior to resuming driving. For each pile tested, perform pile driving (EOD) to determine the relative capacities from end bearing and skin friction along the pile. Unless stated elsewhere in the contract documents or directed otherwise by the Engineer use the table below to determine the pile resistance (i.e. capacity) required at EOD.

Soil	Setup	EOD Resistance as a % of	
Туре	Factor	Required Nominal Resistance	
Clay	2.0	≈ 50%	
Silt-Clay & Sand-Clay	1.5	≈ 70%	
Sand-Silt & Fine Sand	1.2	≈ 85%	
Sand & Sand-Gravel	1.0	≈ 100%	

<u>Make any required adjustments to the fuel and/or power setting of the hammer</u> if necessary to verify the resistance at a pile driving rate of 3 to 10 blows per inch (36 to 120 blows/ft.) at the end of driving and beginning of restrike and within allowable driving compressive stress of 90% of the yield stress of the piles or to meet other applicable testing objectives.

2.3.4.1 Perform beginning of restrike (BOR) tests at the frequency indicated in Table 2 of this Special Note with the time interval between end of initial driving and beginning of restrike in accordance with Table 2 of this Special Note. During restrike, instrument and monitor the pile in a manner similar to that used during initial driving. For each restrike test, perform pile driving analysis using signal matching techniques for a selected blow from the beginning of restrike to determine the relative capacities from end bearing and skin friction along the pile.

2.3.4.2 Perform the restrike test with a warmed-up hammer by striking the pile a minimum of 10 blows unless testing equipment indicates overstressing or damage to the pile. If such overstressing or damage to the pile is indicated, immediately discontinue driving and notify the Engineer. Unless directed otherwise by the Engineer perform a redrive with dynamic testing for the remaining length of the test pile unless excessive driving stresses are encountered. In the event initial restrike testing indicates a pile resistance below the specified resistance, an additional restrike test after the redrive may be required as directed by the Engineer.

2.3.4.3 The Engineer may request use of pile driving monitoring equipment and software on additional piles if inconclusive results are obtained or unusual driving conditions are encountered.

2.3.4.4 Evaluate pile resistance and integrity based on the standard procedure used in practice.

2.3.4.5 Immediately provide tabular records of the dynamic pile testing field measurements obtained at the end of initial driving and at the beginning of restrike to the Engineer.

3.0 DYNAMIC PILE TEST REPORTS

3.1 Preliminary Dynamic Pile Test Reports Submit a preliminary test report for each pile tested for review by the Engineer. In the reports, include tabular as well as graphical presentation of the dynamic test results versus depth and proposed pile driving criteria for the additional piles to be installed at the substructure unit of the pile tested. Also include the following:

- a. The maximum force applied to the pile head.
- b. The maximum pile head velocity.
- c. The maximum energy imparted to the pile.
- d. The assumed soil damping factor and wave speed.
- e. Static resistance (i.e. capacity) estimate.
- f. The maximum compressive and tensile forces in the pile .
- g. Pile integrity.
- h. Blows per inch.
- i. Stroke.
- j. Summary results of pile driving analysis from <u>up to three selected blows</u> analyzed using signal matching techniques and software.
- k. Results of <u>refined wave equation analyses</u> based upon dynamic testing signal matching analysis, including tabular and graphical inspector's charts at EOD and BOR for the required pile resistance values specified for each specific substructure.

The Engineer will use the results of the preliminary reports to provide pile driving criteria for production piles to the Contractor.

3.2 Dynamic Pile Test Summary Report Submit a summary report of all piles tested on each structure for review by the Engineer. (Where phased construction is used it may be

desirable to provide different reports for each phase. In such cases, the contractor should seek the approval of the Engineer.) In the report, include the results of hammer performance, pile driving stresses, and pile resistance during initial driving and restrike for all piles tested. Also include the following:

- a. Identification of the structure, including: County, Route, Crossing, and Drawing Number.
- b. Date of testing and date of pile installation.
- c. Pile identification number and location.
- d. All information given in preliminary reports as follows:
 - 1. Length of pile below the surface.
 - 2. Total length of pile, including projection above the surface at time of test.
 - 3. Length of pile from instrumentation position to tip.
- e. Hammer type, drop, and other relevant details.
- f. Blow selected for signal matching analysis.
- g. Maximum compressive and tensile stresses, stroke, and resistance (i.e. capacity) versus penetration depth.
- h. Temporary compression.
- i. Pile integrity and location of damage, if any.
- j. Force/velocity versus time trace.
- k. Force/velocity match curve.
- 1. Resistance distribution along the pile.
- m. Detailed graphical and tabular results from <u>up to three selected blows</u> analyzed using signal matching techniques and software.
- n. Results of <u>refined wave equation analyses</u> based upon dynamic testing signal matching analysis, including tabular and graphical inspector's charts at EOD and BOR for the required pile resistance values for each specific substructure.

4.0 INCIDENTAL EQUIPMENT

Prior to the beginning of dynamic testing, provide one electronic device to aid in recording pile hammer blows, stroke, and energy such as an "E-Saximeter" or accepted equivalent meeting the specifications in the Appendix to this Special Note. This device will immediately become property of the Department for use on the project.

Provide field training by someone proficient in the use of the device to ensure that approximately 3 to 5 employees of the Department are competent in the use of the device. This training may be performed by a representative of the independent Dynamic Pile Testing Consultant who is proficient in the use of the device or a manufacturer's representative. The required training time is anticipated to be no more than one day.

The cost of furnishing this device and providing the training is incidental to the contract price for "Dynamic Pile Testing" and no separate payment will be made.

5.0 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Payment for the above described work, including all material, equipment, tools, labor and any other incidental work necessary to complete this item shall be included in the lump sum bid item for the project.

Contract No.:		Structure Name and/or No	D.:	
Project:		Pile Driving Contractor or	Subcontractor:	
County:		(Pi	iles driven by)	<u></u>
structure Components Ram	Hammer	Manufacturer: Hammer Type: Manufacturers Maximum Rated Energy Stroke at Maximum Rated Energy Range in Operating Energy: Range in Operating Stroke: Ram Weight: Modifications:	Model No.: Serial No.: nergy: :to to to	_ (ft lb.) _ (ft.) _ (ft lb.) _ (ft.)
	Striker Plate	Weight: (I	b.) Diameter:	(in.)
	Hammer Cushion	Material #1 Name:(ir Area:(ir Thickness/Plate:(ir No. of Plates: Total Thickness of Hammer Cushi	Material #2 (for Composite Cushion) Name:	(in. ²)
	Helmet (Drive Head)	Weight: (I	b.)	
	Pile Cushion	Material: Area: (in. ²) No. of Sheets: Total Thickness of Pile Cushion: _	Thickness/Sheet:	(in.)
	Pile	Pile Type: Wall Thickness: Cross Sectional Area: Ordered Length: Design Load: Ultimate Pile Capacity: Description of Splice:	(in.) Taper: (in. ²) Weight/Foot (ft.) (kips) (kips)	
		Driving Shoe/Closure Plate Descrip Submitted By: Telephone No.:	Date: Fax No.:	

Figure 1 Pile and Driving Equipment Data Form (From FHWA-HI-097-014)

Appendix

Physical:

Size:	100mm X 190mm X 50mm (4 inches X 7.5 inches X 2 inches)
Weight:	0.7 kg (1.5 lb.)
Temperature range:	-10 to 50°C (14 to 104°F) operating
Power:	built-in rechargeable battery w/ 8 hour min duration
Display:	LCD, 4 Lines x 16 characters, viewing area 62 mm by 26 mm (2.5 inches
	by 1 inch)
Keypad:	Large key (1.27 mm^2) , non tactile

Electronic:

32 bit microcontroller up to 20.97 MHz 12 bit digital to analog converter 8 bit 4 channel analog to digital converter Internal microphone 70 to 115 dB RS232 connector for data transfer 4 MB internal memory

Functional and Other:

Maximum blow detection rate: 68 bpm for open end diesel hammers; 300 bpm for all others Furnished with SAXLINK program for data transfer in text format Operates in English or SI units Full one year warranty Technical manual included

SPECIAL NOTE FOR MECHANICALLY STABILIZED EARTH RETAINING WALLS BOONE COUNTY KENTUCKY

1.0 DESCRIPTION

1.01 General and Experience Requirements:

The work under this section consists of designing, furnishing all materials and constructing Mechanically Stabilized Earth (MSE) retaining walls in accordance with the current Standard Specifications, this Special Note, in compliance with the lines and grades, dimensions and details shown on the project plans, and as directed by the Engineer.

The Contractor shall provide the MSE wall designer with a complete set of project plans and specifications and shall ensure that the wall design is compatible with all other project features that can impact the design and construction of the wall. The following terms are used in this specification for identification of various entities for which the Contractor shall be fully responsible:

Term	Entity
Wall	The entity contractually retained by the contractor to provide materials and construction
Manufacturer	services for an accepted MSE wall system as identified in Subsection 1.02.
Wall	The entity contractually retained by the contractor to provide design of an accepted MSE wall
Designer	system as identified in Subsection 1.02. The wall designer may be a representative of the wall
e	manufacturer.
Department /	Refers to the Kentucky Transportation Cabinet representative and/or a designated consultant
Engineer	acting on behalf of KYTC.

1.02 Accepted Systems:

The contractor shall provide an MSE Wall System that uses inextensible reinforcement and reinforced concrete panels or modular block and is one of the pre-approved systems below. <u>Inclusion of a system on this list does not relieve the Contractor and/or wall manufacturer of the contractual responsibility to satisfy all specific requirements herein and/or elsewhere in the contract documents.</u>

- Reinforced Earth (Reinforced Earth and Retained Earth)
- Hilfiker RSE
- Tricon Retained Soil Wall System
- ISOGRID Retaining Wall System
- Keystone Keysystem I
- Sine Wall MSE Panel System
- Sanders Pre-Cast Concrete Systems

Heights and lengths of earth retaining walls may vary from, but shall not be less than, those shown on the plans. The height and length to be used for any system shall be the minimum for that system that will effectively retain the earth behind the wall for the loading conditions and the contours, profile, or slope lines shown on the plans, or on the approved working drawings, and in accordance with all relevant internal and external stability design criteria, but not more than the pre-approved height for the particular MSE wall system selected.

1.03 MSE Wall Design Engineer:

Requirements for the Wall Designer's **MSE Wall Design Engineer** (who may be employed by the wall manufacturer or may be a consultant) are:

- Licensed Professional Engineer in the Commonwealth of Kentucky with a minimum of <u>5 years of</u> <u>geotechnical and/or structural engineering experience</u>.
- <u>Design and/or construction experience</u> on at least <u>five (5) MSE Walls</u> and a minimum of <u>50,000 square</u> <u>feet</u> of MSE Wall completed in the past five (5) years. Experience on a Reinforced Soil Slope may be substituted for one wall and up to 10,000 square feet.
- <u>Design experience</u> on at least <u>three (3) MSE Walls</u> and a minimum of <u>30,000 square feet</u> of MSE Wall on <u>highway infrastructure projects using the wall system that will be used on this project</u> completed in the past five (5) years.
- Completion of at least <u>15 Professional Development Hours</u> related to the design and/or construction of MSE Walls in the past five (5) years. This training may consist of attendance at a related short course, conference, seminar, workshop, or college course. Include documentation of this training with the submittal of the Design Engineer's credentials.

1.04 Wall Aesthetics:

Wall aesthetics shall be as specified in the project documents and request for proposals.

1.05 Certifications:

- (A) Certification of Design Parameters: See Subsection 2.01 herein specified.
- (B) Certification of Materials: See Subsections 3.04, 3.07, 3.09 & 3.10 herein specified.

1.5 QUALITY CONTROL:

The Department will perform construction inspection for the MSE Walls. However, the Contractor will be required to proactively implement the quality control procedures described herein. All costs associated with MSE Wall Quality Control will be incidental to the cost of the wall.

1.51 MSE Wall Quality Coordinator:

The Contractor shall designate a MSE Wall Quality Coordinator who shall:

- have a minimum of 3 years of construction field experience,
- be responsible for ensuring that the Contractor's quality control procedures are implemented including maintaining and submitting the checklists required in Section 1.57, (but may have other duties and/or responsibilities),
- have sufficient authority to carry out quality coordinator responsibilities, and
- be in the field during MSE Wall construction.

1.52 Mandatory MSE Wall Construction Training:

The MSE Wall Designer or an approved appointee will provide training related to proper MSE Wall construction for Contractor and Department personnel. This training should occur after the contractor has selected the MSE Wall system and the Department has confirmed that the MSE Wall Design Engineer and Manufacturer's Technical Field Representative meet the specified requirements. The training will be conducted in the District by the Manufacturer's Technical Field Representative or an outside consultant meeting the experience requirements of the Manufacturer's Technical Field Representative. The MSE

Wall Construction Training is expected to last one full day. Department personnel who will attend will include project inspection personnel and may include other district and central office personnel. The following contractor personnel are required to attend:

- On-Site Supervisor in charge of MSE Wall construction
- MSE Wall Quality Coordinator
- At least one office management level person representing the MSE Wall contractor
- If the MSE Wall is to be constructed by a subcontractor, at least one management level representative (field or office) of the Prime Contractor
- Manufacturer's Technical Field Representative referenced in Section 1.55 herein

At least one week before the training begins, the Contractor shall submit a list of specific persons who plan to attend.

1.53 Quality Control Plan:

The contractor shall submit a Quality Control Plan to the Engineer for review and acceptance which details measurements and documentation (including daily documentation checklists) that will be maintained by the Contractor during construction to assure consistency in meeting specification requirements. The Contractor shall coordinate the development of the Quality Control Plan with the MSE Wall System Manufacturer and the MSE Wall Design Engineer. The Quality Control Plan shall be submitted to the Engineer for acceptance at least four weeks before beginning MSE wall construction.

1.54 MSE Pre-Activity Meeting:

A pre-activity meeting will be scheduled and shall occur after the Quality Control Plan has been submitted and accepted by the Engineer and no later than two (2) weeks prior to commencement of MSE wall construction activity. As a minimum, this meeting shall be attended by representatives of the Contractor and MSE Wall Sub-Contractor (including wall construction crew chiefs and MSE Wall Quality Coordinator), MSE Wall Manufacturer's Technical Field Representative, Department District personnel as designated by the Branch Manager for Project Delivery and Preservation, Central Office Construction, and Geotechnical Branch. No wall construction activity shall be performed until the contractor's final submittals have been approved as having satisfactorily resolved all review comments and the pre-activity meeting has been held.

1.55 Manufacturer's Technical Field Representative:

The MSE Wall System Manufacturer shall provide a technical field representative to provide assistance to the MSE Wall Contractor. The requirements for the **Manufacturer's Technical Field Representative** are:

- At minimum, an associate's or bachelor's degree with a major in a technical or scientific field such as engineering, engineering or construction technology, geology, physics, mathematics, etc.
- A minimum of five (5) years of technical experience related to engineering and/or construction.
- <u>Construction experience</u> on at least <u>five (5) MSE Walls</u> and a minimum of <u>50,000 square feet</u> of MSE Wall completed in the past five (5) years. Experience on a Reinforced Soil Slope may be substituted for one wall and up to 10,000 square feet.
- <u>Construction experience</u> on at least <u>three (3) MSE Walls</u> and a minimum of <u>30,000 square feet</u> of MSE Wall on <u>highway infrastructure projects using the wall system that will be used on this project</u> completed in the past five (5) years.

• Completion of at least <u>ten (10) Professional Development Hours</u> related to the design and/or construction of MSE Walls in the past five (5) years. This training may consist of attendance at a related short course, conference, seminar, workshop, or college course. Include documentation of this training with the submittal of the Technical Field Representative's credentials.

At least four weeks before beginning MSE wall construction, the Contractor shall submit documentation that the Technical Field Representative meets the above requirements.

The minimum required duties of the Manufacturer's Technical Field Representative are:

- Participate in the mandatory training referenced in Section 1.52 herein.
- Participate in the preparation of the Quality Control Plan referenced in Section 1.53 herein.
- Attend the MSE Pre-Activity Meeting referenced in Section 1.54 herein.
- Ensure that the contractor obtains all "Certificates of Analysis" required in Section 3.0 (Materials Requirements) of this Special Note.
- Review all "Certificates of Analysis" and supporting documentation and provide written documentation to the Contractor and Engineer that the reviews have been completed and that all materials meet the specified requirements.
- Review all Supervisor Checklists described in Section 1.57 herein.
- Be present at a minimum, <u>during construction of the initial 10-foot height of the full length of wall for</u> each wall system. Additionally the representative shall be present for the initial 10-foot height of the <u>full length of wall for each wall system as constructed by each additional contractor</u>, and as called upon thereafter by the Engineer, to assist the contractor and Engineer at no additional cost to the Agency.
- After each on-site visit, the Contractor is required to submit a letter to the Engineer written by the Manufacturer's Technical Field Representative documenting the observations of each visit with documentation that the MSE Wall Design Engineer has reviewed the letter.
- The manufacturer's technical field representative may recommend field changes subject to the approval of the MSE Wall Design Engineer and the Department. Any such changes shall be documented in writing within <u>24 hours</u> of the approved changes. This written document shall be sealed by the MSE Wall Design Engineer prior to implementation of the changes.
- The Department reserves the right to discuss matters pertaining to this project directly with the technical field representative and to require the Contractor to call the technical field representative to the site for assistance at no additional cost to the Department if, in the opinion of the Engineer, the Contractor is not satisfactorily complying with the plans and specifications.

1.56 Certificates of Analysis:

The Contractor will be responsible for performing and/or subcontracting all testing required to produce the Certificates of Analysis required in Section 3.0 (Materials Requirements) of this Special Note and for submitting the Certificates to the Engineer as required.

1.57 Checklists:

The Contractor's MSE Wall On-Site Supervisor and MSE Wall Quality Coordinator shall complete and both sign the checklists below and submit them to the Engineer with copies to the Manufacturer's Technical Field Representative. The first three of these checklists can be found in FHWA Publication No. FHWA-NHI-10-025 "Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes – Volume II", dated November 2009 (these tables are located in the appendix of this document).

Checklists			
Checklist Title	Submittal Requirements		
Checklist for Drawing Review (FHWA Table 11-2)	At least two weeks before starting MSE wall construction		
Checklist for Specification Compliance (FHWA Table 11-3)	Weekly		
Checklist for Construction (FHWA Table 11-5)	Weekly		
Quality Control Documentation (Quality Control Plan)	Daily		

1.58 MSE Wall Design Engineer:

The MSE Wall Design Engineer will be required to play an active role in the construction of the MSE walls and to be available to answer any questions that may arise during construction. Specifically, the MSE Wall Design Engineer is required to:

- Assist the Contractor and Manufacturer's Technical Field Representative with preparing the Quality Control Plan referenced in Section 1.53 herein.
- <u>Make at least one site visit</u> (4 hour minimum) while the Contractor is installing panels and reinforced fill material <u>during the first 10 working days of panel and reinforced fill installation</u>
- Review documentation of the Manufacturer's Technical Field Representative's site visits.

Additionally, the Design Engineer is required to attend the MSE Wall Construction Training and MSE Pre-Activity Meeting.

2.0 DESIGN SUBMITTALS (WORKING DRAWINGS AND DESIGN CALCULATIONS):

2.01 Submittals:

(A) General:

Design calculations and working drawings clearly showing conformance with the current Standard Specifications; AASHTO LRFD Bridge Design Specifications, current edition; KYTC Geotechnical Manual and project requirements shall be submitted for review. The format for the working drawings shall be in accordance with the Division of Structural Design's Guidance Manual. The first sheet shall be a title sheet.

Working drawings and design calculations shall be sealed by a licensed Professional Engineer in the Commonwealth of Kentucky. The MSE wall designer/supplier shall document on the working drawings all assumptions made in the design. The following statement shall be included near the P.E. seal on the first sheet of the working drawings: "All design assumptions are validated through notes or details on these drawings."

The Department assumes no responsibility for errors or omissions in the working drawings. Acceptance of the final working drawings submitted by the contractor shall not relieve the contractor of any responsibility under the contract for the successful completion of the work. Construction of the wall shall not commence until the contractor receives a written Notification to Begin MSE Wall Construction from the Engineer which will be issued once the complete wall package (drawings, calculations and
construction procedures) is accepted. Fabrication of any of the wall components before the written Notification to Begin MSE Wall Construction shall be at the sole risk of the Contractor.

A Certificate of Analysis for the Reinforced Fill Material (See Sections 3.05 and 3.07 herein) may be required prior to final acceptance of the MSE Wall design.

(B) Review Submittals:

All review submittals shall be submitted electronically in pdf format through the Contractor to the Project Resident Engineer. The Project Resident Engineer shall forward the plans, calculations, and working drawings to the Department. Submittals may be directly emailed to applicable reviewers with the permission of the Contractor and Resident Engineer provided that the Contractor and Resident Engineer receive email copies of the submittals. Contact the Department before beginning any work on the wall designs and construction plans.

The submittals required shall include working drawings, the Contractor's and MSE Wall supplier's construction procedures, supporting design calculations, verification of experience, and a transmittal letter. The transmittal letter shall only list the documents included in the submittal. No technical information shall be included in the transmittal letter.

Working drawings, design calculations and MSE supplier's construction procedures modified as necessary by the contractor and Wall Designer for site-specific conditions shall be submitted to the Engineer for review. The Engineer shall have 30 calendar days after receiving the six complete sets to finish a review. The revised package shall be resubmitted to the Engineer for review. The Engineer shall have 15 calendar days to complete this review. This review process shall be repeated until the entire submittal is accepted by the Engineer. Additional time required by the Department to review resubmissions shall not be cause for increasing the number of contract working days. The additional work required by the contractor to provide resubmissions shall be at no cost to the Department.

The Department reserves the right to require the contractor to verify that the Reinforced Wall Fill Material meets all applicable requirement before final acceptance of the design.

(C) Final Submittals:

All final wall tracings, with drawing number, shall be submitted on 3 mil, or thicker, 22" X 36" mylar film. The final mylar tracings of the accepted working drawings submitted to the Division of Structural Design shall be dated, sealed, and signed on Sheet 1 by the licensed Professional Engineer performing the work. Nine copies of the accepted working drawings shall be submitted.

2.02 Working Drawings:

The contractor shall submit complete working drawings and specifications for each installation of the system. Working drawings shall include the following at a minimum:

- (1) Layout of the wall including plan and elevation views;
- (2) All design parameters and assumptions including design life;
- (3) Existing ground elevations and utilities impacted by the wall, and those that should be field verified by the contractor, for each location;
- (4) Complete details of all elements and component parts required for the proper construction of the system at each location and any required accommodations for drainage systems, foundation subgrades or other facilities shown on the contract documents;
- (5) The working drawing submittal shall clearly detail any special design requirements, <u>if applicable</u>. These special design requirements may include, but are not limited to: structural frames to place

reinforcements around obstructions such as deep foundations and storm drain crossings, drainage systems, placement sequence of drainage and unit core fill with respect to reinforced (structure) fill behind a wall face using modular block facing units, guardrail post installation, scour protection, foundation subgrade modification, all corner details (acute, obtuse and 90 degrees), slip joints, joint details of MSE walls with other cast-in-place structures, wedges, shims and other devices such as clamps and bracing to establish and maintain vertical and horizontal wall facing alignments;

- (6) A complete listing of components and materials specifications; and
- (7) Other site-specific or project specific information required by the contract.

2.03 MSE Wall Design:

(A) General:

The working drawings shall be supplemented with all design calculations for the particular installation as required herein. Installations that deviate from the accepted design (by the Contractor's MSE Wall Design Engineer) shall be accompanied by supporting stability (internal; external; and global/overall and/or compound if required in the project documents) calculations of the proposed structure as well as supporting calculations for all special details not contained in the accepted design. The MSE wall designer/supplier shall note all deviations of the proposed wall design from the accepted design.

The proposed design shall satisfy the design parameters shown on the project plans and listed in this Special Note, and comply with the design requirements of AASHTO LRFD Bridge Design Specifications, current edition and the KYTC Geotechnical and Bridge Design Guidance Manuals. Unless otherwise specified in the contract, all structures shall be designed to conform to the requirements shown in Table 1 and other requirements specified herein.

If the designer uses software other than MSEW, a minimum of one analysis corresponding to the most critical design case for each MSE wall shall be submitted using MSEW software. Sample hand calculations containing a sketch, all external analysis for the design case, and internal analyses for a minimum of three reinforcement levels shall also be submitted for the most critical design case for each MSE wall.

Table I - MSE Wall Design C	riteria and Parameters
Design Life	100 years
Friction angle of granular retained backfill (where required)	36°
Friction angle of MSE reinforced fill material	34° *
Total Unit weight of granular retained backfill	120 pcf
Total Unit weight of MSE reinforced fill material	120 pcf **
Minimum reinforcement length	Greater of 8 ft. or 0.7 times effective height
Friction angle for sliding calculation (through reinforced fill)	34° *
Resistance factor for sliding	As specified in AASHTO LRFD Bridge Design Specifications
Wall Eccentricity	Verify as specified in AASHTO LRFD Bridge Design Specifications, current edition
Bearing Resistance Factor	As specified in AASHTO LRFD Bridge Design Specifications
Surcharge Loading (due to vehicle loading behind the walls)	As specified in AASHTO LRFD Bridge Design Specifications
Minimum top of leveling pad embedment	2 ft. below final grade or as specified by the Geotechnical Report

* For internally reinforced fill material, a minimum friction angle of 34 degrees shall be substantiated by laboratory tests discussed in Subsection 3.05(D). If the measured friction angle in laboratory tests as per Subsection 3.05(D) is greater than 34 degrees and the fill material is well-graded according to the Unified Soil Classification System (USCS), then the design friction angle may be increased up to a maximum of 38 degrees. See Table 5.

** The Total Unit Weight of the reinforced fill material shall be substantiated by laboratory tests discussed in Subsection 3.05(F). If the Total Unit Weight (i.e. SSD Bulk Density) obtained from laboratory tests as per Subsection 3.05(F) varies by more than +/- 5.0 pcf from the design value, then the design must be adjusted accordingly or reinforced fill material falling within this range must be used. See Table 5.

"H" is the design height of the wall and is defined as the difference in elevation from the finished grade at the top of wall and the top of leveling pad. The length of reinforcement, "L", is measured from the backface of the wall facing unit. If applicable, the length of grid type reinforcement is measured from the backface of the wall to the last full transverse member. "H" " is the effective height of the wall and is defined as: the design height "H" + (strap length "L" – distance from the wall face to the toe of slope) * tan (slope angle of backfill). In the case of horizontal backfill design height "H" equals effective height "H" ".The top of the leveling pad shall always be below the minimum embedment reference line as indicated on the plans for that location. If applicable, the total base length for modular block facing units, BT, as measured from the front face of the wall is the length L as defined above plus the width of the modular block unit (the horizontal dimension of the block unit measured perpendicular to the wall face).

(B) Subsurface Drainage Systems:

Walls shall be provided with subsurface drainage measures as shown on the project plans and specifications. As a minimum, an underdrain system shall be provided for leading subsurface and surface water away from the reinforced fill material and outside the limits of the wall. Geocomposite drains, if used for subsurface drainage, shall be in accordance with Section 845 of the current Standard Specifications.

(C) Obstructions in Reinforced Fill:

(1) General:

Where obstructions, such as deep foundations or storm drains crossings, are located in the reinforced fill material zone, cutting of reinforcements to avoid obstructions shall not be permitted. A minimum offset of one diameter but not less than <u>three (3) feet</u> shall be maintained between the face of any pipe crossings and the back face of retaining wall panels. A minimum clearance of <u>three (3) feet</u> shall be maintained between the face of any other obstruction and the back face of retaining wall panels.

(2) Horizontal Deflection of Reinforcements:

In the horizontal plane at a reinforcing level, a deviation up to fifteen (15) degrees from the normal to the face of the wall may be allowed for strip reinforcement and bolted connection. This deviation is herein referred to as the splay angle. Grid reinforcements may not be splayed, unless connection has been specifically fabricated to accommodate a splay and connection detail has been approved by the Department. If used, the splay in grid reinforcement is limited to fifteen (15) degrees. For obstructions that cannot be accommodated with splayed reinforcement, structural frames and connections shall be required, and shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, current edition. The structural frame design shall be such that bending moments are not generated in the fill reinforcement or the connection at the wall face. The design, along with supporting calculations, shall be included in the working drawings.

(3) Vertical Deflection of Reinforcements:

Vertical deflection of the reinforcement to avoid obstructions such as utilities along the wall face shall be limited to a maximum of 15 degrees from normal to face of wall. Bends in the reinforcement shall be smooth and gradual to ensure that galvanization remains intact.

(D) Hydrostatic Pressures:

As determined by the Designer and/or as noted on the plans, for walls potentially subject to inundation, such as those located adjacent to rivers, canals, detention basins or retention basins. Effective unit weights shall be used in the calculations for internal and external stability beginning at levels just below the equivalent surface of the pressure head line. Where the wall is influenced by water fluctuations, the wall shall be designed for rapid drawdown conditions which could result in differential hydrostatic pressure.

(E) Acute Angle Corners:

Wall corners with an included angle of less than 70 degrees shall be designed for bin-type lateral pressures for the extent of the wall where the full length of the reinforcement cannot be installed without encountering a wall face. Acute angle corner structures shall not be stand-alone separate structures.

Computations shall be provided that demonstrate deformation compatibility between the acute angle corner structure and the rest of the MSE wall. Full-height vertical slip joints shall be provided at the acute angle corner and after the last column of panels where full length of the reinforcements can be placed. The soil reinforcement attached to the slip joints shall be oriented perpendicular to the slip joint panels and shall be the full design length. Special connection and compaction details shall be provided on the working drawings.

(F) Spacing of Metallic Reinforcement for Flexible Face Wall Systems:

Permanent Flexible Face Wall Systems are not allowed.

(G) Fill Reinforcement for Modular Block Wall Systems:

The reinforcement lengths and percent coverage at a given reinforcement level shall be in accordance with the plans. All reinforcement shall be positively connected to the modular block facing units that is capable of resisting 100% of the maximum tension in the reinforcements at any level within the wall. Detailed documentation for connection strength shall be submitted as noted in Subsection 3.10. The vertical spacing of the reinforcement for walls with modular block facing units shall be as follows:

1. The first (bottom) layer of reinforcement shall be no further than 16 inches above the top of the leveling pad.

2. The last (top) layer of reinforcement shall be no further than 20 inches on the average below the top of the uppermost MBW unit.

3. The maximum vertical spacing between layers of adjacent reinforcement shall not exceed 32 inches. For walls deriving any part of their connection capacity by friction the maximum vertical spacing of the reinforcement should be limited to two times the block depth (front face to back face) to assure construction and long-term stability. The top row of reinforcement should be one-half the vertical spacing.

(H) Initial Batter of Wall:

The initial batter of the wall, both during construction and upon completion, shall be within the vertical and horizontal alignment tolerances included in this Special Note. The initial batter of the wall panels at the start of construction and the means and methods necessary to achieve the batter shall be provided on the working drawings. Subject to Engineer's approval, the initial batter of the wall panels may be modified at the start of construction by the manufacturer's field representative based on the evaluation of the reinforced fill material selected by the contractor. Any such changes shall be documented in writing within 24 hours of the approved changes. This written document shall be sealed by the manufacturer's design engineer who is a licensed Professional Engineer in the Commonwealth of Kentucky. Details of the wedges or shims or other devices, such as clamps and external bracing used to achieve or maintain the wall batter, and the details for removal of temporary wedges or shims shall be as shown on the working drawings and/or accompanying construction manual. Permanent shims shall comply with the design life criteria, and shall maintain the design stress levels required for the walls.

(I) Bridge Abutment Design Considerations:

Shallow Bridge Foundations supported by MSE wall systems are not allowed. All bridge loads must be supported by deep foundations.

3.0 MATERIAL REQUIREMENTS:

The contractor shall furnish the Engineer with Certificates of Analysis documenting that all materials meet the requirements herein.

3.01 Precast Concrete Elements:

Precast concrete shall attain a minimum 28-day compressive strength of 4,000 psi unless a higher strength is specified by the wall supplier. The concrete shall be air entrained containing $5.5 \pm 1.5\%$ entrained air at the time the concrete is placed in the forms. A proposed mix design shall be submitted.

Prior to casting, all embedded components shall be set in place to the dimensions and tolerances designated in the plans and specifications. Wall aesthetics shall be in accordance with project plans, special notes, and/or other applicable contract documents.

(A) Concrete Testing and Inspection:

Precast concrete elements shall be subjected to compressive strength testing and inspected for dimensional tolerances and surface conditions. Panels delivered to the site without Department approval will be rejected.

(B) Casting:

Precast concrete face panels shall be cast on a horizontal surface with the front face of the panel at the bottom of the form. Connection hardware shall be set in the rear face. The concrete in each precast concrete panel shall be placed without interruption and shall be consolidated by deploying an approved vibrator, supplemented by such hand tamping as may be necessary to force the concrete into the corner of the forms, and to eliminate the formation of stone pockets or cleavage planes. Form release agents shall be used on all form faces for all casting operations.

The contractor shall advise the Engineer of the starting date for concrete panel casting at least <u>14</u> calendar days prior to beginning the operation if the casting operation is within the State, or <u>21</u> calendar days if the casting operation is outside the State.

(C) Finish:

(1) Non-Exposed Surfaces:

Rear faces of precast concrete panels shall be a face floated surface finish and screeded to eliminate open pockets of aggregate and surface distortions in excess of ¹/₄ inch.

(2) Exposed Surfaces:

The type of finish required on exposed surfaces shall be as shown in the plans.

(a) Exposed Aggregate Finish:

- (1) Prior to placing concrete, a set retardant shall be applied to the casting forms in accordance with the manufacturer's instructions.
- (2) After removal from the forms and after the concrete has set sufficiently to prevent its dislodging, the aggregate shall be exposed by a combination of brushing and

washing with clear water. The depth of exposure shall be between 3/8 inch and $\frac{1}{2}$ inch.

(3) An acrylic resin sealer consisting of 80 percent thinner and 20 percent acrylic solids by weight shall be applied to the exposed aggregate surface at a rate of one (1) gallon per 250 square feet.

(b) Concrete Panel Finish:

Concrete panel finish shall be in accordance with the plans and specifications. A sample of the proposed finish consisting of four full-sized panels shall be fabricated for inspection by the Engineer. Fabrication of the remaining panels is not authorized until the Engineer has inspected the sample panels an approved the finish as acceptable.

(D) Tolerances:

Connection device placement shall be within ± 1 inch of the dimensions shown on the drawings. Panel squareness as determined by the difference between the two diagonals shall not exceed $\frac{1}{2}$ inch.

(E) Identification and Markings:

The date of manufacture, the production lot number, and the piece mark shall be inscribed on a non-exposed surface of each element.

(F) Handling, Storage and Shipping:

All panels shall be handled, stored, and shipped in such a manner to eliminate the dangers of chipping, discoloration, cracks, fractures, and excessive bending stresses. Panels in storage shall be supported in firm blocking to protect panel connection devices and the exposed exterior finish. Storing and shipping shall be in accordance with the manufacturer's recommendations.

(G) Compressive Strength:

Precast concrete elements shall not be shipped or placed in the wall until a compressive strength of 3,400 pounds per square inch has been attained. The facing elements shall be cast on a flat and level area and shall be fully supported until a compressive strength of 1,000 pounds per square inch has been attained.

(H) Precast Concrete Panel Joints:

(1) General:

Where the wall wraps around an inside corner, a corner block panel shall be provided with flange extensions that will allow for differential movement without exposing the panel joints. The back face of vertical and horizontal joints shall be covered with geotextile filter. Joint filler, bearing pads, and geotextile filter shall be as recommended by the wall manufacturer and shall meet the requirements shown on the approved working drawings.

If required, as indicated on the plans, flexible open-cell polyurethane foam strips shall be used for filler for vertical joints between panels, and in horizontal joints where pads are used.

All joints between panels on the back side of the wall shall be covered with a Type IV geotextile fabric meeting the requirements of Section 843 of the current Standard Specifications. The minimum width shall be <u>one (1) foot</u>.

(2) Bearing Pads:

All horizontal and diagonal joints between panels shall include bearing pads. Bearing pads

shall meet or exceed the following material requirements:

- Preformed EPDM (Ethylene Propylene Diene Monomer) rubber pads conforming to ASTM D 2000 Grade 2, Type A, Class A with a Durometer Hardness of <u>70</u>.
- Preformed HDPE (High Density Polyethylene) pads with a minimum density of 0.946 grams per cubic centimeter in accordance with ASTM D 1505.

The stiffness (axial and lateral), size, and number of bearing pads shall be determined such that the final joint opening shall be $\frac{3}{4} \pm \frac{1}{8}$ inch unless otherwise shown on the plans. The MSE wall designer shall submit substantiating calculations verifying the stiffness (axial and lateral), size, and number of bearing pads assuming, as a minimum, a vertical loading at a given joint equal to 2 times the weight of facing panels directly above that level. As part of the substantiating calculations, the MSE wall designer shall submit results of certified laboratory tests in the form of vertical load-vertical strain and vertical load-lateral strain curves for the specific bearing pads proposed by the MSE wall designer. The vertical load-vertical strain curve should extend beyond the first yield point of the proposed bearing pad.

3.02 Steel Components:

(A) Galvanization:

Fill reinforcement steel shall be hot-dip galvanized in accordance with AASHTO M 111 (ASTM A123). Connection hardware steel can be galvanized by hot-dipping or other means, provided the method satisfies

the requirements of AASHTO M 111 (ASTM A123). A minimum galvanization coating of 2.0 oz/ft² (605 g/m²) or 3.4 mils (85 μ m) thickness is required. Fill reinforcement steel shall be adequately supported while lifting and placing such that the galvanization remains intact. Steel members with damaged (peeled) galvanization shall be repaired according to ASTM A780 and as specified in approved working drawings, at no additional cost to the Department.

(B) Metallic Reinforcing Strips and Tie Strips:

Reinforcing strips shall be hot-rolled from bars to the required shape and dimensions. The strips' physical and mechanical properties shall conform to the requirements of ASTM A572, Grade 65 minimum. Tie strips shall be shop fabricated of hot-rolled steel conforming to the requirements of ASTM A1101, Grade 50 minimum. The minimum bending radius of the tie strips shall be ³/₈ inch. Galvanization shall be applied after the strips are fabricated, inclusive of punch holes for bolts as shown on approved drawings.

(C) Metallic Reinforcing Mesh:

Reinforcing mesh shall be shop fabricated of cold-drawn steel wire conforming to the requirements of AASHTO M 32, and shall be welded into the finished mesh fabric in accordance with AASHTO M 55. Galvanization shall be applied after the mesh is fabricated. A minimum galvanization coating of 2.0 oz/ft² (605 g/m²) or 3.4 mils (85 μ m) thickness is required.

(D) Connector Pins:

Connector pins and mat bars shall be fabricated and connected to the fill reinforcement mats as shown in the approved working drawings. Connector bars shall be fabricated of cold drawn steel wire conforming to the requirements of AASHTO M 32.

(E) Welded Wire Fabric:

All welded wire fabric shall conform to the requirements of AASHTO M 32, AASHTO M 55, and the approved working drawings. Welded wire fabric shall be galvanized in conformance with the requirements of ASTM A123.

(F) Fasteners:

Connection hardware shall conform to the requirements shown in the approved working drawings. Connection hardware shall be cast in the precast concrete panels such that all connectors are in alignment and able to transfer full and even load to the fill reinforcement. Once the reinforcement is connected to the panel, the amount of slack shall not exceed ½ inch between the connector and the reinforcement during field installation. (If wedges are to be used to remove slack, the size, shape, and installation procedure with illustrations shall be included on the drawings and in the construction procedures.) Fasteners shall be galvanized and conform to the requirements of AASHTO M 164 or equivalent.

3.03 Geosynthetic Reinforcement:

Geosynthetic fill reinforcement is not allowed.

3.04 Certificate of Analysis for Fill Reinforcements:

For metallic wall reinforcement, a mill test report containing the ultimate tensile strength for the fill reinforcement shall be included in the certification. For metallic wall reinforcement, a mill test report containing the galvanization coverage shall be included in the certification. For metallic mesh wall reinforcement, a mill test report containing the ultimate weld strength for the fill reinforcement shall be included in the certification.

3.05 Reinforced Wall Fill Material:

Provide internally reinforced wall fill material consisting of <u>quarry-processed limestone</u> from a Department-approved quarry meeting all applicable general requirements of Section 805 of the Standard Specifications, current edition, and requirements herein. Provide material meeting the specific requirements for "Reinforced Fill Material" in Section 805 of the Standard Specifications, current edition, defined as "Non-Erodible" according to Section 805, and meeting all other requirements herein. Approval of the material source by the Department is required prior to beginning MSE wall construction.

(A) General:

Reinforced wall fill material shall be free of shale, organic matter, mica, gypsum, smectite, montmorillonite, or other soft poor durability particles. No salvaged material, such as asphaltic concrete millings or Portland Cement Concrete rubble, etc., will be allowed.

(B) Soundness and Shale:

The reinforced fill material shall have a soundness loss of 30 percent or less when tested in accordance with AASHTO T104 using a magnesium sulfate solution with a test duration of four cycles. Alternatively, the material shall have a soundness loss of 15 percent or less when tested in accordance with AASHTO T104 using a sodium sulfate solution with a test duration of five cycles. A maximum of 2.0% shale is permitted as determined by KM 64-604.

(C) Gradation:

Gradations will be determined per AASTHO T27 and shall be in accordance with Table 2, unless otherwise specified.

Ta REINFORCED FILL GRA	ble 2 DATION REQUIREMENTS
Sieve Size	Percent Passing
4 inch	100
2 inch	40 - 90
No. 4	0 - 10
No. 200	0-5
This is the same gradation as required in Sect the requirement for the 2 inch sieve has been	ion 805.11 of the Standard Specifications except added.
Size # 23 in the Standard Specifications falls	within these gradation limits.

(D) Internal Friction Angle Requirement:

The reinforced wall fill material shall exhibit an effective (drained) angle of internal friction of not less than 34 degrees, as determined by performing a Direct Shear Test in accordance with AASHTO T236 or ASTM D3080 A minimum of three (3) points (i.e. three normal stresses) is required to constitute a complete test.

The direct shear test shall be performed on the portion finer than the 1-inch sieve. <u>In order to comply with</u> the test method, a minimum 12-inch diameter circular box or minimum 12-inch square box is required. The sample shall be compacted directly in the shear device at the saturated surface dry (SSD) condition and in general accordance with the rodding procedure in AASHTO T-19.

(E) Electrochemical Requirements:

The reinforced wall fill material shall meet the electrochemical requirements of Table 3.

ELECTROCHEMICA	Table 3 AL REQUIREMENTS FOR METAI	LLIC REINFORCEMENTS
Characteristic	Requirement	Test Method
Resistivity	> 3,000 ohm-cm	AASHTO T-288
pH	5.0 to 10.0	AASHTO T-289
Chlorides	< 200 ppm	ASTM D4327
Sulfates	< 1000 ppm	ASTM D4327
Organic Content	< 1.0 %	AASHTO T-267
* If the registivity is creater or	aqual to 5 000 alim and the alignide and	sulfate requirements may be weived

* If the resistivity is greater or equal to 5,000 ohm-cm, the chloride and sulfate requirements may be waived.

Table 4 – VACANT

(F) Saturated Surface Dry (SSD) Bulk Density:

The Bulk Density of the Reinforced Fill Material shall be obtained in accordance with AASHTO T19. The Bulk Density at the oven-dry condition shall then be corrected using the Absorption determined according to AASHTO T-85 to determine the SSD Bulk Density, which shall be within +/- 5.0 pcf of the design total unit weight of MSE reinforced fill material or the design shall be adjusted. (See Table 1.)

(G) Limits of Reinforced Wall Fill Material:

The reinforced fill material shall extend to <u>at least one (1) foot beyond the free end of the reinforcement</u>. If applicable, back-to-back walls wherein the free ends of the reinforcement of the two walls are spaced apart less than or equal to one-half the design height of the taller wall, reinforced wall fill material shall be used for the space between the free ends of the reinforcements as well. The design height of the wall is defined as the difference in elevation between finished grade at top of wall and the top of leveling pad. The top of the leveling pad shall always be below the minimum embedment reference line as indicated on the plans for the location under consideration.

3.06 Granular Embankment for Foundation and Retained Backfill:

Provide granular foundation material and granular external retained backfill consisting of "Granular Embankment" meeting the material requirements of Section 805 in the current edition of the Standard Specifications and defined as "Non-Erodible" according to Section 805. If required by design, the extent of the granular foundation material and granular external retained backfill shall be shown in the Geotechnical Notes. Contrary to the Standard Specifications, no natural sand is permitted. Also contrary to the Standard Specifications, the maximum size limit for "Granular Embankment" is 4 inches where shown in the Geotechnical Sheets. Approval of the material source by the Department is required prior to beginning placement of this material.

3.07 Sampling & Testing of Reinforced Wall Fill and Granular Embankment Materials

(A) Reinforced Wall Fill:

To obtain source approval, the contractor shall furnish the Engineer with an 80-pound representative sample of the reinforced wall fill material and a Certificate of Analysis containing results of all tests referenced in Table 5 <u>at least four weeks prior to beginning construction of the MSE wall</u>.

During construction, the reinforced fill material shall be sampled and tested by the Engineer for acceptance and quality control testing. A new sample and Certificate of Analysis shall be provided any time the material and/or source changes.

	Table 5 - Sampling Frequency for	Reinforced Wall Fill Material
Function	Tests	Frequency

Source Approval	Soundness (AASHTO T104)* % Shale (KM 64-604)* Gradation (AASHTO T27)* Direct Shear (AASHTO T226 or ASTM D2080)*	At least four (4) weeks prior to beginning MSE wall construction and once per material change and/or change in source.
Contractor and/or its Consultant(s)	Organic Content (AASHTO T250 of ASHM D5000) SSD Bulk Density (AASHTO T267)* Resistivity (AASHTO T288)** pH (AASHTO T289)**	Except for Direct Shear, one test is valid for up to 10,000 ft ² of MSE wall area if there is no material change or change in source. ****
	Chlorides and Sulfates (ASTM D4327)**	Generally, only one Direct Shear test is required unless there is a change in material, source, or gradation.
Acceptance and Quality Control Testing by Department	Gradation (AASHTO T27) % Shale (KM 64-304) At the discretion of the Engineer.	One per 2,000 cubic yards at job site. (A change of more than +/- 5.0 percent passing any sieve size <u>will</u> require additional SSD Bulk Density testing and <u>may</u> require additional Direct Shear testing, both by the Contractor.)
	Any other applicable requirements of Section 805 of the current Standard Specifications	As required by the current Materials Field Sampling and Testing Manual, Standard Specifications, and/or other Department policy.

* The laboratory performing these tests must be accredited by the AASHTO Materials Reference Laboratory (AMRL) for the tests they perform. AMRL accreditation for AASHTO T104 & T27 is required to perform KM 64-604.

** Although accreditation for the specific test methods may not be available, the laboratory performing these tests must be accredited or certified by one of the organizations below. A laboratory's accreditation or certification status does not relieve the laboratory of its responsibility to perform the tests in accordance with the specified methods.

- AMRL Soil and/or Aggregate (Resistivity and pH only)
- American Association for Laboratory Accreditation (A2LA) Chemical and/or Environmental
- Kentucky Division of Water Drinking Water Chemical Analyses

The Contractor may consult the Geotechnical Branch to ensure that a lab is accredited or certified.

**** e.g. 1 to 10,000 ft² of wall requires 1 test, 10,001 to 20,000 ft² requires 2 tests, etc.

(B) Granular Embankment Material for Foundation and Retained Backfill:

To obtain source approval, the contractor shall furnish the Engineer with an 80-pound representative sample of the Granular Embankment material and a Certificate of Analysis at least four weeks prior to beginning Granular Embankment construction.

Sampling Freque	Table 6 ncy for Granular Embankment for Foundation and Retained Backfill
Function	Frequency
Source Approval	At least four weeks prior to beginning granular embankment construction and once per material change and/or change in source.
Acceptance and Quality Control	In accordance with standard procedures for "Granular Embankment".

3.08 Cast-in-Place Concrete:

Cast-in-place concrete shall be Class A, except that the leveling pads shall be Class B, both in accordance with the current Standard Specifications.

3.09 Modular Block (Segmental) Facing Units:

This section covers dry-cast hollow and solid concrete masonry structural retaining wall units, machine made from Portland cement, water, and suitable mineral aggregates. The units are intended for use as facing units in the construction of mortarless, modular block walls (MBW) also known as segmental retaining walls (SRW). Metallic reinforcement specified in Section 3.02 shall be used as reinforcement in the reinforced (structure) wall fill zone.

(A) Casting:

Cementitious material in the modular block facing unit shall be Portland cement conforming to the requirements of ASTM C 150. If fly ash is used it shall not exceed 20% by weight of the total cement content and shall conform to ASTM C 618. Aggregates used in concrete blocks shall conform to ASTM C 33 for normal weight concrete aggregate. Efflorescence control agent shall be used in concrete mix design to prevent efflorescence on the block.

The contractor shall advise the Engineer of the starting date for concrete panel casting at least 14 calendar days prior to beginning the operation if the casting operation is within the State, or 21 calendar days if the casting operation is outside the State.

(B) Physical Requirements:

At the time of delivery to the work site, the modular block facing units shall conform to the following physical requirements:

- 1) Minimum required compressive strength of 4,000 psi (average 3 coupons)
- 2) Minimum required compressive strength of 3,500 psi (individual coupon)
- 3) Minimum oven dry unit weight of 125 pcf
- 4) Maximum water absorption of 5 % after 24 hours
- 5) Maximum number of blocks per lot of 2,000. Tests on blocks shall be submitted at the frequency of one set per lot.

Acceptance of the concrete block, with respect to compressive strength, water absorption and unit weight, will be determined on a lot basis. The lot shall be randomly sampled and tested in accordance with ASTM C140. As no additional expense to the Department, the manufacturer shall perform the tests at a Department approved laboratory and submit the results to the Engineer for approval. Compressive strength test specimens shall be cored or shall conform to the saw-cut coupon provisions of ASTM C 140. Block lots represented by test coupons that do not reach an average compressive strength of 4,000 psi will be rejected.

(C) Freeze-Thaw Durability:

In areas where repeated freezing and thawing under saturated conditions occur, the units shall be tested to demonstrate freeze-thaw durability in accordance with Test Method ASTM C1262. Freeze thaw durability shall be based on tests from five specimens made with the same materials, concrete mix design, manufacturing process, and curing method, conducted not more than 18 months prior to delivery. Specimens used for absorption testing shall not subsequently be used for freeze-thaw testing. Specimens shall comply with either or both of the following acceptance criteria depending on the severity of the project location as determined by the Department:

- 1) The weight loss of four out of five specimens at the conclusion of 150 cycles shall not exceed 1% of its initial weight when tested in water.
- 2) The weight loss of each of four out of the five test specimens at the conclusion of 50 cycles

shall not exceed 1.5% of its initial mass when tested in a saline (3% sodium chloride by weight) solution.

(D) Tolerances for Modular Block Dimensions:

Modular blocks shall be manufactured within the following tolerances:

- 1) The length and width of each individual block shall be within $\pm 1/8$ inch of the specified dimension. Hollow units shall have a minimum wall thickness of 1¹/₄ inches.
- 2) The height of each individual block shall be within $\pm 1/16$ inch of the specified dimension.
- 3) When a broken (split) face finish is required, the dimension of the front face shall be within ± 1.0 inch of the theoretical dimension of the unit.

(E) Finish and Appearance:

Units that indicate imperfect molding, honeycomb or open texture concrete and color variation on front face of block due to excess form oil or other reasons shall be rejected. All units shall be visually efflorescence free. All units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the construction. Minor cracks (e.g. no greater than 1/50 inch in width and no longer than 25% of the unit height) incidental to the usual method of manufacture or minor chipping resulting from shipment and delivery, are not grounds for rejection.

The exposed faces shall be free of chips, cracks or other imperfections when viewed from a distance of 30 feet under diffused lighting. Up to five (5) percent of a shipment may contain slight cracks or small chips not larger than 1.0 inch.

Color and finish shall be as shown on the plans and shall be erected with a running bond configuration.

(F) Pins:

If pins are required to align modular block facing units, they shall consist of a non-degrading polymer or hot-dipped galvanized steel and be made for the express use with the modular block units supplied. Connecting pins supporting the reinforcement shall be hot-dipped galvanized steel and be capable of holding the reinforcement in the proper design position during backfilling.

(G) Cap Units and Adhesive:

The cap unit connection to the block unit immediately under it shall be of a positive interlocking type and not frictional. Cap units shall be cast to or attached to the top of modular block facing units in strict accordance with the requirements of the manufacturer of the blocks and the adhesive. The surface of the block units under the cap units shall be clear of all debris and standing water before the approved adhesive is placed. Contractor shall provide a written 10-year warranty, acceptable to Owner, that the integrity of the materials used to attach the cap blocks will preclude separation and displacement of the cap blocks for the warranty period.

(H) Unit (Core) Fill:

Unit (core) fill is defined as free-draining, coarse grained material that is placed within the empty cores of the modular block facing units. Unit (core) fill shall be a well graded crushed stone or granular fill meeting the gradation shown in Table 7. Gradation for unit fill shall be tested at the frequency of 1 test per 50 yd³ at the job site and for every change in the material source.

Table 7

U.S. Sieve Size	Percent Passing
1 ¹ /2-inch	100
1-inch	75-100
³ /4-inch	50-75
No. 4	0-60
No. 40	0-50
No. 200	0-5

Gradation for Unit (Core) Fill

3.10 Certificate of Analysis for Modular Block Connection:

For modular block facing units, a certification shall be provided with detailed calculations according to AASHTO and the results of laboratory test results performed in accordance with Section C.3 in Appendix B of FHWA NHI-10-025, dated 2009 ("Mechanically Stabilized Earth Walls and Reinforced Soil Slopes – Volume II"). Such certification shall demonstrate that all connections, including block-to-reinforcement and block-to-block connections, and all related components meet or exceed the current AASHTO 100 year design life requirements and are capable of resisting 100% of the maximum tension in the soil reinforcements at any level within the wall. Long-term connection testing for extensible reinforcements is also required. The effect of wall batter and normal pressures representative of the full range of wall configurations and heights shall be incorporated in the tests.

4.0 CONSTRUCTION REQUIREMENTS:

Construction of MSE walls may be subject to special requirements as specified in the Geotechnical Report and Geotechnical MSE Wall Note Sheets developed by the Design Build Team. These requirements may include but are not limited to: monitoring devices (refer to section 4.5), phased panel and reinforced fill construction, waiting period intervals and foundation modification.

4.01 Excavation:

The contractor shall ensure that temporary slopes are safe during the period of wall construction, and shall adhere to all applicable local, state and federal regulations. During construction of the MSE walls, the contractor shall design, construct, maintain and, when called for, remove temporary excavation support systems (shoring). Temporary excavation support systems may be left in place if approved by the Engineer. The back slope of the excavation shall be benched. Where shoring is required, the contractor shall submit the shoring design, and a plan outlining construction and removal procedures, to the Engineer for review and approval prior to proceeding with the work. Shoring plans shall be prepared and submitted as part of the working drawings and shall bear the seal and signature of a licensed Professional Engineer in the Commonwealth of Kentucky. All shoring design shall include appropriate input and review by a geotechnical engineer.

4.02 Foundation Preparation:

(A) General:

If required, specific ground improvement requirements shall be outlined in the Geotechnical Report and the Geotechnical Note Sheets.

In general the following applies:

The foundation for the reinforced wall fill and retained backfill shall be graded level for the entire area

Special Note for Retaining Walls

of the base of such backfills, plus an additional 12 inches on all sides, or to the limits shown in the plans. If soil reinforcement components are to be positioned on native soil, the top one (1) foot of native soil shall meet the requirements of the reinforced backfill material specified in Subsection 3.05.

Foundation replacement material shall consist of "Granular Embankment" meeting the requirements of Section 3.06 herein. The material shall be compacted in accordance with Section 206 of the current Standard Specifications except that the maximum loose lift thickness (prior to compaction) is 12 inches. Type IV Geotextile Fabric shall be placed between the existing embankment material and the proposed "Granular Embankment" in accordance with Sections 214 and 843 of the Standard Specifications.

(B) **Proof-Rolling:**

The contractor shall perform proof-rolling to evaluate the stability and uniformity of the subgrades on which the MSE structure will be constructed. Proof rolling shall be performed on the entire areas at the following locations:

- 1) At the bottom of the overexcavation and recompaction zones.
- 2) At the bottom of the overexcavation and replacement zones.
- 3) At the base of all walls.
- 4) At the top of native soil layers and/or existing fill material that has been scarified, moistureconditioned, and recompacted (if different from the bottom of the overexcavation and recompaction zones, or overexcavation and replacement zones).

Proof-rolling shall be done immediately after subgrade compaction while the moisture content of the subgrade soil is near optimum, or at the moisture content that was used to achieve the required compaction. Proof-rolling shall be performed again within one day prior to beginning MSE Wall construction.

If proof-rolling is performed after installation of pipe underdrains, the proof-roller shall not be used within $1\frac{1}{2}$ feet of the underdrains.

Proof-rolling shall be performed with a pneumatic-tired tandem axle roller with at least three wheels on each axle, a gross weight of <u>25 tons (50,000 pounds)</u>, a minimum tire pressure of <u>75 pounds per square</u> inch, and a minimum rolling width of <u>75 inches</u>. A Caterpillar PS-300B (or PF-300B), Ingersoll-Rand PT-240R, BOMAG BW24R, Dynapac CP271, or equipment with equivalent capabilities shall be used for proof-rolling.

Proof-rolling equipment shall be operated at a speed between 1.5 and 3 miles per hour, or slower as required by the Engineer to permit measurements and/or observations of the deformations, ruts and/or pumping.

Proof-rolling shall be carried out in two directions at right angles to each other with no more than <u>24</u> <u>inches</u> between tire tracks of adjacent passes. The contractor shall operate the proof-roller in a pattern that readily allows for the recording of deformation data and complete coverage of the subgrade. The following actions shall be taken based on the results of the proof-rolling activity:

- 1) Rutting (i.e. deformation that does not rebound) less than $\frac{1}{4}$ -inch The grade is acceptable.
- 2) Rutting greater than $\frac{1}{4}$ -inch and less than $\frac{1}{2}$ inches The grade shall be scarified and re-compacted.
- 3) Rutting greater than $1\frac{1}{2}$ inches The compacted area shall be removed and reconstructed.
- 4) Pumping (i.e. deformation that rebounds, or materials that are squeezed out of a wheel's path) greater than one (1) inch The area shall be remediated as directed by the Engineer.

The contractor shall be responsible for maintaining the condition of the approved proof-rolled soils throughout the duration of the retaining wall construction. Wall construction shall not commence until the foundation subgrade has been approved by the Engineer.

4.03 Concrete Leveling Pad:

Leveling pads shall be constructed of unreinforced Class B concrete meeting the requirements of Section 601 of the current Standard Specifications as shown on the working drawings. Gravel leveling pads shall not be allowed. The elevation of the top of leveling pad shall be within ½ inch from the design elevation when measured by a straightedge over any 10-foot run of the leveling pad.

The minimum width of the leveling pad shall be the width of the facing unit plus <u>8-inches</u>. The centerline of the leveling pad shall be within <u>1</u> inch from design location. When the facing units are centered on the leveling pad, the leveling pad shall extend approximately 4-inches beyond the limits of the facing unit as measured in the direction perpendicular to the face of the wall.

Cast-in-place leveling pads shall be cured for a minimum of 48 hours before placement of wall facing units. A geotextile shall be applied over the back of the area of any openings greater than ¹/₄ inch between the facing units and leveling pad steps. The geotextile shall extend a minimum of six (6) inches beyond the edges of the opening. The opening shall be filled with Class B concrete, <u>or shall be concurrently backfilled on both sides with soil.</u>

4.04 Subsurface Drainage:

Prior to wall erection, the contractor shall install a subsurface drainage system as shown on the working drawings.

4.05 Wall Erection:

(A) General:

Walls shall be erected in accordance with the approved manufacturer's written construction procedures. The contractor shall be responsible for ensuring that a field representative from the manufacturer is available at the site during construction of the <u>initial 10-foot height of the full length of wall for each wall system. Additionally the representative shall be present for the initial 10-foot height of the full length of solution (e.g., wedges, clamps, etc.) shall be in accordance with the manufacturer's recommendations.</u>

(B) Placement Tolerances for Walls with Precast Facing:

For walls with rigid facing, such as precast concrete panels, the panels shall be placed such that their final position is vertical or battered as shown on the working drawings. As wall fill material is placed, the panels shall be maintained in the correct vertical alignment by means of temporary wedges, clamps, or bracing as recommended by the manufacturer. A minimum of two, but not more than three, rows of panel wedges shall remain in place at all times during wall erection. Wedges shall be removed from lower rows as panel erection progresses, so as to prevent chipping or cracking of concrete panels. The contractor shall repair any damage to erected concrete panels as directed by the Engineer and to the Engineer's satisfaction. No external wedges in front of the wall shall remain in place when the wall is complete.

Erection of walls with panel facing shall be in accordance with the following tolerances:

- Vertical and horizontal alignment of the wall face shall not vary by more than $\frac{34}{4}$ inch when measured along a <u>10-foot</u> straightedge.
- The overall vertical tolerance (plumbness) of the finished wall shall not exceed $\frac{1}{2}$ inch per 10 feet of wall height. Negative (outward leaning) batter is not acceptable.
- The maximum permissible out of plane offset at any panel joint shall not exceed <u>3/8 inch</u>.
- The final horizontal and vertical joint gaps between adjacent facing panel units shall be within <u>1/8 inch and ¹/4 inch</u>, respectively, of the design final joint opening per the approved

calculations required in Subsection 3.01(H).

Wall sections not conforming to these tolerances shall be reconstructed at no additional cost to the Department.

(C) Placement Tolerances for Permanent Walls with Flexible Facing:

Permanent Flexible Facing is not allowed.

(D) Placement Tolerances for Modular Block Units:

Erection of walls with Modular Block Units shall be as per the following requirements:

- Vertical and horizontal alignment of the wall face shall not vary by more than ³/₄-inch when measured along a 10-feet straightedge.
- Overall vertical tolerance (plumbness) of the wall shall not exceed 1¹/₄-inch per 10-ft of wall height from the final wall batter. Negative (outward leaning) batter is not acceptable.
- The first row of units shall be level from unit-to-unit and from front-to-back. Use the tail of the units for alignment and measurement.
- All units shall be laid snugly together and parallel to the straight or curved line of the wall face.
- Unless otherwise noted, all blocks shall be dry-stacked and placed with each block evenly spanning the joint in the row below (running bond). Shimming or grinding shall control the elevations of any two adjacent blocks within 1/16 inch.
- The top of blocks shall be checked with a minimum length of 3-feet long straight edge bubble level. Any high points identified by the straight edge shall be ground flat. Block front to back tilting shall be checked frequently, however correction by shimming shall be done no later than 3 completed courses.
- Wall sections not conforming to these tolerances shall be reconstructed at no additional cost to the Department.

(E) Placement of Metallic Reinforcement Elements:

Metallic reinforcement elements shall be placed normal (perpendicular) to the face of the wall, unless otherwise shown on the approved plans. All reinforcement shall be structurally connected to the wall face.

At each level of the reinforcement, the reinforced wall fill material shall be roughly leveled and compacted before placing the next layer of reinforcement. The reinforcement shall bear uniformly on the compacted reinforced fill from the connection to the wall to the free end of the reinforcing elements. The reinforcement placement elevation shall be at the connection elevation to two (2) inches higher than the connection elevation.

Where overlapping of reinforcing may occur, such as at corners, reinforcing connections to panels shall be adjusted to maintain at least three (3) inches of vertical separation between overlapping reinforcement.

(F) Placement of Geotextile:

All joints between precast concrete panels shall be covered with geotextile on the backside of the wall. Adhesive shall be applied to panels only. Adhesive shall not be applied to geotextile fabric or within \underline{two} (2) inches of a joint. The contractor shall provide geotextile having a minimum width of 12 inches, and shall overlap fabric a minimum of <u>four (4) inches</u>. If applicable, the placement of the geotextile fabric for

modular block walls shall be in accordance with the plans.

(G) Joint Pads and Fillers:

The contractor shall install joint pads and fillers as shown on the working drawings.

(H) Placement of Geosynthetic Reinforcement:

Geosynthetic reinforcement is not allowed.

4.06 Reinforced Wall Fill Placement:

(A) General:

Reinforced wall fill material shall be compacted using a static-weighted or vibratory roller. Sheeps-foot or grid-type rollers shall not be used for compacting material within the limits of the fill reinforcement. Compaction within three (3) feet of the wall facing shall be achieved by a lightweight mechanical tamper or roller system.

Reinforced wall fill placement shall closely follow erection of each course of facing panels. Reinforced fill material shall be placed in such a manner to avoid damage or disturbance of the wall materials, misalignment of facing panels, or damage to fill reinforcement or facing members. The contractor shall place fill material to the level of the connection and in such a manner as to ensure that no voids exist directly beneath reinforcing elements.

If applicable, the fill material for walls with modular block facing units shall not be advanced more than the height of a modular block unit until the drainage fill, core fill and all fill in all openings within the blocks at that level have been placed. The filled units shall be swept clean of all debris before installing the next level of units and/or placing the geogrid materials

The maximum compacted lift thickness shall not exceed <u>eight (8) inches</u>. The contractor shall decrease this lift thickness, if necessary, to obtain the specified density.

For metallic reinforcements, the fill shall be spread by moving the machinery parallel to or away from the wall facing and in such a manner that the steel reinforcement remains normal to the face of the wall. Construction equipment shall not operate directly on the steel reinforcement. A minimum fill thickness of three (3) inches over the steel reinforcement shall be required prior to operation of vehicles. Sudden braking and sharp turning shall be avoided.

Wall materials which are damaged during reinforced fill material placement shall be removed and replaced by the contractor, at no additional cost to the Department. The contractor may submit alternative corrective procedures to the Engineer for consideration. Proposed alternative corrective procedures shall have the concurrence of the MSE wall supplier and designer, in writing, prior to submission to the Engineer for consideration. All corrective actions shall be at no additional cost to the Department.

(B) Compaction Criteria:

<u>Trial fill sections shall be constructed</u> with Department personnel present to determine appropriate criteria to achieve adequate compaction. The trial fill sections shall be performed as follows:

- One trial fill section is valid for up to 10,000 ft² of MSE wall area (e.g. 1 to 10,000 ft² of wall requires 1 trial fill section, 10,001 to 20,000 ft² requires 2, etc.) and for no more than one individual MSE wall.
- The minimum dimensions of the test pad shall be 15 ft. wide by 50 ft. long.

- The lift thickness shall not exceed <u>eight (8) inches after compaction.</u>
- Compaction shall be determined by using a level to measure the settlement of the trial section at a number of points after each pass (e.g., a minimum of 5 points measured at the center of a 1 ft square metal plate or other method approved by the Engineer).
- A thickness of approximately 2.5 feet shall be constructed to determine the appropriate number of passes, which will maximize compaction without excessively crushing the rock at the surface.
- The number of passes to achieve at least 80 percent of the maximum settlement will be required for production work.
- Only those methods used to establish compaction compliance in the trial fill section shall be used for production work.
- A material change, change in source, a difference of more than +/- 5.0 percent passing any sieve size, and/or change in the approved equipment shall require the contractor to conduct a new trial fill section and obtain re-approval by the Engineer of the minimum number of passes and rolling pattern.
- The Department reserves the right to use other test methods to evaluate the adequacy of the compaction criteria.
- The trial fill sections are incidental to the bid price for Retaining Wall.

Within three (3) feet of the wall facing, compaction criteria shall be determined using test pad sections with Department personnel present to determine appropriate criteria to achieve adequate compaction. The test pad sections shall be performed as follows:

- The minimum dimensions of the test pad shall be 5 ft. wide by 15 ft. long.
- The lift thickness shall not exceed <u>eight (8) inches after compaction.</u>
- Compaction shall be determined by using a level to measure the settlement of the test pad section at a number of points after each pass (e.g., a minimum of 3 points measured at the center of a 1 ft square plate or other method approved by the Engineer).
- A thickness of approximately 2.5 feet shall be constructed to determine the minimum number of passes of a lightweight mechanical tamper or roller system.
- The number of passes to achieve at least 80 percent of the maximum settlement will be required for production work.
- Only those methods used to establish compaction compliance in the test pad section shall be used for production work.
- A material change, change in source, a difference of more than +/- 5.0 percent passing any sieve size, and/or change in the approved equipment shall require the contractor to conduct a new test pad section.
- The test pad sections are incidental to the bid price for Retaining Wall.

(C) Moisture Control:

The free moisture content of the reinforced fill material, as determined by KM 64-306, shall not exceed 2.0% during compaction.

(D) **Protection of the Work:**

The contractor shall not allow surface runoff from adjacent areas to enter the wall construction site at any time during construction operations. In addition, at the end of each day's operation, the contractor shall slope the last lift of fill material away from the wall facing so that runoff is directed away from the structure. If the subgrade is damaged due to water or otherwise, such that it does not meet the requirements of Subsection 4.02, then as directed by the Engineer, the contractor shall rework and repair the damaged

Special Note for Retaining Walls

subgrade at no additional expense to the Department. The criteria in Subsection 4.02 shall be used to judge the adequacy of the repair. Rework and repair shall extend to a depth where undamaged work is encountered.

4.07 Retained Backfill Placement:

As required by the Geotechnical Report and plan notes the retained backfill (i.e. external backfill outside of the reinforced volume) may consist of either soil or "Granular Embankment" meeting the requirements of Section 3.06 herein. The material shall be compacted in accordance with Section 206 of the current Standard Specifications except that the maximum loose lift thickness (prior to compaction) is 12 inches. Type IV Geotextile Fabric shall be placed between the existing embankment material and the proposed "Granular Embankment" in accordance with Sections 214 and 843 of the Standard Specifications.

4.5 **MONITORING**:

4.51 Monitoring Devices:

The Geotechnical Report may require devices to monitor vertical and horizontal displacement both during and after construction. The Contractor will be responsible for providing labor and materials and for cooperating with, and providing, any required assistance to Department personnel with implementation of monitoring activities. The cost of all labor and materials required to support the monitoring program will be incidental to the cost of the.

The approximate locations of any monitoring devices shall be shown in the Working Drawings prepared by the MSE Wall Designer.

4.52 Monitoring Schedule:

The monitoring schedule for any required monitoring device shall be as agreed upon in the Geotechnical Report for the structure.

5.0 METHOD OF MEASUREMENT:

5.01 MSE Retaining Wall:

The cost for any Mechanically Stabilized Earth (MSE) retaining walls shall be included in the lump sum bid item for the project. For the purpose of the schedule of values, MSE walls will be measured by the square foot of Retaining Wall. The vertical height will be taken as the difference in elevation measured from the top of wall to the top of the leveling pad. No field measurement will be made. The final quantity will be the contract plan quantity increased or decreased by authorized changes.

The MSE Wall supplier's design may require additional excavation and MSE Wall materials to satisfy their design. The design MSE earth reinforcement lengths shall be equal to or greater than the length shown on the plans or as required by the AASHTO Specifications for the height of the wall plus live load surcharge. The lengths of the MSE Reinforcement shall be constant from the bottom to the top of the section. Extension of the plan limits to accommodate the wall design, configuration of pre-fabricated concrete units, or lengths of earth reinforcement for MSE Walls shall not be cause for changing the plan pay quantities. Additional quantities of excavation, MSE Reinforcement, MSE volume, excavation for foundation replacement, granular embankment, and labor necessary to satisfy the MSE Wall supplier's design shall be incidental to the Retaining Wall.

The MSE volume that extends twelve inches, minimum, beyond the ends of the reinforced volume for MSE Walls shall be incidental to the Retaining Wall.

All work associated with providing the design, details and construction for the coping, moment slab, barrier and pre-cast aesthetic panel shall be incidental to the Retaining Wall.

All materials, equipment, and labor necessary to provide and install the <u>geotextile fabric immediately</u> <u>surrounding the reinforced fill volume</u> shall be incidental to the Retaining Wall.

5.02 Embankment:

For the schedule of values, the quantity of embankment for external retained backfill behind the MSE Walls and, if required, granular foundation beneath the walls shall be measured according to Section 206 of the current Standard Specifications. The final quantities shall be based on field measurements. The cost for any Embankment shall be included in the lump sum bid item for the project.

5.03 Geotextile Fabric:

For the schedule of values, all materials, equipment, and labor necessary to provide and install the <u>geotextile fabric placed between existing fill material and Granular Embankment</u> shall be measured according to Section 214 of the current Standard Specifications. The cost for any Geotextile Fabric shall be included in the lump sum bid item for the project.

Appendix L -- Special Note for Subgrade Stabilization

Appendix L -- Special Note for Subgrade Stabilization

Special Note for Subgrade Stabilization DESCRIPTION

The subgrade of this project is to be cement stabilized. Cement should be applied at a rate determined necessary by the geotechnical investigations performed by the DBT; however, the minimum rate shall be 56.7 LBS of cement per SY of subgrade at a depth of 8 inches. Contrary to Section 208 of the Standard Specifications, the curing time and testing of the subgrade may be constructed with an expedited schedule. The subgrade is to be prepared and mixed per the Standard Specifications. The curing time is allowed to be lowered to 48 hours per the following items in this note.

- A. The Subgrade is to be tested with a nuclear density meter to ensure that the required maximum dry density and optimum moisture content have been achieved.
- B. The subgrade is to be coated with an asphalt curing seal within 12 hours of final mixing. This is to ensure that the proper moisture content is maintained during the shortened curing period. The curing seal must remain intact at all times even after the curing period has passed.
- C. After curing period the contractor can begin constructing the aggregate base layer. If any rutting of the treated subgrade layer is detected, it must be repaired immediately. Rutting is to be checked by driving a grader over the subgrade 5 times. If the depth of the ruts is three eights (3/8) of an inch or greater, construction of the aggregate layer is to be halted for an additional 24 hour curing period. Repair of the subgrade is defined as refilling any ruts and cutting any bulges to ensure the depth of stabilized material is 12 inches and the subgrade is at proper grade. The asphalt curing seal must be reapplied over disturbed areas so that it completely covers the stabilized area.
- D. The costs of all work and materials necessary for Subgrade Stabilization shall be included in the lump sum bid item for the project.

Appendix M -- Special Note for Inlaid Pavement Markers

December 5, 2018

Appendix B -- DBE Conditions

SPECIAL NOTE FOR INLAID PAVEMENT MARKERS

I. DESCRIPTION

Except as provided herein, perform all work in accordance with the Department's Standard and Supplemental Specifications and applicable Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications. This work shall consist of:

(1) Maintain and Control Traffic; and (2) furnish and install Inlaid Pavement Markers (IPMs) in recessed grooves; and (3) any other work as specified by these notes and the Contract.

II. MATERIALS

The Department will sample all materials in accordance with the Department's Sampling Manual. Make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

A. Markers. Provide reflective lenses with depth control breakaway positioning tabs. Before furnishing the markers, provide to the Engineer the manufacturer's current recommendations for adhesives and installation procedures. Use one brand and design throughout the project. Use markers meeting the specifications in the table below.

SPECIFICATIONS F	OR HOUSING AND REFLECTOR				
Material:	Polycarbonate Plastic				
Woight:	Housing 2.00 oz.				
weight.	Reflector 2.00oz.				
Housing Size:	5.00" x 3.00" x 0.70" high				
Specific Intensity of I	Reflectivity at 0.2° Observation Angle				
\M/bito:	3.0 at 0°entrance angle				
white.	1.2 at 20°entrance angle				
Yellow:	60% of white values				
Red:	25% of white values				

B. Adhesives. Use adhesives that conform to the manufacturer's recommendations.

III. CONSTRUCTION

A. Installation. Install IPMs in recessed grooves cut into the final course of pavement according to the manufacturer's recommendations. Do not cut the grooves until the pavement has cured sufficiently to prevent damaging the pavement. Cut installation grooves using diamond blades on saws that accurately control groove dimensions. Remove all dirt, grease, oil, loose or unsound layers, and any other material from the marker area which would reduce the bond of the adhesive. Maintain pavement surfaces in a clean condition until placing markers.

Prepare the pavement surfaces, and install the markers in the recessed groove according to the drawing below. Use an approved snowplowable epoxy adhesive. Ensure that the adhesive bed area is equal to the bottom area of the marker, and apply adhesive in sufficient quantity to force excess out around the entire perimeter of the marker. Use materials, equipment, and construction procedures that ensure proper adhesion of the markers to the pavement surface according to the manufacturer's recommendations. Remove all excess adhesive from in front of the reflective faces. If any adhesive or foreign matter cannot be removed from the reflective faces, or if any marker fails to properly adhere to the pavement surface, remove and replace the marker at no additional cost to the Department.

ROAD SURFACE	PLASTIC HOUSING	12 †	.25	.40	1.00
		5 1997 - P			-
Adhesive / 18'' Blade Diameter	Road surface clearance				Î
	Helght of reflective area.				
	Depth of tapered groove				
	Groove depth for marker_				

B. Location and Spacing. Install the markers in the pattern for high reflectivity with two (2) IPMs per groove. Locate and space markers as shown in the current standard drawings or sepias (note: use Inlaid Pavement Markers wherever Type V Pavement Markers are called for). Do not install markers on bridge decks. Do not install a marker on top of a pavement joint or crack. Offset the recessed groove a minimum of <u>3</u> inches from any longitudinal pavement joint or crack and at least one inch from the painted stripe, ensuring that the finished line of markers is straight with minimal lateral deviation. Give preference to maintaining the <u>3</u>-inch offset between recessed groove and joint as opposed to keeping the line of markers straight.



Place inlaid markers as much in line with existing pavement striping as possible. Place markers installed along an edge line or channelizing line so that the near edge of the plastic housing is no more than one inch from the near edge of the line. Place markers installed along a lane line between and in line with the dashes. Do not place markers over the lines except where the lines deviate visibly from their correct alignment, and then only after obtaining the Engineer's prior approval of the location.

If conflicts between recessed groove placement in relation to pavement joint and striping cannot be resolved, obtain the Engineer's approval to eliminate the marker or revise the alignment.

C. Disposal of Waste. Dispose of all removed pavement, debris, and other waste at sites off the right of way obtained by the Contractor at no additional cost to the Department. See Special Note for waste and Borrow.

D. Restoration. Be responsible for all damage to public and/or private property resulting from the work. Restore all damaged features in like kind materials and design at no additional cost to the Department.

E. On-Site Inspection. Make a thorough inspection of the site prior to submitting

December 5, 2018

a bid and be thoroughly familiar with existing conditions so that the work can be expeditiously performed after a contract is awarded. The Department will consider submission of a bid as evidence of this inspection having been made and will not honor any claims for money or grant Contract time extensions resulting from site conditions.

F. Caution. Do not take information shown on the drawings and in this proposal and the types and quantities of work listed as an accurate or complete evaluation of the material and conditions to be encountered during construction, but consider the types and quantities of work listed as approximate only. The bidder must draw his own conclusion as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation or extension of Contract time if the conditions encountered are not in accordance with the information shown.

IV. MEASUREMENT

A. For the purposes of the schedule of values, "INLAID PAYMENT MARKER" shall be measured as each. One (1) installation of "INLAID PAVEMENT MARKER" will consist of grooving the pavement, removing cuttings and debris, preheating pavement to remove moisture, adhesives, and installation of two (2) markers with all lenses in accordance with this note.

Note: Each instance of Inlaid Pavement Marker will require two markers.

V. PAYMENT

A. Costs for all work and materials for all Inlaid Pavement Markers shall be included in the lump sum cost for the project.

Appendix N -- Traffic Data

			2040 No Build		Alternative 1		Alternative 2		Recommended	
	Eastbound		LC	os	LC	os	LC	os	LOS	
SEGMENT	FROM	то	АМ	РМ	АМ	РМ	АМ	РМ	АМ	PM
Mainline	West of KY 3608	KY 3608 diverge	С	D	С	D	С	D	С	D
Off Ramp	KY 3608 diverge		D	D	D	D	D	D	D	D
Mainline	Between KY 3608 ramps	KY 3608 merge	С	С	С	С	С	С	С	с
On Ramp	KY 3608 merge		С	С	С	С	С	С	С	С
Mainline	KY 3608 merge	KY 237 diverge	D	С						
Mainline	KY 3608 merge	Graves Road diverge			D	С	D	С	D	С
Off Ramp	Graves Road diverge				D	С	D	С	D	С
Mainline	Graves Road diverge	Graves Road merge			С	С			С	С
Mainline	Graves Road diverge	Graves Road first merge					С	С		
On Ramp	Graves Road first merge						С	С		
Mainline	Graves Road first merge	Graves Road second merge					D	С		
On Ramp	Graves Road merge				С	С				
On Ramp	Graves Road second merge						D	С		
Mainline	Graves Road merge	KY 237 diverge			D	D	D	D		
Off Ramp	KY 237 diverge		D	D	Е	Е	Е	E		
Merge	Graves Road on-ramp	KY 237 off-ramp							С	с
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	В	В	С	С	D	С	D	с
On Ramp	KY 237 merge (lane addition)		С	С	С	С	С	С	С	с
Mainline	KY 237 merge	East of KY 237	С	С	С	С	D	С	D	С
							Alterrative 2		Recommended	
			2040 No Build		Altern	ative 1	Altern	ative 2	Recom	mended
	Westbound		2040 N	o Build DS	Altern	otive 1	LC	os	LC	mended DS
SEGMENT	Westbound FROM	то	2040 N LC	o Build DS PM	Altern LC AM	os PM	Altern LC AM	DS PM	LC AM	DS PM
SEGMENT Mainline	Westbound FROM East of KY 237	TO KY 237 diverge	2040 N LC AM C	o Build DS PM D	Altern LC AM C	D ative 1	Altern LC AM C	D	C Recommendation	Demonded
SEGMENT Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge	TO KY 237 diverge	2040 N LC AM C C	o Build DS PM D E	Altern LC AM C C	D D E	Altern LC AM C C	D D D E	AM C C	PM D E
SEGMENT Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge	TO KY 237 diverge KY 237 second diverge	2040 N C C B	o Build DS PM D E C	Altern LC AM C C B	PM D E D	Altern LC AM C C B	PM D E D	Recomin LC AM C C B	PM D D E D
SEGMENT Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge	AM C C B B	o Build DS DM D E C D	Altern LC AM C C B C	PM D E D D D	Altern LC AM C C B C	PM D E D D	Recomin AM C C B C	PM D D E D D D D
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge	C C B A A	o Build D D C D B	Altern LC AM C C B C A	PM D E D D C	Altern LC AM C C B C A	PM D E D D C	Recomin AM C C B C A	PM D D D D D D D C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge	C C C B B A B B	o Build D PM D E C D B C	Altern LC AM C C B C A B B	Ative 1 D E D D C C	Altern LC AM C C B C A B B	PM D E D D C C	Recoming the recommendation of the recommend	PM D C D D D D D D C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge	C C B B A B C	o Build os PM D E C D B C	Altern LC AM C C B C A B B	PM D D D D C C	Altern LC AM C C B C A B B	PM D E D C C	Recomm AM C C B C A B B B B	PM D D D D D D D C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop	C C C B B A B A A A	o Build os PM D E C D B C C	Altern LC AM C C B C C A B B B B	PM D E D C C C	Altern LC AM C C B C C A B B B B	PM D E D C C C	Recomm C C C B C C A B B B B	PM D E D C C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge	C C C B A B A B A B B	o Build os PM D E C D B C C C E	Altern LC AM C C B C A B B B B	ative 1 D E D C C C	Altern LC AM C C B C A B B B B	PM D E D C C C	Recomm LC AM C C B C A B B B	PM D E D D C C C
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeFY 237 mergeKY 237 mergeFY 237 mergeF	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	LCC AM C C B B B A B A B B A B B	o Build os PM D E C D B C C E	Altern LC AM C C B C A B B B B C C	PM D E D C C C E	Altern LC AM C C B C A B B B B C C	PM D E D C C C E	Recomm LC AM C B C A B	PM D E D D C C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Off Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	C C B B A B A B A B C A A B C A A B	o Build D E C D B C C E	Altern LC AM C C B C C A B B B B C C C C	PM D E D C C C E E	Altern LC AM C C B C C A B B B C C C C	PM D E D C C C C E E	Recomm LC AM C C B C A B B B B B	PM D E D C C C C C
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road merge	C C C B B A A B A B	o Build ps PM D E C D B C C E	Altern LC AM C C B C A B B B C C C C B	PM D E D C C C C E E E D	Altern LC AM C C B C C A B B C C C C B	PM D E D D C C C C E E E D	Recomm C AM C C B C A B B B A	PM D E D D C C C C C C
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeFY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge	LCC AM C C C B B B A B B A B B A B B	o Build ps PM D E C D B C C E	Altern LC AM C C B C A B B B C C C C B B B B	ative 1 D PM D E D C C C C E E D D D D C C C C C C C	Altern LC AM C C B C A B B B C C C C B B B B	PM D E D D C C C C E E E D D	Recomm C A B C A B B B B A A A	PM D D D D C C C C D C C B
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge I-275 lane drop	LCC AM C C B B B A B B A B B A B B	o Build ps PM D E C D B C C E	Altern LC AM C C B B B B C C C B B B	ative 1 D PM D E D C C C C E E D D D D C C C C C C C	Altern LC AM C C B C A B B C C C B B B	PM D E D C C C C E E D D D	Recomm C AM C C B C A B B B B A A A A	PM D D D C C C C D C C B B B
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeF237 mergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge Graves Road diverge I-275 lane drop KY 3608 diverge KY 3608 diverge KY 3608 diverge	C C C B B A A B C C C C C C C C C C C C	o Build ps PM D E C D B C C E	Altern LC AM C C B B C A B B C C C B B B	ative 1 D PM D E D C C C C E E D D D C C C C C C C C	Altern LC AM C C B B B C C C B B B	PM D E D C C C C E E E D D	Recomm C AM C C B C A B B B A A A A B	PM D E D D C C C C C B B B B E
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge I-275 lane drop KY 3608 diverge I-275 lane drop KY 3608 diverge	C C B B A B A B C C C C C C C C C C C C	o Build ps PM D E C D B C C E	Altern LC AM C C B B C A B B C C C C B B B B B B B B	ative 1 D PM D E D C C C E E D D D C C C D D C C	Altern LC AM C C B B C A B B C C C C B B B B B B B B	PM D E D C C C C E E E D D D D D D D D D D	Recomm C A B C A B B B B A A A A B B	PM D D D D C C C C C D C B B B E
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropGraves Road divergeGraves Road mergeI-275 lane dropGraves Road mergeI-275 lane dropKY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge KY 3608 diverge	C C C	o Build D E C D B C C E C E C E	Altern LC AM C C B B B C C C B B B B C C	ative 1 D PM D E D C C C E E D D C C E E D D C C E E D C C E E D C C E E D C C C E E D C C C E E D C C C E E D C C C C E E D C C C E E D C C C E E D C C C C E E D C C C C E E D D C C C E E D D C C C E E D D C C C E E D D C C C C E E D D C C C C E E D D C C C E E D D C C C E E D D C C E E D D C C C E E D D C C C C C C C C	Altern LC AM C C B C A B B C C C B B B C C C B B B C C	PM D E D C C C C E E D D D C C C C C C C C	Recomm C AM C C B C A B B B A A A A B C C	PM D E D C C C C C C B B B E E
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeKY 3608 divergeKY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge KY 3608 diverge KY 3608 diverge KY 3608 diverge KY 3608 diverge KY 3608 merge KY 3608 merge	C C B C C B	o Build ps PM D E C D B C C E C E D C E D C C E D C C C C C C C C C C C C C	Altern LC AM C C B B C C C B B B C C B B B C C B B B C C B B B C C B B B C C C B B C C C B B C C C B C C C B C C C B C C C B C C C B C C C C B C C C C B C C C C C C C B C C C C C C C B C	ative 1 D PM D E D C C C C E E D D D D E D D E D D D E D D E D D D D E D D D E D D D D E D D D E D D D E D D D E D D D E D D D E D D D E D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D E D D D D D E D D D D D E D D D D D E D D D D D E D D D D D E D	Altern LC AM C C B B B C C B B B C C B B B C C B B B C C B B C C B B B C C C B B C C C C B C C C C C B C	PM D E D C C C C C E E E D D D E D D E D D E D D E	Recomm C AM C C B C A B B A A A A B C B C B C B C C B C C C C C C C C C C C C C	PM D D D D C C C C C C B B B B E E D
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Off Ramp Mainline Off Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeKY 3608 divergeKY 3608 divergeKY 3608 mergeKY 3608 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge KY 3608 merge KY 3608 merge	C C B B B C C B B B C C B B B C C B B B C C B B B C C B B B C C B B B C C C B B B C C C B B B C C C B B B C C C B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C C B B B B C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C C B B B C C C C C B B B C C C C C B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B C C C C C B B B B C C C C C B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C B B B C C C C B B B B C C C C B B B B C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B B B C C C C C B B C C C C C B B B C C C C C B B C C C C C B C C C C C B B C C C C C C B B C C C C C C B B C C C C C C C B B C C C C C C C B B C C C C C C C B C C C C C C C C B C	o Build ps PM D E C D B C C E C E D D D D D D D D D D D D D	Altern LC AM C C B B B C C C B B B C C B B B C B B B C B B B C B B B C	ative 1 D PM D E D C C C C C E E D D D D E D D D E D D D D	Altern LC AM C C B B B C C C B B B C C B B B C C B B B C C B B B C	PM D E D D C C C C C E E E D D D D E D D D E D D D D	Recomm C AM C C B C A B B A A A A B C B B C B B B C C B B C C C C C C C C C C C C C	PM D D C C C C C C B B B E E D D D C C D C C D C C D C C C C C C

Table 9a. 2040 Build I-275 Traffic Conditions – Level of Service (LOS)

			2040 N	o Build	Alternative 1		L Alternative 2		Recommended	
	Eastbound_		v	/c	v,	/c	v/c		V/C	
SEGMENT	FROM	то	АМ	PM	АМ	PM	АМ	PM	AM	PM
Mainline	West of KY 3608	KY 3608 diverge	0.68	0.71	0.68	0.71	0.68	0.71	0.68	0.71
Off Ramp	KY 3608 diverge		0.68	0.71	0.68	0.71	0.68	0.71	0.68	0.71
Mainline	Between KY 3608 ramps	KY 3608 merge	0.64	0.62	0.65	0.63	0.65	0.63	0.65	0.63
On Ramp	KY 3608 merge		0.72	0.69	0.72	0.69	0.72	0.69	0.72	0.69
Mainline	KY 3608 merge	KY 237 diverge	0.72	0.69						
Mainline	KY 3608 merge	Graves Road diverge			0.72	0.69	0.72	0.69	0.72	0.69
Off Ramp	Graves Road diverge				0.72	0.69	0.72	0.69	0.72	0.69
Mainline	Graves Road diverge	Graves Road merge			0.60	0.55			0.60	0.55
Mainline	Graves Road diverge	Graves Road first merge					0.60	0.55		
On Ramp	Graves Road first merge						0.75	0.72		
Mainline	Graves Road first merge	Graves Road second merge					0.75	0.55		
On Ramp	Graves Road merge				0.84	0.81			0.86	0.81
On Ramp	Graves Road 2nd merge						0.86	0.63		
Mainline	Graves Road merge	KY 237 diverge			0.84	0.81	0.86	0.81	0.86	0.81
Off Ramp	KY 237 diverge		0.72	0.69	0.84	0.81	0.86	0.81	0.86	0.81
Merge	Graves Road on-ramp	KY 237 off-ramp							0.57	0.54
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	0.49	0.42	0.70	0.67	0.72	0.67	0.72	0.67
On Ramp	KY 237 merge (lane addition)		0.70	0.68	0.71	0.68	0.72	0.68	0.72	0.68
Mainline	KY 237 merge	East of KY 237	0.70	0.68	0.71	0.68	0.72	0.68	0.72	0.68
					Alternative 1		Alternative 2		Recommended	
			2040 No Build		Altern	ative 1	Altern	ative 2	Recom	mended
	Westbound		2040 N V	o Build /C	Altern V,	ative 1 /C	Altern V,	ative 2 /C	Recom	mended /C
SEGMENT	Westbound FROM	то	2040 N V AM	o Build /C PM	Altern V/ AM	ative 1 /C PM	Altern V, AM	ative 2 /C PM	Recomi V/ AM	/C PM
SEGMENT Mainline	Westbound FROM East of KY 237	TO KY 237 diverge	2040 N V AM 0.50	o Build /C 0.83	Altern V/ AM 0.50	ative 1 /C 0.83	Altern V/ AM 0.50	ative 2 /C 0.83	Recomm V/ AM 0.50	PM 0.87
SEGMENT Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge	TO KY 237 diverge	2040 N V AM 0.50 0.50	o Build /C PM 0.83 0.83	Altern V/ AM 0.50 0.50	ative 1 /C 0.83 0.83	Altern V/ AM 0.50 0.50	ative 2 /C 0.83 0.83	Recomm V/ AM 0.50 0.50	PM 0.87 0.87
SEGMENT Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge	TO KY 237 diverge KY 237 second diverge	2040 N V AM 0.50 0.50 0.35	PM 0.83 0.83 0.62	Altern V, AM 0.50 0.50 0.45	ative 1 /C 0.83 0.83 0.75	Altern V, AM 0.50 0.50 0.45	ative 2 /C 0.83 0.83 0.75	Recomm V/ AM 0.50 0.50 0.45	PM 0.87 0.87 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge	2040 N AM 0.50 0.35 0.35	PM 0.83 0.83 0.62 0.62	Altern V/ AM 0.50 0.50 0.45 0.45	ative 1 // PM 0.83 0.83 0.75 0.75	Altern V/ AM 0.50 0.50 0.45 0.45	ative 2 // PM 0.83 0.83 0.75 0.75	Recomm V/ AM 0.50 0.50 0.45 0.45	PM 0.87 0.87 0.79 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N AM 0.50 0.50 0.35 0.35 0.16	PM 0.83 0.62 0.62 0.40	Altern V/ AM 0.50 0.50 0.45 0.45 0.28	PM 0.83 0.75 0.75	Altern V/ AM 0.50 0.50 0.45 0.45 0.28	PM 0.83 0.75 0.75	Recomm AM 0.50 0.50 0.45 0.45	PM 0.87 0.87 0.79 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N V AM 0.50 0.35 0.35 0.16 0.30	PM 0.83 0.83 0.62 0.40	Altern V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	ative 1 / PM 0.83 0.83 0.75 0.75 0.55 0.66	Altern V, AM 0.50 0.50 0.45 0.45 0.28 0.28	ative 2 / PM 0.83 0.83 0.75 0.75 0.55 0.66	Recomm AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.87 0.79 0.79 0.59 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge	2040 N V AM 0.50 0.35 0.35 0.16 0.30	o Build /C PM 0.83 0.62 0.62 0.40 0.59	Altern V, AM 0.50 0.45 0.45 0.28 0.39	ative 1 /C 0.83 0.83 0.75 0.75 0.55 0.66	Altern V, AM 0.50 0.45 0.45 0.28 0.39	ative 2 /C PM 0.83 0.83 0.75 0.75 0.55 0.66	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.87 0.79 0.79 0.79 0.79 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop	2040 N V AM 0.50 0.35 0.35 0.16 0.30	o Build /C PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59	Altern V, AM 0.50 0.45 0.45 0.28 0.39	ative 1 /C PM 0.83 0.75 0.75 0.55 0.66 0.66	Altern V, AM 0.50 0.45 0.45 0.28 0.39	ative 2 /C PM 0.83 0.83 0.75 0.75 0.55 0.66	Recomm V/ AM 0.50 0.50 0.45 0.45 0.28 0.39	PM 0.87 0.87 0.79 0.79 0.79 0.79
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge	2040 N V AM 0.50 0.35 0.35 0.16 0.30 0.30 0.30 0.30	o Build /C PM 0.83 0.62 0.62 0.40 0.59 0.59 0.59 0.88	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39	ative 1 /C PM 0.83 0.75 0.75 0.75 0.55 0.66	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39	ative 2 /C PM 0.83 0.75 0.75 0.75 0.55 0.66	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39	mended /C PM 0.87 0.79 0.79 0.79 0.59 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N V AM 0.50 0.35 0.35 0.16 0.30 0.30 0.45	o Build /C PM 0.83 0.62 0.62 0.40 0.59 0.59 0.88	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39	ative 1 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39	mended /C PM 0.87 0.79 0.79 0.79 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N V AM 0.50 0.35 0.35 0.35 0.16 0.30 0.30 0.45	o Build /C PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88	Altern V, AM 0.50 0.50 0.45 0.45 0.28 0.39 0.39 0.59	ative 1 /C PM 0.83 0.83 0.75 0.75 0.55 0.66 / 0.66 / 1.00 1.00	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00	Recomm V/ AM 0.50 0.50 0.45 0.45 0.39 0.39 0.39 0.39	mended /C PM 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeI-237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge Graves Road diverge	2040 N V AM 0.50 0.35 0.35 0.35 0.16 0.30 0.30 0.30 0.45	o Build /C PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.59 0.88	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.59 0.59	ative 1 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 0.66 1.00 1.00 0.78	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.59 0.59	ative 2 /C PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 0.66 1.00 1.00 0.78	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.39 0.39	mended /C PM 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71 0.71
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge	2040 N V AM 0.50 0.35 0.35 0.16 0.30 0.30 0.45	o Build /C PM 0.83 0.62 0.62 0.40 0.59 0.59 0.88	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.59 0.41 0.45	ative 1 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.27 0.30	mended /C PM 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.56 0.62
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeFY 237 mergeStr 237 mergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road merge I-275 lane drop	2040 N V AM 0.50 0.35 0.35 0.16 0.30 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.88	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.59 0.41 0.45	ative 1 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Recomm V/ AM 0.50 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.30 0.27 0.30 0.22	mended / PM 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71 0.56 0.62 0.49
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road mergeJ-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge	2040 N V AM 0.50 0.35 0.35 0.35 0.16 0.30 0.30 0.45	o Build /C PM 0.83 0.62 0.62 0.40 0.59 0.59 0.59 0.88	Altern V, AM 0.50 0.45 0.45 0.45 0.28 0.39 0.59 0.41 0.45	ative 1 /C PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.59 0.41 0.45	ative 2 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 0.66 1.00 1.00 0.78 0.87	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.39 0.27 0.30 0.22 0.45	mended /C PM 0.87 0.79 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71 0.71 0.56 0.62 0.49 0.93
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge	2040 N V AM 0.50 0.35 0.35 0.16 0.30 0.30 0.45	o Build // PM 0.83 0.62 0.62 0.40 0.59 0.59 0.88	Altern V/ AM 0.50 0.45 0.45 0.28 0.39 0.59 0.41 0.45 0.45	ative 1 /C PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.59 0.41 0.45 0.45	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.27 0.30 0.22 0.45	mended /C PM 0.87 0.79 0.79 0.79 0.79 0.71 0.71 0.71 0.56 0.62 0.49 0.93
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeI-275 lane dropI-275 lane drop </td <td>TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge</td> <td>2040 N AM 0.50 0.35 0.35 0.16 0.30 0.45 0.45</td> <td>o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.88 0.88 0.88</td> <td>Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.59 0.41 0.45 0.45</td> <td>ative 1 // PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87</td> <td>Altern V, AM 0.50 0.45 0.45 0.45 0.39 0.39 0.59 0.41 0.45 0.45</td> <td>ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87</td> <td>Recomm V/ AM 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.30 0.27 0.30 0.22 0.45</td> <td>mended /C PM 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.56 0.62 0.49 0.93 0.93</td>	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge	2040 N AM 0.50 0.35 0.35 0.16 0.30 0.45 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.88 0.88 0.88	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.59 0.41 0.45 0.45	ative 1 // PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87	Altern V, AM 0.50 0.45 0.45 0.45 0.39 0.39 0.59 0.41 0.45 0.45	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87	Recomm V/ AM 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.30 0.27 0.30 0.22 0.45	mended /C PM 0.87 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.56 0.62 0.49 0.93 0.93
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeKraves Road mergeI-275 lane dropGraves Road mergeKY 3608 divergeKY 3608 divergeKY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 merge	2040 N V AM 0.50 0.35 0.35 0.35 0.35 0.30 0.30 0.45 0.45 0.45 0.45 0.37	o Build /C PM 0.83 0.62 0.62 0.40 0.59 0.59 0.59 0.59 0.88 0.88 0.88 0.83	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.59 0.59 0.59 0.41 0.45 0.45 0.45 0.45	ative 1 /C PM 0.83 0.75 0.75 0.75 0.55 0.66 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.87	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.39 0.59 0.59 0.59 0.41 0.45 0.45 0.45 0.45	ative 2 /C PM 0.83 0.75 0.75 0.75 0.66 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.87	Recomm V/ AM 0.50 0.45 0.45 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.30 0.22 0.45 0.38	mended /C PM 0.87 0.79 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.71 0.56 0.62 0.49 0.93 0.87
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Off Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeKY 3608 divergeKY 3608 divergeKY 3608 mergeKY 3608 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 merge KY 3608 merge	2040 N V AM 0.50 0.35 0.35 0.16 0.30 0.45 0.30 0.45 0.45	o Build // PM 0.83 0.62 0.62 0.62 0.40 0.59 0.59 0.59 0.88 0.88 0.83 0.83 0.94	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.59 0.41 0.45 0.45 0.45	ative 1 /C PM 0.83 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.80 0.91	Altern V, AM 0.50 0.45 0.45 0.28 0.39 0.39 0.39 0.59 0.59 0.41 0.45 0.45 0.45 0.45	ative 2 /C PM 0.83 0.75 0.75 0.55 0.66 0.66 1.00 1.00 0.78 0.87 0.87 0.87 0.80 0.91	Recomm V/ AM 0.50 0.45 0.45 0.28 0.39 0.39 0.27 0.30 0.22 0.45	mended /C PM 0.87 0.79 0.79 0.79 0.79 0.71 0.71 0.71 0.71 0.56 0.62 0.49 0.93 0.87 0.98

Table 9b. 2040 Build I-275 Traffic Conditions – Volume/Capacity Ratio (V/C)

			2040 N	o Build	Alternative 1		a 1 Alternative 2		Recommended	
	Eastbound		Den	sity	Den	isity	Density		Density	
SEGMENT	FROM	то	AM	PM	AM	PM	AM	РМ	АМ	PM
Mainline	West of KY 3608	KY 3608 diverge	25	26.3	25.0	26.3	25.0	26.3	25.0	26.3
Off Ramp	KY 3608 diverge		28.6	30.2	28.6	30.1	28.6	30.1	28.6	30.1
Mainline	Between KY 3608 ramps	KY 3608 merge	23.6	22.7	23.8	23.1	23.8	23.1	23.8	23.1
On Ramp	KY 3608 merge		29.8	28.2	29.8	28.4	29.8	28.4	29.8	28.4
Mainline	KY 3608 merge	KY 237 diverge	26.6	25.1	\square	\square				
Mainline	KY 3608 merge	Graves Road diverge			26.6	25.3	26.6	25.3	26.6	25.3
Off Ramp	Graves Road diverge				30.6	29.4	30.6	29.4	30.6	29.4
Mainline	Graves Road diverge	Graves Road merge			21.9	20.1			21.8	20.0
Mainline	Graves Road diverge	Graves Road first merge					22.3	20.4		
On Ramp	Graves Road first merge						30.6	28.8		
Mainline	Graves Road first merge	Graves Road second merge					29.0	21.0		
On Ramp	Graves Road merge				34.1	32.4			34.7	32.9
On Ramp	Graves Road 2nd merge						36.0	25.6		
Mainline	Graves Road merge	KY 237 diverge			32.7	31.0	33.7	31.0	33.7	31.0
Off Ramp	KY 237 diverge		31.1	29.9	35.7	34.4	36.3	34.4	36.3	34.4
Merge	Graves Road on-ramp	KY 237 off-ramp				\square			20.7	19.6
Mainline	Between KY 237 ramps	KY 237 merge (lane addition)	18	15.2	25.7	24.6	26.4	24.6	26.4	24.6
On Ramp	KY 237 merge (lane addition)		27.4	25.5	27.8	26.6	28.4	26.6	28.1	26.3
Mainline	KY 237 merge	East of KY 237	25.8	24.9	26.0	24.9	26.5	24.9	26.5	24.9
									1	
			2040 No Build		Altern	ative 1	Altern	ative 2	Recom	mended
	Westbound		2040 N Den	o Build	Altern Den	ative 1 sity	Altern Den	ative 2 sity	Recom	mended
SEGMENT	Westbound FROM	то	2040 N Den AM	o Build sity PM	Altern Den AM	isity PM	Altern Den AM	ative 2 sity PM	Recomi Den AM	sity PM
SEGMENT Mainline	Westbound FROM East of KY 237	TO KY 237 diverge	2040 N Den AM 18.2	PM 31.9	Altern Den AM 18.2	isity PM 31.9	Altern Den AM 18.2	ative 2 sity PM 31.9	Recomi Den AM 18.2	PM 34.4
SEGMENT Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge	TO KY 237 diverge	2040 N Den AM 18.2 20.7	o Build sity PM 31.9 34.2	Altern Den AM 18.2 19.9	PM 31.9 33.0	Altern Den AM 18.2 19.9	ative 2 sity PM 31.9 33.0	Recomm Den AM 18.2 19.9	PM 34.4 34.7
SEGMENT Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge	TO KY 237 diverge KY 237 second diverge	2040 N Den AM 18.2 20.7 13.5	o Build sity PM 31.9 34.2 23.8	Altern Den AM 18.2 19.9 16.8	PM 31.9 33.0 28.4	Altern Den AM 18.2 19.9 16.8	ative 2 sity PM 31.9 33.0 8.4	Recomm Den AM 18.2 19.9 16.8	PM 34.4 34.7 30.1
SEGMENT Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge	2040 N Den 18.2 20.7 13.5 14.8	PM 31.9 34.2 23.8 25.7	Altern Den 18.2 19.9 16.8 18.3	PM 31.9 33.0 28.4 30.8	Altern Den AM 18.2 19.9 16.8 18.3	ative 2 sity 9M 31.9 33.0 8.4 30.8	Recomm Den AM 18.2 19.9 16.8 18.3	PM 34.4 34.7 30.1 32.4
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N Den 18.2 20.7 13.5 14.8 6.0	PM 31.9 34.2 23.8 25.7 15.1	Altern Den AM 18.2 19.9 16.8 18.3 10.3	PM 31.9 33.0 28.4 30.8 20.4	Altern Den AM 18.2 19.9 16.8 18.3 10.3	ative 2 sity 9M 31.9 33.0 8.4 30.8 20.4	Recomm Den AM 18.2 19.9 16.8 18.3 10.3	PM 34.4 34.7 30.1 32.4 21.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1	PM 31.9 34.2 23.8 25.7 15.1 22.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	PM 31.9 33.0 28.4 30.8 20.4 25.6	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	ative 2 sity 9M 31.9 33.0 8.4 30.8 20.4 25.6	AM 18.2 19.9 16.8 18.3 10.3	PM 34.4 34.7 30.1 32.4 21.9 27.2
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline On Ramp Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	PM 31.9 33.0 28.4 30.8 20.4	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6	Aecom AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2	Recomm Den AIM 18.2 19.9 16.8 18.3 10.3 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 44.6	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9
SEGMENT Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop I-275 lane drop Graves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9	Recomm Den AIM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 16.6	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 28.4
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Off Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road diverge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road merge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 25.6 24.2 25.6 24.2 25.6	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9 29.5	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 16.1 9.9	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Off Ramp	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road divergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 merge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 24.2 25.6 26.4 26.5	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 36.8	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 16.1 9.9 11.3	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 28.4 20.5 24.1
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road merge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge I-275 lane drop	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 44.6 42.9 29.5 36.8	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9 29.5 36.8	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 16.1 9.9 11.3 8.1	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 28.4 20.5 24.1 17.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Off Ramp Mainline Off Ramp Mainline On Ramp Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge Graves Road diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge KY 3608 diverge KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.5 36.8	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.5 36.8	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 16.1 9.9 11.3 8.1 16.1	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 24.1 17.9 38.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline On Ramp Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeI-275 lane dropI-275 lane dropGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane drop	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge KY 3608 diverge KY 3608 diverge KY 3608 diverge KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 36.8 36.8 34.5	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 21.3 25.2 14.9 17.6 16.1	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 44.6 42.9 29.5 36.8 34.5	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 14.3 8.1 16.1 9.9 11.3 8.1	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 24.1 17.9 38.9
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeKy 255 lane dropGraves Road mergeKy 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road merge I-275 lane drop KY 3608 diverge KY 3608 diverge I-275 lane drop KY 3608 diverge I-275 lane drop KY 3608 diverge KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0 35.2 36.8	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.5 36.8 34.5 36.4	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 44.6 42.9 29.5 36.8 34.5 36.4	Recomm Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 16.1 9.9 11.3 8.1 16.1 18.7	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 25.9 28.4 20.5 24.1 17.9 38.9 39.0
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Mainline	WestboundFROMEast of KY 237KY 237 divergeKY 237 first divergeKY 237 second divergeKY 237 second divergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeKY 237 mergeGraves Road divergeGraves Road divergeGraves Road divergeGraves Road mergeI-275 lane dropGraves Road mergeGraves Road mergeGraves Road mergeI-275 lane dropKy as Road mergeKy 3608 divergeKY 3608 divergeKY 3608 diverge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge I-275 lane drop KY 3608 diverge I-275 lane drop KY 3608 diverge KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2 10.8 16.2 18.8 14.0	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 21.0 35.2 36.8 31.9	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7 14.4	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 24.2 36.8 34.5 36.4 30.7	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7 14.4	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 36.8 36.8 34.5 36.4 30.7	Recomm Den AIM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 16.1 9.9 11.3 8.1 16.1 18.7 14.4	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 24.1 17.9 38.9 39.0 34.4
SEGMENT Mainline Off Ramp Mainline Off Ramp Mainline Mainline Mainline Mainline Off Ramp Mainline Mainline Mainline Mainline Mainline Mainline Off Ramp Mainline Off Ramp	Westbound FROM East of KY 237 KY 237 diverge KY 237 first diverge KY 237 second diverge KY 237 second diverge KY 237 merge KY 237 merge KY 237 merge KY 237 merge I-275 lane drop Graves Road diverge Graves Road diverge Graves Road merge I-275 lane drop Graves Road merge Graves Road merge KY 3608 diverge KY 3608 diverge KY 3608 merge KY 3608 merge	TO KY 237 diverge KY 237 second diverge KY 237 second diverge Graves Road diverge Graves Road diverge I-275 lane drop KY 3608 diverge Graves Road diverge KY 3608 diverge	2040 N Den AM 18.2 20.7 13.5 14.8 6.0 10.1 10.8 16.2 10.8 16.2 10.8 16.2 10.8 16.2 10.8 16.2 10.8 16.2 10.1 10.8 16.2 10.1 10.8 16.2 10.1 10.8 16.2 10.1 10.1 10.8 16.2 10.1 10.1 10.1 10.1 10.1 10.1 10.1 10	o Build sity PM 31.9 34.2 23.8 25.7 15.1 22.2 21.0 35.2 36.8 31.9 36.8 31.9 36.8 31.9 36.8 31.9	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 16.1 18.7 14.4 18.1	ative 1 sity PM 31.9 33.0 28.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 24.2 36.8 36.8 36.8 34.5 36.4 30.7 40.5	Altern Den AM 18.2 19.9 16.8 18.3 10.3 14.4 14.3 21.3 25.2 14.9 17.6 17.6 16.1 18.7 14.4 18.1	ative 2 sity PM 31.9 33.0 8.4 30.8 20.4 25.6 24.2 24.2 24.2 24.2 24.2 36.8 36.8 34.5 36.4 30.7 40.5	Recommodel Den AM 18.2 19.9 16.8 18.3 10.3 14.2 14.2 14.2 14.2 14.2 14.2 14.3 8.1 16.1 9.9 11.3 8.1 16.1 18.7 14.4 18.7	mended sity PM 34.4 34.7 30.1 32.4 21.9 27.2 25.9 28.4 20.5 24.1 17.9 38.9 39.0 34.4 45.9

Table 9c. 2040 Build I-275 Traffic Conditions – Density

Direction	2016 Existing (miles/hour)	2040 No Build (miles/hour)	Alternative 1 (miles/hour)	Alternative 2 (miles/hour)	Recommended Alternative (miles/hour)
Westbound	57	51	47	49	56
Eastbound	59	57	52	55	55

Table 10. Interstate Peak Hour Travel Speed Between KY 3608 Interchange and KY 237 Interchange

As noted in Section 1.5, the KY 237 westbound off-ramp is known to back up onto the interstate. All build alternatives include the additional off-ramp storage described in Section 3.2 and the simulation models revealed no queue spillback onto I-275 for this or other interstate ramps at the I-275/KY 237 Interchange. The KY 237 ramps are helped due to proposed improvements along KY 237 and reduced traffic volumes due to diversion to the Graves Road interchange.

While interstate travel speeds increased for Alternatives 1 and 2, the OKI Regional Model shows systemwide travel time savings. Three scenarios were evaluated: 1) 2016 Existing 2) 2040 No Build and 3) 2040 Build. For this analysis, all build alternatives were evaluated as the same basic build scenario. As presented in **Table 11**, overall vehicle hours of travel (VHT) were reduced by 163,189 hours with a build alternative in place.

Table 11. OKI Regional Model Vehicle Hours of Travel (VHT) Comparison

	2016 Existing	2040 No Build	2040 Build
	(hours)	(hours)	(hours)
Systemwide VHT	104,910,296	125,451,136	125,287,947

4.2 Local Street Network

With the addition of the Graves Road interchange, 25,400 daily vehicles are forecasted to be diverted from the KY 237 interchange. In 2040 with any Build Alternative, between 7,000 and 17,800 ADT are redirected from KY 237 and primarily diverted to Graves Road, KY 20 and/or Worldwide Boulevard. The following describes changes in LOS:

- LOS at the KY 237/I-275 Eastbound intersection will improve to LOS A (AM Peak) and LOS B (PM Peak) compared to LOS C and LOS F, respectively, for the No Build.
- Traffic decreases for the KY 237 westbound ramps and LOS improves from C to B for the AM Peak and remains LOS B for the PM Peak.
- Other intersections along KY 237 are either improved or have similar LOS when compared to the No Build. LOS analysis for Alternatives 1 and 2 are illustrated on **Exhibit 4** in **Appendix A** and **Exhibit 11** in **Appendix A** for the Recommended Alternative. More detailed results are presented in **Table 12**.

	2040 No Build				2040 Build Alternatives					
	AM		PM		A	M	PM			
	Delav		Delav		Delav		Delav			
	(sec/veh)	LOS	(sec/veh)	LOS	(sec/veh)	LOS	(sec/veh)	LOS		
KY 237 at KY 20 (MP 9.41	18)	•		•						
Intersection	186.4	F	497.7	F	160.9	F	503.5	F		
Eastbound	178.1	F	126.8	F	190.1	E	58.5	E		
Westbound	90.1	F	89.1	F	51.6	D	79.7	E		
Northbound	270.1	F	657.1	F	237.6	F	487.0	F		
Southbound	100.2	F	640.8	F	47.4	D	835.7	F		
KY 237 at Limaburg Rd/E	Barbara Dr (MP	9.698)								
Intersection	25.8	С	92.2	F	24.4	С	88.3	F		
Eastbound	95.0	F	663.3	F	95.0	F	663.3	F		
Westbound	115.5	F	222.9	F	115.5	F	222.9	F		
Northbound	16.9	В	14.7	В	11.7	В	12.4	В		
Southbound	13.3	В	52.0	D	9.2	А	44.4	D		
KY 237 at Medical Arts D	r/Litton Ln (M	P 10.309)		•						
Intersection	51.9	D	86.4	F	53.3	D	74.0	E		
Eastbound	196.1	F	107.4	F	240.3	F	107.4	F		
Westbound	214.1	F	436.0	F	157.3	F	294.8	F		
Northbound	40.6	D	63.2	E	25.0	С	49.6	D		
Southbound	20.1	С	54.0	D	24.7	С	54.1	D		
KY 237 at I-275 EB Ramp	s (MP 10.450)									
Intersection	28.4	С	87.1	F	5.7	А	17.5	В		
Eastbound	199.3	F	835.2	F	75.1	E	137.6	F		
Northbound	25.1	С	31.8	С	8.2	А	15.2	В		
Southbound Left	40.7	D	78.7	F	1.8	А	67.5	E		
Southbound Thru	2.9	A	3.0	A	1.5	А	3.2	A		
KY 237 at I-275 WB Ram	ps (MP 10.704)									
Intersection	34.2	С	18.0	В	17.9	В	16.4	В		
Northbound Left	143.7	F	43.0	F	48.0	D	49.8	D		
Northbound Thru	0.1	А	0.3	А	0.4	А	0.4	А		
Southbound	12.8	В	18.7	В	14.6	В	13.5	В		
KY 237 at Southpark Dr/	Worldwide Blv	rd (MP 11.023)								
Intersection	51.1	D	304.5	F	35.7	D	91.6	F		
Eastbound	95.6	F	516.9	F	62.0	E	190.9	F		
Westbound	79.1	E	82.6	F	79.1	E	82.6	F		
Northbound	37.4	D	278.3	F	21.3	С	68.0	E		
Southbound	45.0	D	292.0	F	25.3	С	41.9	D		
KY 237 at KY 2846/Globa	al Way (MP 11.	207)								
Intersection	13.1	В	198.0	F	11.9	В	257.5	F		
Eastbound	47.1	D	106.9	F	47.1	D	106.9	F		
Westbound	52.6	D	1470.0	F	52.6	D	1470.0	F		
Northbound	9.4	А	10.5	В	7.3	А	8.8	А		
Southbound	10.5	В	10.4	В	5.5	А	8.5	А		
KY 237 at Cardinal Way	(MP 11.412)									
Intersection	282.8	F	223.9	F	19.3	С	16.7	С		
Eastbound	23.5	С	11.7	В	8.5	А	6.6	А		
Westbound	8.3	А	25.2	D	5.3	А	8.7	А		
Northbound	11.1	В	320.6	F	5.7	А	20.9	С		
Southbound	389.1	F	79.7	F	24.8	С	11.3	В		

Table 12. 2040 Build KY 237 Intersection Traffic Operations

Like the I-275 analysis, VISSIM was used to develop a worst case peak hour build model for KY 237 and compared to the existing 2016 existing and 2040 No Build. Given the geometry and traffic volumes along KY 237 are unchanged for each Build alternative; results do not vary between them. For the Build alternatives, travel time in both directions improve over both the 2040 No Build and Existing Condition as illustrated in **Table 13**.

Direction	2016 Existing (minutes/vehicle)	2040 No Build (minutes/vehicle)	2040 Build (minutes/vehicle)		
Northbound	11.3	15.6	10.1		
Southbound	16.1	20.2	14.3		

	Table	13.	2040	Build	KY 237	⁷ Peak Hour	Travel	Time	Between	KY :	20 and	Graves	Road
--	-------	-----	------	-------	--------	------------------------	--------	------	---------	------	--------	--------	------

Traffic along Graves Road is forecasted to range between 15,000 and 18,500 daily vehicles. To handle the increased traffic, Graves Road will be realigned and widened. The proposed Graves Road interchange ramp terminals will operate at LOS C or D as noted in **Table 14** and illustrated on **Exhibit 8** in **Appendix A**. The addition of an eastbound loop ramp improves the westbound intersection LOS to B (AM Peak) and C (PM Peak) from LOS D for both peak periods.

The Worldwide Boulevard/Williams Road intersection was evaluated as both a roundabout and a signalized intersection. The signalized intersection performed superior to the roundabout, primarily due to the westbound left turn traffic from Worldwide Boulevard not being able to find gaps in the roundabout traffic.

The Graves Road and KY 20 intersection was also evaluated as both a roundabout and signalized intersection and both operated at LOS C or better for both the AM and PM peak periods.

For Alternative 2, Bullittsville Road tees into KY 20 and operates at LOS F in the PM peak period. This intersection was analyzed as an unsignalized intersection; however, a signal could be considered at such time warrants are met.

Traffic along KY 20 between Graves Road and KY 237 is forecasted to increase to approximately 16,000 daily vehicles and is also under consideration to be widened for Alternatives 1 and 2, but not in the Recommended Alternative.
		NONC	build a		ſ	AD B14	1 Annation 1			A blind OAO	140 mating 3		1040 E	Id Docom	andad Alta	onit-out
	AI	N 10107	Plan	5	AN	- ning oro	PN		AN	- ning or o		-	AN			N
	Delay (sec/veh)	SOJ	Delay (sec/veh)	LOS	Delay (ser/veh)	LOS	Delay (sec/veh)	ros	Delay (sec/veh)	ros	Delay (sec/veh)	ros	Delay (ser/veh)	ros	Delay (sec/veh)	ros
KY 237 at Graves Rd (MP	11.885)		land and		luna Annel		luna lanch		luna lanch		lack actual		line land		luna lanch	
Intersection	280.1	ш	243.6	ш	35.7	ш	85.5	ш	35.7	ш	85.5	ш	7.3	A	32.7	۵
Eastbound	116.5	н	24.1	J	102.3	ш	125.9	ч	102.3	ш	125.9	н	15.9	J	77.5	н
Westbound	11.0	В	50.8	щ	11.3	В	16.4	C	11.3	В	16.4	C	7.2	A	16.3	С
Northbound	11.7	В	366.2	ч	10.2	В	154.5	ч	10.2	В	154.5	ч	6.3	A	20.8	С
Southbound	445.0	ц	93.7	ш	13.9	В	13.8	В	13.9	В	13.8	В	3.6	A	2.2	A
Graves Road at Williams	s Road / Wor	dwide Boul	evard (Build	Alternative	s analyzed as	a signalized	intersection	(
Intersection					21.3	J	32.2	J	13.0	В	86.3	ш	21.3	J	32.2	U
Eastbound	13.4	В	12.6	в	53.7	D	58.6	н	19.8	J	19.8	υ	53.7	D	58.6	ш
Northbound					18.6	В	29.0	J	11.2	В	95.6	ц	18.6	В	29.0	J
Westbound	15.4	J	22.2	J	58.1	н	53.8	D	8.2	A	89.5	ц	58.1	Е	53.8	D
Southbound					14.3	В	25.5	С	13.9	В	78.2	ш	14.3	В	25.5	С
I-275 Westbound at Gra	wes Road															
Intersection					23.8	С	52.7	D	26.1	С	42.4	D	26.1	C	33.6	С
Westbound					41.9	D	50.7	D	33.3	C	45.0	D	33.3	C	50.8	D
Northbound					18.6	В	44.1	D	16.8	В	47.6	D	16.8	В	19.1	В
Southbound					17.1	В	56.7	Е	23.3	C	37.7	D	23.3	J	33.2	C
I-275 Eastbound at Grav	es Road															
Intersection					37.4	D	37.2	D	19.2	В	23.0	J	19.2	В	23.0	J
Eastbound					45.1	۵	41.5	۵	45.1	۵	41.5	D	45.1	D	41.5	D
Northbound					31.0	C	40.0	D	8.9	A	14.5	В	8.9	A	14.5	В
Southbound					38.2	D	34.6	C	12.8	В	22.3	C	12.8	В	22.3	С
Graves Road at Petersbu	urg Road (Bui	Id Alternativ	res align wit	h Bullittsvil	le Road)											
Intersection					34.5	J	29.4	J					34.5	C	29.4	J
Eastbound	8.3	A	8.4	A	36.1	D	34.4	C					36.1	D	34.4	С
Westbound					41.3	۵	36.9	۵					41.3	۵	36.9	۵
Northbound					37.5	۵	32.6	J					37.5	۵	32.6	J
Southbound	52.3	н	101.9	ш	30.1	J	22.3	J					30.1	C	22.3	С
Graves Road at Petersbu	urg Road/Old	Graves Roa	q													
Intersection									11.3	В	14.0	В				
Eastbound									18	C	17.2	C				
Westbound									5.9	A	7.8	A				
Northbound									7.1	A	9.9	A				
Southbound									11.4	В	16.7	C				
Graves Road at Bullittsv	ille Road (an	alyzed as an	unsignalized	d intersection	(uc											
Westbound	8.7	A	9.4	A					10.7	В	10.8	В				
Northbound	28.7	۵	81.7	ш					193.7	ш	312.4	н				

Table 14. 2040 Build Graves Road Intersection Traffic Operations





Appendix O -- Form "PP" – Price Proposal

List cost information in the appropriat column for the paving alternate selected by the DBT.

Item Description	Unit	Asphalt Paving	Concrete Paving
·		Alternate	Alternate
Project Development Services	Lump Sum		
Right of Way Acquisition Services	Lump Sum		
Utility Relocation	Lump Sum		
Grade & Drain	Lump Sum		
Asphalt Paving	Lump Sum		
Concrete Paving	Lump Sum		
Traffic Signals	Lump Sum		
Signing	Lump Sum		
Lighting	Lump Sum		
Structures	Lump Sum		
Subtotal:			
Demobilization (3%):			
Life Cycle Cost Adjustment:		\$798,296.00	\$438,446.00
ALL INCLUSIVE PROJECT COST	Lump Sum		

The following Alternative Technical Concepts are included in this price proposal:

Name:

Approval Date:

DESIGN BUILD TEAM SIGNATURE

By:	
Name:	
Title:	
-	
Date:	
KYTC Vendor ID:	
Federal ID Number:	

Right of Way Cost Estimate

Summary of costs that KYTC will pay to the property owners disturbed by the project. This estimate will not be utilized in determining overall cost of the project but it will be used for KYTC budgeting purposes.

Item Description	Unit	
Right of Way (Roadway)	Lump Sum	
Easements (Roadway)	Lump Sum	
Right of Way (Utilities)	Lump Sum	
Easements (Utilities)	Lump Sum	
Relocations (Residential)	Lump Sum	
Relocations (Non-Residential)	Lump Sum	
Relocations (Miscellaneous)	Lump Sum	
Estimated Right of Way Cost	Lump Sum	

The DBT has included herewith ______ pages, consisting of a schedule of values showing a complete breakdown of the All Inclusive Project cost shown on page 1 of Form PP.

Please check one of the following:

The DBT has not violated any of the provisions included in section 5.15 of the Instructions to Proposers within the previous five (5) year period.

The DBT has violated the provisions of one or more of the statutes included in section 5.15 of the Instructions to Proposers within the previous five (5) year period and has revealed such final determination(s) of violation(s). A list of such determination(s) is attached.

DESIGN BUILD TEAM SIGNATURE

By:	
Name:	
Title:	
-	
Date:	
KYTC Vendor ID:	
- Federal ID Number:	

SPECIAL NOTE ALTERNATE PAVEMENT BID ADJUSTMENT

This project includes alternate bidding for asphalt or concrete pavement. There are specific items listed for each pavement type to be bid with the alternate selected by the Contractor. There is also a line item in the alternate categories for each alternate to adjust for the projected out-year life-cycle costs to the Cabinet. These line item adjustments are as follows:

Asphalt Pavement Adjustment = \$798,296

Concrete Pavement Adjustment = \$438,446

The amount reflective of the pavement type selected by each contractor will be added to their respective bid for comparison of the low bid. The adjustment *shall be used only for determination of the lowest bidder and shall not be used to determine the final payment* to the contractor when the project is completed.

Please note that these adjustments should not be used for the calculation of the maximum Mobilization amount and are not required to be included in the minimum Demobilization amount.

Proposal Guaranty

As a supplement to Section 102 of the Standard Specifications, it will not be necessary for the Proposal Guaranty to include an amount necessary to cover the amount of the bid adjustment.

Appendix P -- Documents for Bid

PROVISIONS RELATIVE TO KRS 45A.485

During the performance of the contract, the contractor agrees to comply with applicable provisions of:

KRS 136 Corporation and Utility Tax
KRS 139 Sales and Use Taxes
KRS 141 Income Taxes
KRS 337 Wages and Hours
KRS 338 Occupational Safety and Health of Employees
KRS 341 Unemployment Compensation
KRS 342 Workers Compensation

Any final determinations of a violation by the contractor within the previous five (5) years pursuant to the applicable statutes above are revealed as follows:

NON-COLLUSION CERTIFICATION

COMMONWEALTH OF KENTUCKY

COUNTY

PROJECT NO.

I, , , (Name of officer signing certification) (Title) under penalty of perjury under the laws of the United States, do hereby certify that

(Name of Individual, Co-Partnership, or Corporation submitting bid)

its agent, officers or employees have not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding in connection with this proposal.

(Signature)

(Title)

NON-COLLUSION CERTIFICATION

COMMONWEALTH OF KENTUCKY

COUNTY

PROJECT NO.

I, , , (Name of officer signing certification) (Title) under penalty of perjury under the laws of the United States, do hereby certify that

(Name of Individual, Co-Partnership, or Corporation submitting bid)

its agent, officers or employees have not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding in connection with this proposal.

(Signature)

(Title)

Page

CERTIFICATION OF ORGANIZATION(S)

COMMONWEALTH OF KENTUCKY

COUNTY

PROJECT NO.

I, , (Name of Officer or Authorized Agent) (Title)

under penalty of perjury under the laws of the United States, do hereby certify that, except as noted below,

(Name of Individual, Co-Partnership, or Corporation submitting bid)

any person associated therewith in the capacity of (owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position involving the Administration of Federal Funds): is not currently under suspension, debarment, voluntarily exclusion, or determination of ineligibility by any federal agency; has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years; does not have a proposed debarment pending; and has not been indicted, convicted, or had a civil judgement rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

Please list below any exceptions to the foregoing, to whom it applies, initiating agency and dates of action.

Exceptions:

(Signature)

(Title)

CERTIFICATION OF PERFORMANCE

Certification with regard to the Performance of Previous Contracts or Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports.

The , hereby certifies that he , participated in previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he , filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the Former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

(Name of Individual, Co-Partnership, or Corporation submitting bid)

(Name of Officer or Authorized Agent)

(Title)

(Signature)

Date:

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by bidders and proposed subcontractors only in connection with the contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EE0-1) is the only report required by the Executive Orders of their implementing regulation.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

CERTIFICATION FOR FEDERAL-AID CONTRACT

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- 1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agent.
- 2. If any funds other than the Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participation also agrees by submitting his or her bid proposal that he or she shall require the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

(Name of Individual, Co-Partnership, or Corporation submitting bid)

(Name of Officer or Authorized Agent)

(Title)

(Signature)

Solicitation/Contract #:

REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS PAGE 1 OF 2

FOR BIDS AND CONTRACTS IN GENERAL:

- I. Each bidder or offeror swears and affirms under penalty of perjury, that:
 - a. In accordance with <u>KRS 45A.110</u> and <u>KRS 45A.115</u>, neither the bidder or offeror as defined in <u>KRS 45A.070(6)</u>, nor the entity which he/she represents, has knowingly violated any provisions of the campaign finance laws of the Commonwealth of Kentucky; and the award of a contract to the bidder or offeror or the entity which he/she represents will not violate any provisions of the campaign finance laws of the Commonwealth.
 - b. The bidder or offeror swears and affirms under penalty of perjury that, to the extent required by Kentucky law, the entity bidding, and all subcontractors therein, are aware of the requirements and penalties outlined in <u>KRS 45A.485</u>; have properly disclosed all information required by this statute; and will continue to comply with such requirements for the duration of any contract awarded.
 - c. The bidder or offeror swears and affirms under penalty of perjury that, to the extent required by Kentucky law, the entity bidding, and its affiliates, are duly registered with the Kentucky Department of Revenue to collect and remit the sales and use tax imposed by <u>KRS Chapter 139</u>, and will remain registered for the duration of any contract awarded.
 - d. The bidder or offeror swears and affirms under penalty of perjury that the entity bidding is not delinquent on any state taxes or fees owed to the Commonwealth of Kentucky and will remain in good standing for the duration of any contract awarded.

FOR "NON-BID" CONTRACTS (I.E. SOLE-SOURCE; NOT-PRACTICAL OR FEASIBLE TO BID; OR EMERGENCY CONTRACTS, ETC):

- II. Each contractor further swears and affirms under penalty of perjury, that:
 - a. In accordance with <u>KRS 121.056</u>, and if this is a non-bid contract, neither the contractor, nor any member of his/her immediate family having an interest of 10% or more in any business entity involved in the performance of any contract awarded, have contributed more than the amount specified in <u>KRS 121.150</u> to the campaign of the gubernatorial slate elected in the election last preceding the date of contract award.
 - b. In accordance with <u>KRS 121.330(1) and (2)</u>, and if this is a non-bid contract, neither the contractor, nor officers or employees of the contractor or any entity affiliated with the contractor, nor the spouses of officers or employees of the contractor or any entity affiliated with the contractor, have knowingly contributed more than \$5,000 in aggregate to the campaign of a candidate elected in the election last preceding the date of contract award that has jurisdiction over this contract award.

Solicitation/Contract #:

REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS PAGE 2 OF 2

c. In accordance with <u>KRS 121.330(3) and (4)</u>, and if this is a non-bid contract, to the best of his/her knowledge, neither the contractor, nor any member of his/her immediate family, his/her employer, or his/her employees, or any entity affiliated with any of these entities or individuals, have directly solicited contributions in excess of \$30,000 in the aggregate for the campaign of a candidate elected in the election last preceding the date of contract award that has jurisdiction over this contract.

As a duly authorized representative for the bidder, offeror, or contractor, I have fully informed myself regarding the accuracy of all statements made in this affidavit, and acknowledge that the Commonwealth is reasonably relying upon these statements, in making a decision for contract award and any failure to accurately disclose such information may result in contract termination, repayment of funds and other available remedies under law.

Signature	Printed Name
Title	Date
Company Name	
Subscribed and sworn to before r	ne by (Affiant) (Title) thisday of,20
(Company Name) Notary Public	My commission expires:
[seal of notary]	My commission expires:



Commonwealth of Kentucky Finance and Administration Cabinet

OFFICE OF THE SECRETARY Room 383, Capitol Annex 702 Capital Avenue Frankfort, KY 40601-3462 (502) 564-4240 Fax (502) 564-6785 Lori H. Flanery Secretary

SECRETARY'S ORDER 11-004

FINANCE AND ADMINISTRATION CABINET

Vendor Document Disclosure

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary to conduct a review of the records of a private vendor that holds a contract to provide goods and/or services to the Commonwealth; and

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary during the course of an audit, investigation or any other inquiry by an Executive Branch agency that involves the review of documents; and

WHEREAS, KRS 42.014 and KRS 12.270 authorizes the Secretary of the Finance and Administration Cabinet to establish the internal organization and assignment of functions which are not established by statute relating to the Finance and Administration Cabinet; further, KRS Chapter 45A.050 and 45A.230 authorizes the Secretary of the Finance and Administration Cabinet to procure, manage and control all supplies and services that are procured by the Commonwealth and to intervene in controversies among vendors and state agencies; and

NOW, THEREFORE, pursuant to the authority vested in me by KRS 42.014, KRS 12.270, KRS 45A.050, and 45A.230, I, Lori H. Flanery, Secretary of the Finance and Administration Cabinet, do hereby order and direct the following:

- I. Upon the request of an Executive Branch agency, the Finance and Administration Cabinet ("FAC") shall formally review any dispute arising where the agency has requested documents from a private vendor that holds a state contract and the vendor has refused access to said documents under a claim that said documents are not directly pertinent or relevant to the agency's inquiry upon which the document request was predicated.
- II. Upon the request of an Executive Branch agency, the FAC shall formally review any situation where the agency has requested documents that the agency deems necessary to



Steven L. Beshear

Governor

conduct audits, investigations or any other formal inquiry where a dispute has arisen as to what documents are necessary to conclude the inquiry.

- III. Upon receipt of a request by a state agency pursuant to Sections I & II, the FAC shall consider the request from the Executive Branch agency and the position of the vendor or party opposing the disclosure of the documents, applying any and all relevant law to the facts and circumstances of the matter in controversy. After FAC's review is complete, FAC shall issue a Determination which sets out FAC's position as to what documents and/or records, if any, should be disclosed to the requesting agency. The Determination shall be issued within 30 days of receipt of the request from the agency. This time period may be extended for good cause.
- IV. If the Determination concludes that documents are being wrongfully withheld by the private vendor or other party opposing the disclosure from the state agency, the private vendor shall immediately comply with the FAC's Determination. Should the private vendor or other party refuse to comply with FAC's Determination, then the FAC, in concert with the requesting agency, shall effectuate any and all options that it possesses to obtain the documents in question, including, but not limited to, jointly initiating an action in the appropriate court for relief.
- V. Any provisions of any prior Order that conflicts with the provisions of this Order shall be deemed null and void.

Appendix Q -- Acknowledgement of Receipt of Proposal Addenda (Form "AOR")

FORM AOR ACKNOWLEDGMENT OF RECEIPT OF RFP, ADDENDA AND RESPONSES TO QUESTIONS

NAME OF DBT

We hereby acknowledge receipt of the Graves Road Interchange RFP dated ______ and

subsequent responses to questions and Addenda issued by KYTC, as listed below.

Add additional lines in tables below, if needed.

Addendum number:	Date issued by Agencies:

Responses to questions number:	Date issued by Agencies:

SIGNED	
DATE	
NAME	
TITLE	

Appendix R -- Geometric Criteria

Road Name	Route Number	Road Classification	2040 ADT	Design Speed	Super	Terrain	Max Grade	SSD	Clear Zone
Graves Rd	CR 1311	Urban Collector	22,400	35 mph	6% emax	Rolling		250'	14'
From KY 2	0 to I-275 Bridge						5%		
From I-275	5 Bridge to World	wide Blvd					5%		
From Wor	ldwide Blvd to KY	237					7.5%		
Bullittsville Rd	CR 1052	Rural Local Road	4,900	35 mph*	8% emax	Rolling	7%	250'	12'
Petersburg Rd	КҮ 20	Rural Collector Road	13,500	35 mph*	8% emax	Rolling		250'	14'
Williams Rd	CR 1312	Urban Local Road	1,300	35 mph	6% emax	Rolling	6.5%	250'	12'
I-275	I-275	Interstate	76,200	65 mph	8% emax	Rolling		820'	30'
Ramps	N/A	Interstate	9,800	35 - 50 mph	8% emax	Rolling			20'
Ramps A-D)						7%		
Ramps E				30 mph			5.75%		
Approaches	N/A	Rural Local Roads	<400	15 mph	6% emax	Rolling		80'	7'

*The current edition of AASHTO's *A Policy on Geometric Design of Highways and Streets* Section 6.2.1 and Section 5.2.1 recommends that in rolling terrain, a design speed of 50 mph (rural collectors) and 40 mph (rural locals) respectively should be utilized with average daily traffic (ADT) greater than 2,000. KY 20 and Bullittsville Rd both have a posted speed limit of 35 mph. The horizontal curves and minimum grades required to accommodate these design speeds would have detrimental impacts to the residences surrounding the project. Both roads are also coming to an intersection and shall be required to slow down or stop. The project team has requested a design exception to utilize a 35 mph design speed to minimize impacts and match the conditions of the existing roadway.

Entrance	Side	Existing Slope	Proposed Slope	Width	Entrance Type	Pavement Type
GRAVES RD.		<u> </u>	• • •			
106+20	RT	10.50%	7.14%	12'	Residental	Concrete
106+25	LT	9.80%	9.50%	12'	Residental	Concrete
107+45	RT	5.25%	7.00%	12'	Residental	Concrete
111+65	RT	5.50%	4.00%	12'	Residental	Concrete
183+40 LT.	LT	8.50%	9.00%	31'	Commerial	Concrete
183+40 RT.	LT	9.00%	6.00%	76'	Commerial	Concrete
187+75	LT	8.00%	10.00%	12'	Residental	Asphalt
189+50	LT	3.50%	5.00%	12'	Residental	Concrete
192+15	LT	10.50%	5.50%	12'	Residental	Concrete
194+00	RT	N/A	12.14%	12'	Field	Concrete
214+25	RT	N/A	3.50%	12'	Field	Concrete
216+55	RT	2.50%	10.00%	12'	Residental	Asphalt
217+90	RT	5.50%	6.87%	12'	Residental	Concrete
224+75	RT	5.50%	2.90%	22'	Residental	Concrete
KY 20						
45+35	RT	10.05%	12.50%	23'	Residental	Concrete
56+00	LT	10.26%	12.00%	12'	Residental	Concrete
57+00	LT	12.00%	12.50%	12'	Residental	Asphalt
1+44						
(OFF 56+00)	RT	N/A	12.00%	12'	Field	Concrete
Appr 124+00						
47+75	RT	N/A	4.00%	22'	Residental	Concrete
52+60	RT	10.00%	10.00%	12'	Residental	Concrete
00+59						
(OFF 52+60)	RT	N/A	9.00%	12'	Field	Concrete
53+45	LT	9.00%	9.38%	12'	Residental	Concrete
SEQUOIA			•		1	1
45+72	LT	10.50%	13.00%	21'	Residental	Concrete
45+90	RT	17.00%	14.50%	14'	Residental	Concrete
47+10	LT	4.40%	2.00%	24'	Residental	Asphalt
Drive off 4710	RT	6.25%	6.25%	12'	Residental	Concrete
APPR RT 219+	50		•		•	
048+10	RT	13.00%	13.00%	12'	Residental	Concrete
048+50	RT	6.60%	5.20%	16'	Residental	Concrete
APPR RT 49+1	0				-	-
21+50	RT	1.55%	10.70%	20'	Residental	Concrete
WILLIAMS RD.					-	
49+25	RT	5.67%	9.00%	20'	Residental	Concrete
	BLVD. (FIRE	STATION)			-	-
20+90						
(OFF 52+50)	RT	6.21%	7.00%	26'	Commerial	Concrete
52+50	LT	N/A	4.00%	24'	Commerial	Concrete

Appendix S -- Construction Special Notes

SPECIAL NOTE FOR HMA ELECTRONIC DELIVERY MANAGEMENT SYSTEM (HMA e-Ticketing)

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction current edition.

1.0 DESCRIPTION. Incorporate a GPS Fleet Management System for all HMA delivered to the project in order to monitor, track, and report loads of HMA during the construction processes from the point of measurement and loading to the point of incorporation to the project.

2.0 MATERIALS AND EQUIPMENT. Submit to the Engineer for approval, no fewer than 30 days prior to HMA placement activities, a GPS fleet management system supplier that can provide a qualified representative for on-site technical assistance during the initial setup, pre-construction verifications, and data management and processing as needed during the Project to maintain equipment.

Provide operator settings, user manuals, training videos, and required viewing/export software for review. Provide equipment that will meet the following:

- 1. A wireless fleet management or GPS device that is capable of tracking all delivery trucks (both companyowned and third-party) must be installed on all trucks and equipment (dump trucks, belly dumps, side-load dumps, transfer vehicles, pavers, or any other trucks/vehicles) used to transfer and incorporate HMA into the project. KYTC personnel shall have the ability to access Real Time monitoring through the use of a mobile device such as an iPad, smartphone, etc.
- 2. The fleet management system shall be fully integrated with the Contractor's Load Read-Out scale system at the HMA plant site.
- 3. The fleet management system shall have the ability to measure and track vehicles and their contents (weights and material types) continuously from the plant site to the project site. The system shall have internal battery backup capabilities due to loss of power, and have the ability to store data if GPS connectivity is lost and transmit that same data when unit re-establishes connectivity. To be considered continuous, no two data points shall be more than 60 seconds apart unless the vehicle is stopped. Duration of stop time for any reason shall be recorded.

3.0 CONSTRUCTION. Provide the Engineer with the manufacturer's specifications and all required documentation for data access at the pre-construction conference.

A. Construction Requirements

- 1. Install and operate equipment in accordance with the manufacturer's specifications.
- 2. Verify the GPS is working within the requirements of this Special Note.

B. Data Deliverables

Provide to the Engineer a means in which to gather report summaries by way of iOS apps, web pages, or any other method at the disposal of the Engineer. The Engineer may request data at any time during paving operations.

1. Real-time Continuous Data Items

Provide the Engineer access to a GIS map-based data viewer which displays the following information in real-time with a web-based system compatible with iOS and Windows environments.

- Each Truck
 - UniqueTruck ID
 - Truck status
 - Time At Source

- Time At Destination
- Time At Paver
- Time At Scale
- Time to and from plant/job
- Time Stopped with Engine Running
- Time of last transmission
- Location (Latitude and Longitude in decimal degrees to nearest 0.0000001) every 60 seconds
- Description of Material being transported (i.e. asphalt base, asphalt surface)
- Mix Description (i.e. CL2 ASPH BASE 1.00D PG64-22, etc.)
- Mix Identification Number (Project Specific)
- Net Weight of material being transported to the nearest 0.01 ton
- Running Daily Total of Net Weight of material being transported to nearest 0.01 ton.
- Project Number
- Scale Location
- Project Location
- Point of Delivery (i.e. paver)

2. Daily Summary

The following summary information shall be provided to the Engineer electronically within 4 hours of beginning operations on the next working day

- o For each Material
 - List of Individual Loads
 - Contractor Name
 - Project Number
 - Unique Truck ID
 - Net Weight For Payment (nearest 0.01 tons)
 - Date
 - Mix Temperature at Time of Loading, Fahrenheit (to be key entered by plant)
 - Time Loaded
 - Time Unloaded
 - Delivery Location (Latitude/Longitude in decimal degrees to nearest 0.0000001)
- For each Bid Item
 - Total Quantity for Payment (nearest 0.01 tons)

SPECIAL NOTE FOR INTELLIGENT COMPACTION OF ASPHALT MIXTURES

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction current edition.

1.0 DESCRIPTION. Provide and use Intelligent Compaction (IC) Rollers for compaction of all asphalt mixtures.

2.0 MATERIALS AND EQUIPMENT. In addition to the equipment specified in Subsection 403.02, a minimum of one (1) IC roller is to be used on the project at all times, two (2) IC rollers will be required when the paving train consists of three (3) or more rollers. The Contractor is to only the IC roller(s) for compaction as the breakdown and/or intermediate roller(s). All IC rollers will meet the following minimum characteristics:

- Are self propelled double-drum vibratory rollers equipped with accelerometers mounted in or about the drum to measure the interactions between the rollers and compacted materials in order to evaluate the applied compactive effort. The IC rollers must have the approval of the Engineer prior to use. Examples of rollers equipped with IC technology can be found at <u>www.IntelligentCompaction.com</u>.
- 2) Are equipped with non-contact temperature sensors for measuring pavement surface temperatures.
- 3) The output from the roller is designated as the IC-MV which represents the stiffness of the materials based on the vibration of the roller drums and the resulting response from the underlying materials.
- 4) Are equipped with integrated on-board documentation systems that are capable of displaying real-time colorcoded maps of IC measurement values including the stiffness response values, location of the roller, number of roller passes, machine settings, together with the material temperature, speed and the frequency and amplitude of roller drums. Ensure the display unit is capable of transferring the data by means of a cloud based system.
- 5) Are equipped with a mounted Global Positioning System GPS radio and receiver either a Real Time Kinematic (RTK-GPS) or Global Navigational Satellite System (GNSS) units that monitor the location and track the number of passes of the rollers. Accuracy of the positioning system is to be a minimum of 12 inches.

3.0 WORK PLAN. Submit to the Engineer an IC Work Plan at the Preconstruction Conference and at least 2 weeks prior to the beginning construction. Describe in the work plan the following:

1. Compaction equipment to be used including:

- Vendor(s)
- Roller model(s),
- Roller dimensions and weights,
- Description of IC measurement system,
- GPS capabilities,
- Documentation system,
- Temperature measurement system, and
- Software.

2. Roller data collection methods including sampling rates and intervals and data file types.

3. Transfer of data to the Engineer including method, timing, and personnel responsible. At the preconstruction meeting, provide the Cabinet with rights to allow for web access to the data file location. Access to the data is not to be hindered in any way. The Contractor will provide the Cabinet with any vendor specific software, user id, passwords, etc. needed to access the data through this service, cost of this access is incidental to the thermal profile bid item. The Cabinet is to have access to all data as it is being collected. If a third party is used for collecting and distributing the data the Cabinet is to have the same access rights and time as the Contractor.

4. Training plan and schedule for roller operators, project foreman, project surveyors, and Cabinet personnel; including both classroom and field training. Training should be conducted at least 1 week before beginning IC construction. The training is to be performed by a qualified representative(s) from the IC Roller manufacture(s) to be used on the project. This training shall include how to access and use the data from the cloud data source.

4.0 CONSTRUCTION. Do not begin work until the Engineer has approved the IC submittals and the IC equipment.

Follow requirements established in Section 400 for production and placement, materials, equipment, acceptance plans and adjustments except as noted or modified in this Specification. Provide the Engineer at least one day's notice prior to beginning construction or prior to resuming production if operations have been temporarily suspended. Ensure paving equipment complies with all requirements specified in Section 400. The IC roller temperatures will be evaluated by the Department with the data from a Paver Mounted Infrared Temperature Gauge.

A. Pre-Construction Test Section(s) Requirements

1. <u>Three to five days prior to the start of production</u>, ensure the proper setup of the GPS, IC roller(s) and the rover(s) by conducting joint GPS correlation and verification testing between the Contractor, GPS representative and IC roller manufacturer using the same datum.

- 1. Ensure GPS correlation and verification testing includes the following minimum processes:
 - a. Establish the GPS system to be used either one with a base station or one with mobile receivers only. Ensure all components in the system are set to the correct coordinate system; then,
 - b. Verify that the roller and rover are working properly and that there is a connection with the base station; then,
 - c. Record the coordinates of the two edges where the front drum of the roller is in contact with the ground from the on-board, color-coded display; then,
 - d. Mark the locations of the roller drum edges and move the roller, and place the mobile receiver at each mark and record the readings; then,
- 2. Compare coordinates between the roller and rover receivers. If the coordinates are within 12.0 in. of each other, the comparison is acceptable. If the coordinates are not within 12.0 in., diagnose and perform necessary corrections and repeat the above steps until verification is acceptable.
- 3. Do not begin work until acceptable GPS correlation and verification has been obtained.
- 4. The Contractor and the Department should conduct random GPS verification testing during production to ensure data locations are accurate. The recommended rate is once per day with a requirement of at least once per week.
- 5. All acceptance testing shall be as outlined in Standard Specifications section 400.

B. Construction Test Section(s) Requirements

Construct test section(s) at location(s) agreed on by the Contractor and the Engineer within the project limits. The test section is required to determine a compaction curve of the asphalt mixtures in relationship to number of roller passes and to the stiffness of mixture while meeting the Department in-place compaction requirements. All rollers and the respective number of passes for each is to be determined via control strip each time a material change, equipment change or when the Engineer deems necessary.

Conduct test section(s) on every lift and every asphalt mixture. Ensure test section quantities of 500 to 1,000 tons of mainline mixtures. Operate IC rollers in the low to medium amplitude range and at the same settings (speed, frequency) throughout the section while minimizing overlapping of the roller, the settings are to be used throughout the project with no changes. After each roller pass, the qualified technician from the contractor observed by the Department will use

a nondestructive nuclear gauge that has been calibrated to the mixture to estimate the density of the asphalt at 10 locations uniformly spaced throughout the test section within the width of a single roller pass. The density readings and the number of roller passes needed to achieve the specified compaction will be recorded. The estimated target density will be the peak of the average of the nondestructive readings within the desired compaction temperature range for the mixture. The IC roller data in conjunction with the Veda software will create an IC compaction curve for the mixture. The target IC-MV is the point when the increase in the IC-MV of the material between passes is less than 5 percent on the compaction curve. The IC compaction curve is defined as the relationship between the IC-MV and the roller passes. A compaction curve example is as follows:



Subsequent to the determination of the target IC-MV, compact an adjoining > 250 < 500 tons section using same roller settings and the number of estimated roller passes and allow the Department to verify the compaction with the same calibrated nondestructive nuclear gauge following the final roller pass. <u>The Department will obtain cores at 10</u> locations (No cores for calibration are to be taken in the surface layer, use non-destructive density results only!!) uniformly spaced throughout the test section within the width of the single roller. Obtain GPS measurement of the core locations with a GPS rover. Use the Veda software to perform least square linear regression between the core data and IC-MV in order to correlate the production IC-MV values to the Department specified in-place air voids. A sample linear regression curve example is as follows.



C. Construction Requirements

Use the IC roller on all lifts and types of asphalt within the limits of the project.

Ensure the optimal number of roller passes determined from the test sections has been applied to a minimum coverage of 80% of the individual IC Construction area. Ensure a minimum of 75% of the individual IC Construction area meets the target IC-MV values determined from the test sections.

Do not continue paving operations if IC Construction areas not meeting the IC criteria are produced until they have been investigated by the Department. Obtain the Engineer's approval to resume paving operations. Non-IC rollers are allowed to be used as the third roller on the project; one of the breakdown or the finish rollers is to be equipped with IC technology.

IC Construction areas are defined as subsections of the project being worked continuously by the Contractor. The magnitude of the IC Construction areas may vary with production but must be at least 750 tons per mixture for evaluation. Partial IC Construction areas of < 750 tons will be included in the previous area evaluation. IC Construction areas may extend over multiple days depending on the operations.

The IC Construction Operations Criteria does not affect the Department's acceptance processes for the materials or construction operations

SPECIAL NOTE FOR INTELLIGENT COMPACTION OF AGGREGATE BASES AND SOILS

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's current edition of the Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Provide and use Intelligent Compaction (IC) Rollers for compaction of Aggregate bases, stabilized subgrades, soil, and soil rock mixtures.

2.0 MATERIALS AND EQUIPMENT. The Contractor shall supply sufficient numbers of rollers and other associated equipment necessary to complete the compaction requirements for the specific materials. The Contractor will determine the number of IC rollers to use depending on the scope of the project. The IC roller(s) may be utilized during production with other standard compaction equipment and shall be used for the evaluation of the compaction operations. Provide at least one (1) roller to be used on the project with the following minimum characteristics:

- 1) Are self propelled vibratory rollers equipped with machine drive power and/or accelerometers mounted in or about the drum to measure the interactions between the rollers and compacted materials in order to evaluate the applied Compactive effort. <u>www.IntelligentCompaction.com</u> contains a list of acceptable rollers equipped with IC technology.
- 2) IC rollers can be either smooth drums or pad footed drums based on the type needed for the aggregate base or soil types to compact.
- 3) The output from the roller is designated as the IC-MV which represents the stiffness of the materials based on the vibration of the roller drums and the resulting response from the underlying materials, or the machine drive power value.
- 4) Are equipped with integrated on-board documentation systems that are capable of displaying real-time color-coded maps of IC measurement values including the stiffness response values, location of the roller, number of roller passes, machine settings, together with the speed, the frequency and amplitude of roller drums. Ensure the display unit is capable of transferring the data by means of a cloud based near real time system with a USB port backup data transfer.
- 5) Are equipped with a mounted Global Positioning System GPS radio and receiver either a Real Time Kinematic (RTK-GPS) or Global Navigational Satellite System (GNSS) units that monitor the location and track the number of passes of the rollers. Accuracy of the positioning system must be within 12 inches.

3.0 WORK PLAN. Submit to the Engineer an IC Work Plan at the Preconstruction Conference and/or at least 2 weeks prior to beginning the corresponding construction activates. Describe in the work plan the following:

- 1. Compaction equipment to be used including:
 - Vendor(s)

- Roller model(s),
- Roller dimensions and weights,
- Description of IC measurement system,
- GPS capabilities,
- Documentation system,
- Software.

2. Roller data collection methods including sampling rates and intervals and data file types.

3. Transfer of data to the Engineer including method, timing, and personnel responsible. Data transfer shall be provided by a real time cloud data collecting and distribution system (ex. Visionlink). The Contractor will provide the Cabinet with any vendor specific software, user id, passwords, etc. needed to access the data through this service, cost of this access is incidental to the IC bid item(s).

4. Training plan and schedule for roller operators, project foreman, project surveyors, and Cabinet personnel; including both classroom and field training from the equipment manufacturer. Training should be conducted at least 1 week before beginning IC construction. The training is to be performed by a qualified representative(s) from the IC Roller manufacture(s) to be used on the project.

4.0 CONSTRUCTION. Prior to the start of production, ensure the proper setup of the GPS, IC roller(s) and the rover(s) by conducting joint GPS correlation and verification testing between the Contractor, GPS representative and IC roller manufacturer using the same datum. Use the project datum system (Northing, Easting and Elevation) when applicable.

- 1. Ensure GPS correlation and verification testing includes the following minimum processes:
 - a. Establish the GPS system to be used either one with a base station or one with mobile receivers only. Ensure all components in the system are set to the correct coordinate system; then,
 - b. Verify that the roller and rover are working properly and that there is a connection with the base station; then,
 - c. Record the coordinates of the two edges where the front drum of the roller is in contact with the ground from the on-board, color-coded display; then,
 - d. Mark the locations of the roller drum edges and move the roller, and place the mobile receiver at each mark and record the readings; then; then,
- 2. Compare coordinates between the roller and rover receivers. If the coordinates are within 12.0 in. of each other, the comparison is acceptable. If the coordinates are not within 12.0 in., diagnose and perform necessary corrections and repeat the above steps until verification is acceptable.

- 3. Do not begin work until acceptable GPS correlation and verification has been obtained. The Contractor and the Department should conduct random GPS verification testing during production to ensure data locations are accurate. The recommended rate is once per day with a requirement of at least once per week.
- 4. A test strip is to be used for all materials (DGA, CSB, subgrade and soil) as outlined and sized in section 302.03.04 to determine optimum rolling pattern, for all materials, and the target density for aggregate bases. A new test strip will be required anytime the material changes, equipment changes, or proper compaction has not been obtained for two (2) consecutive test locations.
- 5. All acceptance testing shall be as outlined in Standard Specifications sections 200 and 300.
- 6. Any areas a minimum of 50 square feet in area not achieving the 80% of the stiffness value determined by the latest control strip shall be tested by other means approved by the Engineer. If the material doesn't pass the testing is shall be repaired based on current standards to the satisfaction of the Engineer.

SPECIAL NOTE FOR PAVER MOUNTED TEMPERATURE PROFILES

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction current edition.

1.0 DESCRIPTION. Provide a paver mounted infrared temperature equipment to continually monitor the temperature of the asphalt mat immediately behind all paver(s) during the placement operations for all mainline pavements (including ramps for Interstates and Parkways) within the project limits. Provide thermal profiles that include material temperature and measurement locations.

2.0 MATERIALS AND EQUIPMENT. In addition to the equipment specified in Subsection 403.02 Utilize a thermal equipment supplier that can provide a qualified representative for on-site technical assistance during the initial setup, pre-construction verification, and data management and processing as needed during the Project to maintain equipment within specifications and requirements.

Provide operator settings, user manuals, required viewing/export software for analysis. Ensure the temperature equipment will meet the following:

(A) A device with one or more infrared sensors that is capable of measuring in at least 1 foot intervals across the paving width, with a minimum width of 12 feet, or extending to the recording limits of the equipment, whichever is greater. A **Maximum of two (2)** brackets are allowed in the influence area under the sensors. A temperature profile must be made on at least 1 foot intervals longitudinally down the road: (B) Infrared sensor(s):

(1) Measuring from 32°F to 400°F with an accuracy of \pm 2.0% of the sensor reading.

(C) Ability to measure the following:

(1) The placement distance using a Global Positioning System (GPS) or a Distance Measuring Instrument (DMI) and a Global Positioning System (GPS).

(2) Stationing

(D) GPS: Accuracy \pm 4 feet in the X and Y Direction

(E) Latest version of software to collect, display, retain and analyze the mat temperature readings during placement. The software must have the ability to create and analyze:

- (1) Full collected width of the thermal profiles,
- (2) Paver speed and
- (3) Paver stops and duration for the entire Project.

(F) Ability to export data automatically to a remote data server ("the cloud").

At the preconstruction meeting, provide the Cabinet with rights to allow for web access to the data file location. Access to the data is not to be hindered in any way. The Contractor will provide the Cabinet with any vendor specific software, user id, passwords, etc. needed to access the data through this service, cost of this access is incidental to the thermal profile bid item. The Cabinet is to have access to all data as it is being collected. If a third party is used for collecting and distributing the data the Cabinet is to have the same access rights and time as the Contractor.

This web-based software must also provide the Department with the ability to download the raw files and software and to convert them into the correct format.

(G) The thermal profile data files must provide the following data in a neat easy to read table format.

(1) Project information including Road Name and Number, PCN, Beginning and Ending MPs.

(2) IR Bar Manufacturer and Model number

- (3) Number of Temperature Sensors (N)
- (4) Spacing between sensors and height of sensors above the asphalt mat
- (5) Total number of individual records taken each day (DATA BLOCK)