

## **FY 2021 & FY 2022 Kentucky Rail Crossing Improvement Projects**

### **Including Public Safety Improvements to At-Grade Crossings, Railroad Crossing Safety Equipment, and the Removal of Obstructive Vegetation**

#### **Project Guidance and Specifications**

By: KENTUCKY TRANSPORTATION CABINET, DEPARTMENT OF HIGHWAYS, DIVISION OF PLANNING

##### **Kentucky Railroad Crossing Improvement (KRCI) Funds**

The enacted FY 2021 Budget (HB 353) and FY 2022 Proposed Budget (HB 193) for the Kentucky Transportation Cabinet (KYTC) designated up to \$1,600,000.00 in funds for public safety and service improvements of railroads. The Cabinet will accomplish this by funding at-grade railroad crossing reconstruction, railroad crossing safety equipment improvements, and the removal of obstructive vegetation through the Kentucky Rail Crossing Improvement (KRCI) program utilizing Highway Construction Contingency Account funds in the amount of **\$1,250,000.00** for each fiscal year. This guidance establishes the procedures for applicants to apply for KRCI financial assistance from the KYTC.

#### **I. Definitions**

- (1) "Applicant" means an eligible applicant for KRCI funds as outlined below.
- (2) "Cabinet" means the Kentucky Transportation Cabinet (KYTC).
- (3) "Application" means the grant application and the required attachments.
- (4) "Director" means the director of the Division of Planning in KYTC.
- (5) "Division" means the Division of Planning in KYTC.
- (6) "Administering Division" means the Division of Right of Way and Utilities in KYTC.
- (7) "Secretary" means the Secretary of KYTC.
- (8) "MOA" means the Memorandum of Agreement between the Cabinet and the applicant.
- (9) "AREMA" means American Railway Engineering and Maintenance-of-Way Association.
- (10) "KRCI" means Kentucky Rail Crossing Improvement

#### **II. Eligible Applicants**

- (1) Eligible applicants for KRCI funds is any entity that owns and/or is responsible for maintaining a public, at-grade railroad crossing.
- (2) Eligible applicants that meet the definition of "railroad" as defined in 603 KAR 7:090, Section 1 shall have completed their Annual Report and Railroad Routes requirements as outlined in 603 KAR 7:090 Section 2 and Section 3 through the submission of a completed Kentucky Railroad Annual Report (TC 59-102). Railroad applicants who have not submitted their completed TC 59-102 at the time of their application for the KRCI program are not considered an eligible applicant.
- (3) Applications submitted by ineligible applicants shall immediately be rejected by Division staff without consideration for KRCI funds and returned to applicant without review.

### III. Eligible Costs

- (1) Projects eligible for grant assistance are public safety improvements on public roads (US, State, County, City). Projects at private crossings or on “excepted” track are not eligible.
- (2) Eligible costs for which financial assistance may be provided are those directly related to railroad safety improvements at public roadways in Kentucky.
- (3) **Any project work done before the MOA is signed by the Secretary shall not be paid with awarded grant funds and shall not count towards the applicants required cash match.**

### IV. Project Funding

- (1) Grant assistance awarded to applicants shall be limited to a maximum of eighty (80) percent of the actual project cost, not to exceed the amount approved by the Secretary, with the applicant providing twenty (20) percent or more of the project cost.
- (2) The eighty (80) percent minimum match is required to be a cash match as outlined in the Project Budget.
- (3) The cash match requirement may be obtained from any public or private source with the exception of Cabinet Highway Construction Contingency Account (FD39) funds. Cabinet Highway Construction Contingency funds cannot be matched by Cabinet Highway Construction Contingency funds.
- (4) Applicant is responsible for any costs in excess of awarded amount that are necessary for completion of the approved Scope of Work and any authorized or unauthorized changes to the project.
- (5) Awarded funds are only to be used for the purpose described in the Project Application and for direct construction costs (manpower, materials, and equipment). Costs associated with project overhead, administration and supervision, permits and fees, design and engineering, surveying, land acquisition, and environmental services are examples of ineligible costs.
- (6) If applicant is a **railroad**, the road authority (county, city, or the Cabinet’s Highway District Office) is to be consulted about the potential project prior to making an application for KRCI funds. This consultation is to be documented in a letter from the road authority on their official letterhead indicating they have been made aware of the potential project. This consultation letter shall specify the crossing ID number and be attached to the application. The road authority is under no obligation to provide any assistance with the applicant’s KRCI project (paving, signage, etc.). If the road authority has agreed to do any part of the work associated with applicant’s project (paving, signage, etc.), the consultation letter attached to the application shall indicate their exact level of contribution.
- (7) If applicant is a **government entity**, all affected railroads (track owner, lessor, lessee, trackage rights, etc.) are to be consulted about the potential project prior to making an application for KRCI funds. This consultation is to be documented in a letter from all affected railroads on their official letterhead indicating they have been made aware of the potential project. This consultation letter shall specify the crossing ID number and be

attached to the application. The railroad is under no obligation to provide any assistance with the applicant's KRCI project (track work, signal work, flagging, etc.). If the railroad has agreed to do any part of the work associated with applicant's project, the consultation letter attached to the application shall indicate their exact level of contribution.

**V. Application for Financial Assistance**

- (1) An eligible applicant shall complete the requisite application and provide the following supporting documentation:
  - a. A detailed Statement of Work for the project;
    - i. The Statement of Work is a text based narrative describing the purpose of the project and why it is being done.
    - ii. The Statement of Work provided in the application will be included in the MOA for the project as an attachment.
  - b. A detailed Scope of Work for the project;
    - i. The Scope of Work is a text and table based document describing the exact work that must be done, estimated quantities of materials involved, and type of the work to be done.
    - ii. The Scope of Work provided in the application will be included in the MOA for the project as an attachment.
  - c. A detailed Project Schedule/Timeline;
    - i. The project schedule/timeline specifies each phase of the work to be done and how long each phase will last. This should be done in Gantt chart format and can be done by day, week, or month depending on the nature of the project. Specific dates are not requested.
    - ii. The project schedule/timeline provided in the application will be included in the MOA for the project as an attachment.
  - d. A detailed engineering assessment report (done in-house or by KYTC Approved consultant) for crossing and/or safety equipment needs, as applicable;
  - e. Aerial photo(s) (8 ½ inch x 11 inch) and photographic documentation of the project location, clearly depicting the project location and current crossing condition in appropriate scale;
    - i. For projects involving obstructive vegetation removal, aerial photos with areas to be cleared highlighted are required.
  - f. Plans, schematics, details, drawings of the proposed project, as applicable;
  - g. A detailed estimate for the project including but not limited to:
    - Mobilization
    - Site preparation costs
    - Construction costs (track, foundation, ties, drainage, asphalt, rail, etc.) including manpower, equipment, and materials

- Lighting, signals, signage
  - Other miscellaneous construction costs
  - Traffic control costs (highway and rail)
  - Demobilization
  - Total estimated project cost
- h. If applicant is a railroad, the road authority consultation letter with crossing ID number and any contribution to be provided by road authority must be attached.
  - i. If applicant is a government entity, all railroad consultation letters with crossing ID number and any contribution to be provided by railroad must be attached.
  - j. When applicable, if applicant plans to use their own manpower, equipment or materials on the project as outlined in **Section XI. Force Account**, a Public Interest Finding must be attached to the application.
- (2) **Completed applications and all required attachments must be combined and submitted electronically in a single PDF. PDF copies should be sent via email to [KYTC.ModalPrograms@ky.gov](mailto:KYTC.ModalPrograms@ky.gov) but are the responsibility of the applicant to ensure delivery and receipt by Cabinet.**
  - (3) Applicants can submit multiple crossings in response to this solicitation. Each crossing requires a separate pdf application with all necessary attachments included. Each project shall demonstrate an independent utility.
  - (4) Incomplete applications shall immediately be rejected by Division staff without consideration for KRCI funds and returned to applicant without review.

#### **VI. Prioritization of Applications**

- (1) Submitted projects will be ranked and prioritized by the Division based upon the following criteria, including but not limited to:
  - Accident scores as ranked on the FRA Web Accident Prediction System (WBAPS)
  - Provide a higher than required 50% cash match.
  - Average Daily Traffic (ADT) of road at crossing
- (2) The ranked and prioritized list of submitted projects will be sent by the Division to the Secretary for final award decision. The decision of the Secretary is final.
- (3) Total funds awarded from the FY 21 allocation shall not exceed twenty-five (25) percent to a single applicant regardless of how a project scores as referenced in **IV. Prioritization of Applications, Section 1.**
  - If acceptable applications from eligible applicants do not exceed available grant funds this provision shall not apply.

#### **VII. Award of Grant**

- (1) The Division shall announce the awards to applicants in writing.
- (2) Grant fund award amounts cannot be increased after the award has been made. Applicants are responsible for any costs in excess of awarded amount that are necessary

for completion of the approved Scope of Work and any authorized or unauthorized changes to the project.

#### **VIII. Execution of Performance Agreements**

- (1) After an applicant has been awarded grant assistance, the applicant and the Cabinet shall execute an MOA. The Division shall draft the MOA with the Statement of Work, Scope of Work, and Project Schedule/Timeline provided with the application included in the MOA as attachments.
- (2) The Cabinet will only execute an agreement with the KRCI applicant. No three party agreements will be made. Applicant is free to enter into agreements with other parties that may be providing funding, materials or services as part of the project, but the Cabinet will not be a signatory to these agreements.
- (3) If the applicant plans to use their own manpower, equipment, or materials on the project, a Public Interest Finding shall be completed and attached to the MOA. The Public Interest Finding details why it is in the public's best interest not to require competitive bids on a state funded project.
- (4) Upon execution of the MOA by the Division, the responsibility for the remainder of the project will be transferred to the Administering Division who shall issue the Notice to Proceed.
- (5) If consultation with local, state, and federal agencies indicated permits were required, the applicant shall have obtained the necessary permits and provided copies to the Administering Division before the Notice to Proceed will be issued.
- (6) Work shall begin after the MOA is signed by the Secretary and a Notice to Proceed has been issued by the Administering Division. **Any project work done before the Notice to Proceed shall not be paid for with awarded grant funds and shall not count towards the applicant's required cash match.**
- (7) Prior to issuance of the Notice to Proceed, the applicant shall complete the following documents, with applicant, contractor, and/or subcontractor signatures, notarized as required and copies provided to the Administering Division.
  - a. Affidavit for Bidders, Offerors, and Contractors, as applicable
  - b. Affidavit for Qualified Bidder Status, as applicable
  - c. Affidavit for Resident Bidder Status, as applicable
  - d. Affidavit Regarding Subcontractors, as applicable
  - e. Affidavit Regarding Illegal Immigrants, as applicable
  - f. Roadway Maintenance of Traffic Plans and permits from KYTC or the roadway jurisdiction to close or block roadways.
  - g. All required permits from USACE, KY Historical Society, and others which are the responsibility of the applicant.
- (8) Written requests for extensions of time, changes to the Scopes of Work, or for amendments to the agreement may be approved by the Administering Division in rare

instances and only with substantial justification.

**IX. Project Standards and Practices**

- (1) All project work done by the applicant, contractors, and/or subcontractors shall be in accordance with all applicable state, federal, and association design and construction criteria and recommended practices for the type of work undertaken, including but not limited to current editions of:
  - a. KYTC Standard Specifications for Road and Bridge Construction
  - b. KYTC Highway Design Manual;
  - c. KYTC Standard Drawings;
  - d. KYTC Drainage Manual;
  - e. KYTC Structural Design Manual;
  - f. American Association of State Highway Transportation Officials' (AASHTO) Policy on Geometric Design of Highways and Streets;
  - g. Manual on Uniform Traffic Control Devices (MUTCD);
  - h. Federal Railroad Administration (FRA) standards; and
  - i. American Railway Engineering and Maintenance-of-Way Association (AREMA) Manuals.
- (2) All materials purchased or used as part of the project shall be in accordance with the "List of Approved Materials" initiated and maintained by KYTC's Division of Materials or with the current edition of the AREMA specifications and all other applicable rail industry standards.
- (3) In the event of a conflict between FHWA/FRA standards, AREMA guidance, and applicable KYTC standards, the most stringent standard as determined by the Cabinet shall be applied. The applicant shall perform the project work in accordance with the application submitted to the Cabinet.

**X. Pre-Construction- Project Administration**

- (1) For projects that involve work on a public road (federal, state, county, or city), a Notice to Proceed shall not be issued until the applicant submits to the Administering Division an approved Maintenance of Traffic (MOT) plan that meets current MUTCD Part 6-Temporary Traffic Control requirements and the necessary permits have been issued.
  - a. If the road to be worked on is part of the federal or state highway system, the applicant shall obtain an encroachment permit issued by the Cabinet.
  - b. If the road to be worked on is a county or city road, the applicant shall obtain the required permit(s) from the roadway jurisdiction. If the roadway jurisdiction does not require a permit, the applicant shall obtain a letter from the roadway jurisdiction giving project clearance.
- (2) The applicant is responsible for providing all of the required signage and temporary traffic control devices required in the approved MOT and the installation, maintenance, and

removal of these signs and devices during and upon completion of the project.

- (3) The applicant shall use KYTC prequalified contractors/subcontractors when an applicable work category exists. A list of these firms can be obtained by contacting the Administering Division. If no work category exists, applicants shall use the following process:
  - a. Issue a Request For Qualifications (RFQ).
  - b. Review the RFQ submissions and rank the three most qualified firms in order of their qualifications.
  - c. Qualified firms are then asked to provide a Proposal.
- (4) Procurement thresholds for contracted services and materials are as follows:
  - a. \$0-\$3,000 purchase with one quote;
  - b. \$3,001-\$40,000 applicant shall obtain three quotes and select lowest qualified;
  - c. \$40,001 and up shall advertise a Request for Bid for a minimum of seven (7) days.
- (5) The applicant is responsible for the advertisement, opening of bids, selection of/contracting for construction services, and materials purchases. The awards shall be made to the lowest responsive bidder. The Administering Division shall be notified of ALL hired subcontractors within fourteen (14) days of bid acceptance. The applicant is responsible for securing signatures on all KYTC required documents (See **Section VIII, (6), a-g**).
- (6) If the applicant is a NOT a government entity; Counties, cities, and the Cabinet's Highway District Offices are under no obligation to provide any assistance with the applicant's KRCI project (paving, signage, etc.) unless mutually agreed to prior to the application.
- (7) If the applicant IS a government entity; the railroads operating on the crossing are under no obligation to provide any assistance with the applicant's KRCI project (track work, signaling, flagging, etc.) unless mutually agreed to prior to the application.
- (8) The applicant shall hold a preconstruction meeting near the project site a minimum of fourteen (14) days prior to the start date with the Administering Division.
- (9) The applicant is responsible for communicating with local KYTC District Office Public Information Officer to notify local traffic, police, school, and emergency jurisdictions of road work and proposed closures and detours.
- (10) If the project will impact a sidewalk, multi-use path, or recreational trail, the work shall meet both Americans with Disabilities Act (ADA) requirements and MUTCD guidelines. Local ordinances shall also be consulted to ensure compliance.

#### **XI. Force Account**

If the applicant plans to competitively bid out all work related to the project (as described in **Section X**), this section does not apply. If the applicant plans to use their own manpower, equipment, or materials on the project, a Public Interest Finding shall be completed and attached to the MOA. The Public Interest Finding details why it is in the public's best interest not to require competitive bids on a state funded project.

- (1) Manpower
  - a. Only direct manpower expenses shall be reimbursed. Non-production supervisors/ management/ administration cannot be reimbursed.
  - b. Manpower through force account submitted for reimbursement shall be documented by copies of certified payrolls, daily/weekly production reports, and daily/weekly employee signed time sheets. This documentation shall be part of the project closeout submittal and request for reimbursement or reimbursement will be delayed.
- (2) Equipment
  - a. Only direct equipment expenses shall be reimbursed. Applicant shall only be reimbursed for the actual number of hours the equipment was operated on the project, not the number of hours the equipment was assigned to the project.
  - b. Each piece of equipment submitted for reimbursement on the project shall have an equipment identification number assigned (unit number, VIN number, license plate #, etc.).
  - c. Hour meter readings/odometer readings for each piece of equipment submitted for reimbursement shall be recorded at the beginning of the project and at the end of the project to document actual use.
  - d. Equipment shall be reimbursed based upon the number of hours used, not as a daily or weekly rate except as outlined below for pickup trucks, passenger cars, and vans.
  - e. The Cabinet shall reimburse the applicant for the number of hours the equipment was operated on-site (except as outlined below) based upon the FHWA approved Rental Blue Book Rates, which determine an hourly rental rate that takes into account equipment ownership and operating costs.
  - f. The applicant shall include a copy of the current FHWA approved Rental Blue Book rate for each piece of equipment with their invoices.
  - g. For cars and vans used primarily to transport personnel to the project, the Cabinet shall reimburse a flat rate of three (3) hours per day at the FHWA Rental Blue Book Rate.
  - h. For light duty trucks used on the project, the Cabinet shall reimburse a flat rate of four (4) hours per day at the FHWA Rental Blue Book Rate.
  - i. If it can be shown that a light duty truck is in constant use during the day (mechanics truck, welding truck, etc.), it can be billed for the actual number of hours used at the FHWA Rental Blue Book Rate.
- (3) Materials
  - a. Materials must meet standards as described in **Section IX**.
  - b. Only direct material expenses shall be reimbursed.
  - c. Materials the applicant has on hand that will be used on the project can be reimbursed upon documentation of a unit cost for the material in its current



condition. This can be based upon a copy of the invoice from when the material was purchased, or by obtaining quotes from suppliers on the unit costs of an equivalent product.

- d. Only materials that become part of the final project shall be reimbursed.

## **XII. Project Documentation & Accounting**

- (1) The applicant shall pay for all project expenses and ONLY upon meeting all terms and conditions of the MOA and this guidance document shall the applicant receive reimbursement funding up to the amount of the awarded grant amount.
- (2) All checks, invoices, contracts, vouchers, orders, or other accounting documents pertaining in whole or in part to the project shall be clearly identified, readily accessible, and to the extent feasible, kept separate and apart from all other such documents for KYTC viewing.
- (3) Upon completion of the project the applicant shall notify the designated Administering Division that the project is completed and shall provide adequate documentation, including photographs of the completed project, as applicable.
- (4) The Administering Division shall conduct a site inspection prior to approving the invoice. The Administering Division shall verify that all items in the Scope of Work have been completed as outlined. Only then shall the payment be approved.
- (5) Failure of the applicant to communicate the project work timeline with the Administering Division as outlined in **Section X(8)** and **Section XII (4)** or elsewhere in this guidance document will result in a delay in reimbursement.
- (6) With the KYTC Utility/Rail Agreement Statement of Charges (TC 69-008) or equivalent, the applicant shall provide the Administering Division documentation of all of the project expenses. All charges shall be supported by properly executed invoices, contracts, vouchers, and receipts for any materials, equipment, and labor used on the project evidencing in proper detail the nature and propriety of the charges.
- (7) Lack of supporting documentation for an invoice will result in delayed reimbursement to the applicant.
- (8) The Cabinet shall only reimburse the applicant for the final placement of materials. No temporary materials shall be reimbursed (cold patch asphalt, temporary joint bars, detour signs, etc.).
- (9) Invoices from suppliers, contractors, etc. shall show a proof of disbursement. This can be in the form of a copy of the cancelled check paying the invoice, or a "PAID" stamp on the invoice with the paid date and EFT number.

**XIII. Post-Project Administration**

- (1) Upon completion of the project, all fouled ballast and old crossing materials shall have been totally removed from the site and disposed of properly.
- (2) Upon completion of the project, the site shall be free of wheel ruts, piles of soil/rock, disturbed areas shall be reseeded, and all crossing signage shall be to current MUTCD standards (correct signage, pavement markings, reflectivity, etc.).

**XIV. Questions and Clarifications**

For further information concerning this guidance please contact the Division of Planning at 502-564-7183 or via mail at Division of Planning, 200 Mero Street, Frankfort, Kentucky 40622.

# Work specific Details-Safety Improvements to At-Grade Crossings-Crossing Rehabilitation

## I. Project Limits

Project limits for safety improvements to at-grade crossings shall be limited to:

- (1) Within rail rights of way - Project is limited to a maximum of twenty (20) feet beyond the edge of the roadway perpendicular to the track.
- (2) Within roadway rights of way - Project limits shall extend only to that area necessary to meet Cabinet acceptable grade on all approaches.

## II. Project Standards and Practices

All crossing reconstruction project work shall be done as outlined in **Section IX - Project Standards and Practices**.

Project Type	
Pavement Only	Mill and replace road surface at crossing
Approach elevation adjustment-road only	Add or mill road surface to reduce bump
Approach elevation adjustment-rail only	Raise/lower track to reduce bump
Approach elevation adjustment-All	Raise/lower track and road to reduce bump
Full Crossing renewal-excavate/replace with ADT >= 1000 cars per day	Excavate to subgrade, replace as below
Full Crossing renewal-excavate/replace with 1000>ADT >= 400 cars per day	Excavate to up to 12 inches below ties, and replace in kind
Full Crossing renewal-excavate/replace with ADT < 400 cars per day	Excavate up to six (6) inches below ties, and replace in kind.

## III. Pavement Only

- (1) All asphalt for the project shall come from a Cabinet approved plant and shall utilize a Cabinet approved asphalt mix design.
- (2) All asphalt work shall be done by a Cabinet prequalified asphalt contractor.
- (3) Approach pavement 25 feet from face of rail shall be milled a minimum of two (2) inches in depth removing surface failures such as wheel ruts, spalling, and surface heaves. The approaches shall be milled such that the final approach paving extends at least 25 feet from the face of the rail upon completion.
- (4) The approaches shall be swept, washed, and coated with an asphalt tack solution to aid in bonding.
- (5) The surface asphalt shall be vibratory rolled with at a minimum, an eight (8) ton dual vibratory roller and the crossing shall be left closed to traffic overnight to cool where practical. Asphalt vibratory plate compactors are not acceptable.
- (6) Only hot mix asphalt shall be used between the track panels regardless of the distance.
- (7) Any excavated materials shall be entirely removed from the project site.
- (8) Temporary asphalt cold mix is NOT reimbursable, but temporarily may be used when

immediate paving is not practicable. Hot mix must be placed before final inspection.

#### **IV. Approach Elevation Adjustment**

##### **(1) Road Adjusted Only**

- a. As part of the preconstruction meeting, the applicant is responsible for taking crossing elevations under the supervision of the Administering Division. This information provides the baseline for any crossing elevation changes proposed as part of the project and will determine the project limits for paving roadway rights of way in excess of 25 feet from face of rail.
- b. All asphalt for the project shall come from a Cabinet approved plant and shall utilize a Cabinet approved asphalt mix design.
- c. All asphalt work shall be done by a Cabinet prequalified asphalt contractor.
- d. The base asphalt mix shall be placed in no more than three (3) inch lifts. Each lift will be compacted by an eight (8) ton dual vibratory roller, at a minimum. Asphalt vibratory plate compactors are not acceptable.
- e. Unless surface is placed immediately after asphalt base is placed and rolled, the road approaches shall be milled allowing for a one (1) inch surface mix asphalt overlay. The approaches shall be swept, washed, and coated with an asphalt tack solution to aid in bonding.
- f. If only surface mix is being used, approach pavement shall be milled a minimum of two (2) inches in depth removing surface failures such as wheel ruts, spalling, and surface heaves. The approaches shall be milled such that the final approach paving extends at least 25 feet from the face of the rail upon completion.
- g. The surface asphalt shall be vibratory rolled with at a minimum, an eight (8) ton dual vibratory roller and the crossing shall be left closed to traffic overnight to cool where practical. Asphalt vibratory plate compactors are not acceptable.
- h. Only hot mix asphalt shall be used.
- i. Any excavated materials shall be entirely removed from the project site.
- j. Temporary asphalt cold mix is NOT reimbursable, but may be used when immediate paving is not practicable. Hot mix must be placed before final inspection.

##### **(2) Rail Adjusted Only**

- a. As part of the preconstruction meeting, the applicant is responsible for taking crossing elevations under the supervision of the Administering Division. This information provides the baseline for any crossing elevation changes proposed as part of the project and will determine the project limits for rail rights of way in excess of 20 feet from edge of pavement.
- b. Any excavated materials shall be entirely removed from the project site.
- c. All ballast on the project is to be clean and either granite or hard angular ballast in compliance with AREMA standards.

- d. All rail joints in the crossing area and within twenty (20) feet of the crossing shall be welded. Permanent installation of bolted joint bars in the crossing is not allowed.
- e. All rail welds for the project shall be done before the final track raise.
- (3) Road and Rail Adjusted
  - a. As part of the preconstruction meeting, the applicant is responsible for taking crossing elevations under the supervision of the Administering Division. This information provides the baseline for any crossing elevation changes proposed as part of the project and will determine the project limits for rail rights of way in excess of 20 feet from edge of pavement and roadway limits in excess of 25 feet from face of rail.
  - b. Follow instructions for Road and Rail Elevation Adjustments as stated above.

**V. Full Crossing Reconstruction with ADT $\geq$ 1000 cars per day**

- (1) As part of the preconstruction meeting, the applicant is responsible for taking crossing elevations under the supervision of the Administering Division. This information provides the baseline for any crossing elevation changes proposed as part of the project and will determine the project limits for paving roadway rights of way.
- (2) Applicant (or their subcontractors) shall have a survey level on-site during entire crossing reconstruction and survey level shall be used to ensure tolerances described herein are followed to maintain slope and drainage of the crossing reconstruction projects.
- (3) Crossing Excavation
  - a. Saw cuts in the pavement shall be made parallel to the tracks and shall create a minimum of seventeen (17) foot wide opening to be excavated (generally four (4) feet from the ends of the existing ties) to allow for proper compaction with a vibratory roller.
  - b. The entire existing track panel shall be removed. Track subgrade and old ballast material shall be excavated a minimum of twelve (12) inches below the bottom of the tie or to the hardpan and shall extend twenty (20) feet beyond edge of pavement and seventeen (17) feet from face of rail at each leg of the crossing.
  - c. Any excavated materials shall be entirely removed from the project site.
  - d. The final grade shall be compacted by, at a minimum, an eight (8) ton dual vibratory roller to maximize compaction. Final subgrade must be checked with survey level to assure proper drainage.
- (4) Crossing Drainage and Sub Grade
  - a. The four (4) corners of the Project shall be shaped and have properly sized drainage pipes installed six (6) inches below the final grade at the edges of the pavement excavation in a trough filled with washed one (1) inch stone near the saw-cut area. Drain pipe (minimum six (6) inch diameter) should be installed and final soil sloped such that water drains free off roadway rights of way and away

from ballast. Pipe bed must be checked with survey level to assure proper drainage.

- b. Sub grade stabilization materials (geogrid mats or asphalt underlayment) may be used on all crossing reconstructions and should extend a minimum of twenty (20) feet beyond the edge of the pavement.
- c. The sub grade shall be bladed to a uniform plane with at least one-quarter inch drop per foot on the cross slope for drainage.
- d. If the applicant opts to use the geogrid mats method, Tensar Biaxial Geogrid BX 1300 or Cabinet approved equivalent shall be used, and ballast shall be placed onto the mat from the center outward to prevent movement.
- e. If the applicant opts to use the asphalt underlayment method, the underlayment shall be a minimum of four (4) inches thick and shall be compacted by, at a minimum, an eight (8) ton dual vibratory roller. Each layer must be checked with survey level to assure proper drainage. Asphalt vibratory plate compactor are not acceptable.

(5) Crossing Ballast and Concrete

- a. All asphalt for the project shall come from a Cabinet approved plant and shall utilize a Cabinet approved asphalt mix design.
- b. All asphalt work with the exception of the placement of the asphalt underlayment shall be done by a Cabinet prequalified asphalt contractor.
- c. The timing of the delivery of the asphalt for the underlayment shall be coordinated to fulfill KYTC Specification.
- d. All ballast on the project is to be clean and either granite or hard angular ballast in compliance with AREMA standards.
- e. Once the asphalt underlayment has been rolled, the ballast is to be dumped directly on to the asphalt underlayment, leveled, and rolled with, at a minimum, an eight (8) ton dual vibratory roller. Final grade must be checked with survey level to assure proper drainage.
- f. There shall be a minimum of eight (8) inches of ballast between the bottom of the ties and the asphalt underlayment. The ballast shall be placed in a maximum of six (6) inch lifts, each lift rolled with, at a minimum, an eight (8) ton dual vibratory roller. Upon compaction the ballast shall be within two (2) inches of the final track elevation as checked with a survey level.

(6) Crossing Track Panel

- a. Track panels shall be pre-built with a minimum of 115 lb. (or approved AREMA standard rail for class of track) new rail through the crossing area to eliminate all joints within the crossing.
- b. Track panels shall utilize new treated crossties, spaced a maximum of nineteen and one-half (19.5) inches center to center. Recommend ties being fully plated with rolled steel Pandrol tie plates (or Cabinet approved equivalent) with elastic

fasteners with a corrosion resistant treatment.

- c. AREMA approved tie plates and spikes shall be used on crossings and shall be anchored with a minimum of four (4) spikes. Spikes shall be driven such that the tie plate is tight against the tie.
- d. AREMA grade crossties shall extend twenty (20) feet beyond the edge of pavement at the crossing and are to utilize the same galvanized elastic fasteners as in the crossings.
- e. The track panel shall be built in place or lifted into place in the crossing, not slid into place disturbing the sub base.

(7) Crossing Welding and Surfacing of Rail

- a. Tamping and regulating of the ballast shall be limited to each raise being a maximum of two (2) inches with the transition of the raise being seventy-five (75) to one hundred (100) feet both directions of the crossing.
- b. After the initial tamping, the tracks shall be reopened to allow train traffic run on it overnight. The final raise shall be done the following morning prior to the placement of the panels.
- c. All rail joints in the crossing area and within twenty (20) feet of the crossing shall be welded. Permanent installation of bolted joint bars in the crossing is not allowed.
- d. All rail welds for the project shall be done before the final track raise.

(8) Crossing Rail Panels and Surface

- a. New pre-cast concrete panels, full depth concrete, full depth rubber panels, or composite panels shall be used on the crossing, shall be properly lagged and sized to ensure that they are flush with the tops of the rail when newly installed.
- b. Panels shall extend three (3) feet beyond the edge of the pavement including shoulders if not curbed.
- c. Rubber seal crossings are only allowed to be used for public road crossings with an ADT below 400.
- d. When Polycorp Epflex Railseal or approved equivalent is used on a public crossing, Polycorp Eplock II or approved equivalent installation clips shall be utilized between each tie for the length of the crossing.

(9) Crossing Paving

- a. The header area between the rails shall be filled with asphalt base mix, placed in a maximum of three (3) inch lifts. Each lift shall be compacted by a four and one-half (4 ½) ton dual vibratory roller compaction (minimum size).
- b. The base asphalt shall be left one (1) inch below the panel to allow for the asphalt surface mix lift.
- c. The road approaches shall be milled allowing for a one (1) inch surface mix asphalt overlay. The approaches shall be swept, washed, and coated with an asphalt tack solution to aid in bonding. The approaches shall be paved at least 25 feet from

the face of the rail.

- d. The surface asphalt shall be vibratory rolled with at a minimum, an eight (8) ton dual vibratory roller and the crossing shall be left closed to traffic overnight to cool where practical.
- e. Only hot mix asphalt shall be used between the track panels regardless of the distance.
- f. Temporary asphalt cold mix is NOT reimbursable, but may be used when immediate paving is not practicable. Hot mix must be placed before final inspection.



# Work Specific Details-

## Railroad Crossing Safety Equipment

### I. Project Limits

- (1) Project limits for safety improvements to at-grade crossings and railroad crossing safety equipment shall be limited to:
- a. Within rail rights of way - Project is limited to a maximum of twenty (20) feet beyond the edge of the roadway perpendicular to the track.
  - b. Within roadway rights of way- Project limits shall extend to only that area necessary to meet Cabinet acceptable grade on all approaches.
  - c. Project limits for electric crossing safety equipment improvements shall be limited to the area between the signal circuits on each end of the crossing approaches.

<b>Project Type</b>	
New signs	No signs currently at crossing
New signals/lights	No signals/lights currently at crossing
New bars/physical barriers	No crossing bars currently at crossing
New horns/bells	No horn/bells currently at crossing
Upgrade signs	Increase visibility or number of current signs
Upgrade signals/lights	Increase visibility or number of current signals/lights
Upgrade bars/physical barriers	Increase visibility or number of current physical barriers
Upgrade horns/bells	Increase audio awareness at crossing
Close existing crossing	Remove signs, prepare roadway.

- (2) Safety equipment must meet current MUTCD and FRA guidance.

# **Work Specific Details-**

## **Removal of Obstructive Vegetation**

### **I. Project Purpose**

- (1) This type of project is intended to remove obstructive vegetation at railroad crossings to enhance the safety sight distance for approaching trains and railroad track equipment operating on the track as well as the drivers, bicyclists, and pedestrians using the intersecting public road. Aesthetic vegetation removal is not permitted.

### **II. Eligible Crossings**

- (1) Only passive, at-grade crossings on public roads are eligible projects for removal of obstructive vegetation. Active crossings (those with any combination of bells, flashing lights or gates), private crossings or crossings on “excepted” track are not eligible.
- (2) Passive, public crossings cannot have been awarded grants for removal of obstructive vegetation by the Cabinet in the last (5) five years.

### **III. Project Limits**

- (1) Project limits for removal of obstructive vegetation to at-grade crossings:
  - a. Within rail rights of way - Project is limited to a maximum of 200 feet beyond the edges of the roadway perpendicular to the track.
  - b. Within roadway rights of way - Project can extend onto roadway rights of way to clear vegetation that may be obstructing visibility of advance warning signs or crossbucks, ONLY after prior agreement and obtaining any necessary permits from the road authority.
    - i. Obtaining the agreement of roadway authority or any necessary permits or surveying is the sole responsibility of the awardee.
    - ii. The awarding of a grant by the Cabinet for removal of obstructive vegetation on a roadway controlled by the Cabinet does not guarantee agreement and does not eliminate the requirement for any necessary permits.
  - c. On private property - With the prior approval of the Administering Division, project can extend onto private property immediately adjacent to crossing if the safety necessity can be adequately demonstrated.
    - i. If approved by the Administering Division, awardee is still required to obtain written approval of all impacted private property owners BEFORE work can commence.
    - ii. Obtaining the agreement of private property owners or any necessary surveying is the sole responsibility of the awardee.

**IV. Project Standards and Practices**

- (1) All obstructive vegetation project work shall follow applicable sections in **Section IX - Project Standards and Practices**.
- (2) Where possible, vegetation should be removed to the ground to prevent regrowth. Stumps that remain after the removal of vegetation should be a maximum of three inches (3") above the ground.
- (3) When vegetation cannot be fully removed to the ground, substantial limbs that have been cut back shall be fully removed and not left hanging creating a fall hazard.
- (4) In areas where obstructive vegetation is removed, the cleared area and any remaining stumps should be treated with appropriate pesticide/herbicide products to prevent resprouting.
- (5) Obstructive vegetation cut down by mechanical or hand-cutting methods shall be fully removed from the project site upon completion of the project. Vegetation that has been ground up can remain on the project site provided it has been finely mulched and is evenly spread within the rail right of way and it will not obstruct or plug any drainage ditches or culverts.

**V. Reimbursable Expenses**

If the applicant plans to use their own manpower, equipment, or materials to remove obstructive vegetation, all provisions of **Section XI. Force Account** apply. Equipment used for the removal of obstructive vegetation will be reimbursed at rental rates as outlined in **Section XI (2)**. Purchases of equipment (chainsaws, saw trucks, brush cutters, mulchers, spray applicators, etc.) is not a reimbursable expense.