KYTC Highway Design	***Chapter*** ADMINISTRATIVE PROCEDURES
	Subject General Discussion

OVERVIEW*:* The contents of this chapter are for guidance for administrative procedures related to the design phase of a project's development. The topics range from central office and district responsibilities through plan preparation and other functions, to procedures for projects involving consulting engineers.

The "Project Delivery Core Processes" may be viewed in **Exhibit 200-01**. The "Consultant Monthly Report" **(Exhibit 200-02)** may be used as a checklist for all highway projects to help show the general steps in the design phase of a project's development.

To assure compliance with state and federal regulations and to ensure consistency, the designer should consult adopted manuals and policy statements. Project teams should use the methods and control procedures outlined in, but not necessarily limited to, the following manuals:

- *Highway Design Guidance Manual*
- *Utilities Guidance Manual*
- *Division of Bridge Design Guidance Manual*
- *Division of Traffic Guidance Manual*
- *General Administration Guidance Manual*
- *Standard Drawings Manual*
- *Standard Specifications for Road and Bridge Construction*
- *Specifications for Soil and Subsurface Investigation*
- *Division of Right of Way Guidance Manual*
- *Geotechnical Manual*
- *Drainage Design Guidance Manual*
- *Pavement Design Manual*

KYTC Highway Design

Chapter

ADMINISTRATIVE PROCEDURES

Subject

Pre-Design Activities

PROJECT ORIGINATION:

The Statewide Transportation Plan is a long-range, 20-year plan for all modes of transportation: highways, air, bikeways and pedestrian, public transportation, rail, and waterways. Proposed projects are the result of input from various sources (area development districts, local officials, etc.) and are placed in the Unscheduled Needs listing. These are reviewed to determine their placement in the Long-Range Plan. Some of the criteria involved in this determination are:

- Relative project priorities
- Available funding
- Project costs and scope

Determination of a project's inclusion into the Six-Year Highway Plan is a result of the project being identified in the Long-Range Plan by the Division of Planning through the statewide rural needs assessment or metropolitan and urban needs assessment. The Division of Program Management staff assimilates this information and develops a draft Six-Year Highway Plan.

SIX-YEAR HIGHWAY PLAN:

The Six-Year Highway Plan is the culmination of decisions and legislation resulting in a schedule of proposed projects for planning, roadway design, right-of-way, utility, and construction phases within the years specified in the particular plan. Legislative action adopts the Six-Year Highway Plan and provides the framework for project advancement for the biennium. After a project is identified and adopted in the Six-Year Highway Plan, phases may be authorized within the fiscal year shown for funding.

PLANNING STUDIES:

In some cases, projects may have either planning studies or intermediate planning studies conducted. Planning studies typically are performed on a corridor basis and focus on feasibility and priority issues. Conversely, intermediate planning studies focus on the conceptual and preliminary engineering aspects of a project. In any case, the preconstruction project manager should be involved in any planning study or intermediate planning study and ensure the information gleaned from a study is carried forward.

CONT.

PROJECT SCOPING SUMMARY:

The TC 61-6 form, *Project Scoping Summary* **(Exhibit 200-03),** is prepared by or for the district preconstruction engineer on every Six-Year Highway Plan project one year prior to the authorization of project design and provides the following information:

- Project description (justification, project length, classification, proposed design speed, current and projected ADT, etc.). The project description should include a draft purpose and need statement. The scope describes the boundaries of the project and defines what the project will deliver and, in some cases, what it will not.
- Roadway characteristics
- Potential alternatives to consider
- Design criteria
- Proposed access control
- Cost estimates
- Possible funding types
- Potential environmental actions
- Right-of-way requirements
- Number and types of drainage structures anticipated
- Work to be performed by the Cabinet (when consultants are considered for utilization)
- Other comments

If the design phase is added to the first year of the Six-Year Highway Plan, the *Project Scoping Summary* needs to be completed when requesting initial design authorization.

The chief district engineer or division director will review the scoping and estimating summary and affix a signature to signify concurrence.

At the initiation of all projects it is necessary to provide cost estimates of the various phases of the project for inclusion on the TC 10-1 form, *Project Authorization* **(Exhibit 200-04).** Higher-quality initial cost estimates will reduce changes to the *Project Authorization* during project development, provide more understanding of the scope of the project, and add credibility to the Six-Year Highway Plan. With this in mind, the designer should make every effort to assemble information about the proposed project to prepare the best preliminary estimate possible. A form for a preliminary cost estimate is included with the *Project Scoping Summary* **(Exhibit 200-03).** Another resource that can be utilized is the *Example Design Funds Documentation Summary* **(Exhibit 200-05),** which provides general costs associated with the many aspects of a design project. When completed, submit copies of the project scoping summary to Division of Highway Design and to the Division of Program Management. The TC 61-6 form, *Project Scoping Summary,* may be accessed through the Division of Highway Design's electronic forms library.

CONT.

PROJECT SCOPING SUMMARY (cont.): Another source of project information is the *Unscheduled Project List Identification* form, which is completed in the planning phase and should be provided to the project manager.

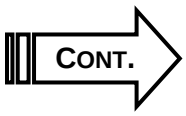
ASSIGNMENT OF PROJECT MANAGER: After a project is placed in the Six-Year Highway Plan, a preconstruction project manager will be chosen. The preconstruction project manager should be involved in the project's planning phase, be responsible for the preconstruction project development phase, and serve as a consultant for the construction phase.

The selection of a project manager is typically made by either the chief district engineer or a designated representative, or is made at the central office for certain projects. Early assignment of the project manager will allow this individual to be involved during the planning phase to ensure continuity and consistency through the design phase. The project manager should be acquainted with the preconstruction process so as to efficiently guide the development of a project in a timely and orderly fashion.

PROJECT TEAMS: The delivery of a project is the responsibility of the project development team. This team is appointed by the chief district engineer and consists of the core preconstruction personnel and representatives from other functions, such as construction, operations, traffic, and planning, as well as the central office Design location engineer. This team should utilize subject-matter experts from other sources as required.

DEVELOPMENT OF PURPOSE & NEED STATEMENT: The intent of a purpose and need statement is to provide a clear and uniform approach for KYTC and its partners to use in the development of a project. A preliminary purpose and need statement for the project is to be defined early in the initial design and environmental review stages of the project and developed more extensively during the public involvement process. The purpose and need statement shall be continuously evaluated during the development process and modified as needed based on information gained through the public involvement process.

The development of a project purpose and need statement is the responsibility of the project team. Purpose and need of a project are key decision points of the shared decision-making process. Purpose and need provide the foundation for successful decision-making and the basis for the evaluation and comparison of reasonable alternatives. Each project will have a purpose and need agreed upon by the project team, which will be utilized to establish the scope of the required work.



DEVELOPMENT OF PURPOSE & NEED STATEMENT (cont.): The project team will also use the purpose and need to develop alternatives and to guide their decisions. For projects where the Division of Planning has completed studies, the project team should review, revise, and adopt the purpose and need presented in the planning report with consensus reached on all necessary modifications.

A purpose and need statement is necessary for developing all projects. It is a requirement on projects that include future NEPA documentation, an environmental impact statement, or environmental assessment/FONSI. A clear, well-justified purpose and need discussion explains to the public and decision-makers that expenditure of funds is necessary and worthwhile and that the priority of the project is warranted when compared to other needed highway projects.

CENTRAL OFFICE SUPPORT: The director of the Division of Highway Design is accountable for all procedures and quality assurance for design phase items. The mission of the Division of Highway Design is "the timely delivery of engineering solutions and construction documents that maximize the use of highway funds and enhance the safety of the highway system, the natural environment, and the human environment." The role of the Division of Highway Design is to support the project team in delivering projects. The goal of the Division of Highway Design in supporting the efforts of the project team is to:

- Develop policies and procedures
- Ensure consistency
- Offer expertise and technical assistance
- Provide or facilitate opportunities for training
- Deliver projects to letting

PROJECT AUTHORIZATIONS: The Division of Program Management prepares the TC 10-1 forms, *Project Authorization,* and distributes them at the completion of accounting procedures, including the approved PR-1 on federal-aid projects. Authorizations constitute approval to begin work on the project. Typically, authorizations are made for planning, design, right-of-way, utility, and construction phases.

The preconstruction engineer should file a request through the location engineer for funding authorization by way of the *Request for Funding Authorization* form **(Exhibit 200-06)** and a *Project Spend-Down* form **(Exhibit 200-07).** The location engineer would then communicate this information to the Division of Program Management. If funds are to be granted, this would then be communicated by sending a copy of the TC-10 to the location engineer, preconstruction engineer, and project manager.

CONT.

PROJECT AUTHORIZATIONS (cont.):

During the design process, there may be changes that occur that would require modifications to the authorizations. These modifications should be dealt with in the same manner as detailed above. An example of something that may occur on many projects is when the project goes from early project development to final design. It may be advantageous to initially request enough funds to complete the early project development and then, once the transportation decision is made, the project manager would request a modification to authorize funds for final design.

PROJECT DATA:

The project manager needs to obtain as much existing data as possible before beginning a project. Below is list of typical information that the project manager should obtain:

- **Record Plans/Management System Reports/Other Information –** We currently keep record plans on microfilm. Typically, a set is maintained in the district office and a set in the central office. The project manager should obtain copies of the record plans in the area of the new project.

- **Traffic Data –** Traffic data is needed on projects to determine the number of lanes needed, whether turn lanes are needed, and turn lane lengths. Traffic data is also a major contributor to the purpose and need of a project. The project manager should send a request to the Division of Planning for traffic forecasts for the subject project. The project manager should also request turning movements for any intersections that are involved on the project.

- **Crash Data –** Crash data is another key component in determining the appropriate solutions on a project. On all projects the crash history should be analyzed. It is recommended that a minimum of three years of crash data be reviewed. A crash study by location, type, severity, contributing circumstances, environmental conditions, and time periods may suggest possible safety deficiencies. In addition, potentially hazardous features and locations should be identified to determine appropriate safety enhancement. The project manager should send a request for crash data to the Division of Traffic Operations.

CONT.

PROJECT DATA (cont.):

- **Project Mapping –** Types of mapping can include aerial survey data, ground-collected data, and other mapping techniques. If required mapping cannot be obtained through the district survey team, requests for project mapping should be submitted to the survey coordinator, Division of Highway Design. The project manager and survey coordinator should evaluate the information that will be required for design and select the type of mapping suitable to the situation. In cases of aerial surveys, typically these requests are to be made prior to the "window of opportunity" months of December through March before design functions are to begin. The season, angle of the sun, vegetation, and other factors are critical to the scheduling of aerial mapping, and should be considered when requesting this service.

  Typically, the division survey coordinator requires a quadrangle map showing the project limits, as well as the desired scale and contour interval for the mapping. The survey coordinator should be contacted whenever questions arise. For photogrammetric services, the project manager should complete the TC 61-1 form, *Requisition for Aerial and Photographic Work* **(Exhibit 200-08),** to requisition maps of the project area. This form is available in the Division of Highway Design's e-form library. Please see **Chapter 300** of this manual for further details.

- **Existing Geotechnical Information –** The project manager can request geological maps and any old geotechnical information from the Geotechnical Branch in the Division of Materials. This information may prove valuable during early design determinations.

- **Planning Study Results –** The project manager should also request any information from the Division of Planning where previous studies may have been performed.

It is incumbent upon the project manager to study the Six-Year Highway Plan so that project needs can be identified and scheduled in anticipation of the beginning of the design phase. The above data should be requested as soon as possible in anticipation of the design phase. The project manager should not wait on the design authorization to begin this process.

CONT.

DETERMINATION OF PROJECT SCOPE & SCHEDULE:

Resource Determination:

The district preconstruction engineer is responsible for determining how design projects in the Six-Year Highway Plan are to progress through the design process. Generally speaking, the preconstruction engineer reviews the workload of his or her staff and determines how to best execute the roadway projects. This may be accomplished by the use of a staff work plan that tracks the progress of active projects. If the decision is made not to accept the project in the district, the project may then be assigned to another district or the central office or may be advertised for consultant services.

In deciding to keep a design project in-house, there are three main concerns:

- Personnel to be assigned to the project
- Current workload and capacity of staff
- Required expertise

These are three of the five items used for consultant selection and will be expanded upon in the next section.

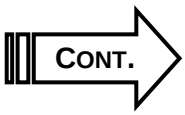
The preconstruction engineer will typically assign a project to a designer with similar design experience. However, in-house staff should be challenged to develop their skills and to maintain in-house expertise by doing more diverse and complex projects. Project schedule, mitigation, difficulty of obtaining right of way, and utility relocation are examples of issues that may influence these decisions. The fiscal year date to initiate the right-of-way process is a key determinant in deciding how to perform the work. The schedule is typically devised using this milestone date.

Projects that are fast-track or high priority can be assigned to the districts. The schedules for projects already in progress may be influenced by these projects and may require resources to be reallocated.

Utilization of Consultants:

When initiating a project, review the workload analysis and, if the current workload permits, the Department will do the design. If the Department's workload is prohibitive or the time schedule is too limited, award a contract for the design to a consulting engineer.

By January 1 of each calendar year, the district design engineer will submit to the director of the Division of Highway Design a list of state and federal projects anticipated to be advertised for consultant services. A combined list for all districts will be forwarded to the Division of Program Performance for publication on or before February 1 of each calendar year.



DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.): Bulletin for Advertisement:

The project manager will submit to the appropriate location engineer project information for advertisement of consulting services. This will include, but not be limited to, the following information:

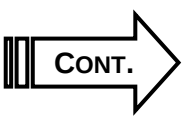
- County
- Route
- District
- Item number
- Project description
- Project manager
- User division(s)
- Approximate fee
- Purpose and need
- Project length
- Method of design
- Available KYTC studies
- Project funding
- Scope
- Special instructions
- Project schedule milestones

The Highway Design location engineer will be responsible for coordinating project information with other divisions to determine if the selected consultant will be responsible for providing services. The location engineer will provide the following information:

- Selection committee members
- DBE requirement
- Prequalification requirements
- Structure design
- Environmental services
- Photogrammetric services
- Geotechnical services
- Traffic
- Utility design

Professional Services will provide the following:

- Procurement schedule
- Evaluation factors
- Location map



DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.): The location engineer will forward this information through the director of the Division of Highway Design to the Division of Program Performance on or before the first Monday of the month the project is expected to be posted. The Professional Services Branch will forward all projects to the Deputy State Highway Engineer (DSHE) for Project Development for review and ultimate approval by the Secretary of Transportation.

Consultant Selection Committee:

A consultant selection committee is utilized for determining which consultant will obtain a contract for a specific project in accordance with the *Professional Services Procurement Manual*, **Chapter 15-04,** "Selection Process." The selection committee comprises five members, including two from the user division, two from the Secretary's pool, and one from the Governor's pool. The project manager will submit a bulletin for advertisement for consulting services to the DSHE for Project Development. The DSHE will review and forward it to the user division for determination of participants on the selection committee, who will then forward it to Professional Services for advertisement.

Pre-Design Conference (Purpose & Need Meeting):

Once a consultant is selected, the project manager will arrange a pre-design conference. The pre-design conference will begin to establish the purpose and need of the project and finalize the scope of the work to be performed by the consultant. (See **Exhibit 200-09,** *Pre-Design Conference Minutes.)*

Submission of Units & Negotiations:

After the pre-design meeting, the consultant will submit the proposed work units as discussed at the pre-design conference. After agreement on the work units between the consultant and project manager, each will independently submit his or her projected production hours. Professional Services requests, through the location engineer, independent production-hour information from the district and the consultant. This request from Professional Services to the location engineer can be in the form of an e-mail or letter, depending on the method chosen by Professional Services. This gives one point of contact to begin the process of writing the contract. The location engineer would then contact the project manager and the consultant to request independent production-hour estimates. The project manager and the consultant will be required to submit a TC 61-4 form, *Production-Hour Worksheet* **(Exhibit 200-10),** to the location engineer. It should be noted, however, that the creation of production-hour estimates by the consultant and the project manager should be independent of the other.

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DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.): Both the consultant and the project manager submit their independent production-hour estimates to the location engineer, who conveys them to Professional Services. This gives a central point to gather both sets of production hours. The location engineer should not deliver the production hours until both sets have been delivered, which allows the location engineer to notify either the consultant or the district if their respective production hours have not been received. Professional Services will use the production hours in negotiating a design fee with the consulting engineer.

It shall be the project manager's responsibility to submit the following items with the production-hour estimate:

- Approved pre-design conference minutes
- Complete listing of target dates as a minimum in accordance with items identified in the standard consultant's monthly report form. Where appropriate, complete this as part of the standard pre-design conference minutes.
- Recommended percentages for payment in accordance with the established target dates
- Verification that funding is available

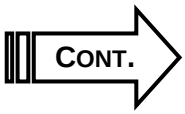
Failure to include all items with the production-hour estimate may cause Professional Services to return the package to the project manager for completion.

Contract & Notice to Proceed:

After completion of the negotiations, the consultant shall submit final negotiation minutes with the following:

- Consultant's original signature
- Revised production hours in accordance with negotiated amount
- A payout schedule for the negotiated fee in accordance with the accepted project milestones
- Direct costs revised to reflect the negotiated hours, if applicable

Professional Services will then write the contract for the consultant's and appropriate Cabinet management's signatures. Professional Services will notify the consultant of the notice to proceed once they receive the approved contract. They will notify the consultant of the notice to bill once they receive approval from the Legislative Research Commission (LRC) Contract Review Committee.



DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.): **Pay Estimates & Consultant Monitoring**:

All design work performed for the department by consulting engineering firms will be under the supervision of the applicable project development team. The consultant will submit a pay estimate as progress is made, typically on a monthly basis using the TC 61-408P form, *Engineering Services Pay Estimate - Partial* **(Exhibit 200-11).** The consultant will also complete and attach the *Consultant Monthly Report* **(Exhibit 200-02**) to all submittals of pay estimates. If not submitting an estimate within a given month, the consultant should still submit the *Consultant Monthly Report* to the project manager in accordance with the *Professional Services Manual*, **Chapter 15-07.** The first submittal of the *Consultant Monthly Report* shall include all established project milestones. Milestones shall include those provided in the consultant contract, as well as departmental obligations or other items, such as time frames expected for outside review, that might be on a project's critical path. Submission of milestone pages is required only when the milestone dates are changed or completions of milestones are met. The front page of the monthly report is submitted every month to the project manager. The consultant should complete the control dates shown in the middle of the page for each appropriate phase or show as "NA" if not applicable. It is intended that the consultant shall provide short statements indicating progress or advising of actions needed by the Department; i.e., "Design executive summary submitted June 10—awaiting approval." Similarly, the project manager shall provide responses to the information submitted and indicate any needed actions by the consultant. The project manager should express concerns about schedule or any other problem in the response. The consultant or the project manager can include attachments of additional pages, if deemed necessary.

The project manager should respond to the monthly report within one week of its receipt. Upon completion of the response by the project manager, send copies of the report to all involved persons; i.e., send the discussion of environmental issues to Environmental Analysis. In all instances, the project manager sends copies to the consultant, location engineer, and the director of the Division of Highway Design. The procedure for monthly estimates and contract modifications will be as contained in the contract between the department and the consultant.

Final Pay Estimate & Consultant Evaluation:

Pay estimates can be submitted electronically to the project manager. However, final consultant pay estimates must be submitted in hard copy with original signatures using the TC 61-408F form, *Engineering Services Pay Estimate - Final* **(Exhibit 200-12).** It is also necessary that an evaluation of the consultant's performance be made using the current TC 61-8 form, *Consultant Performance Evaluation* **(Exhibit 200-13).**

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DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.): The project manager who was in charge of the project shall complete this form. The district's chief right-of-way agent or his or her representative shall review Item B3, the Right-of-Way and Utility Plans, and sign the form. When all ratings are checked, they shall be multiplied by the weighted factor shown on the right-hand side of the evaluation, then totaled and shown as the consultant's rating score out of 100 points. Discuss information that might reflect reasons for scores on an evaluation, such as the degree of complexity of a project, in the comment section. When completed, the project manager will transmit all information to the engineering branch manager for the Roadway Engineering Branch in the central office.

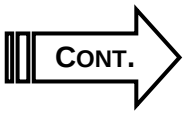
Upon receipt of the final pay estimate, consultant performance evaluation, and supporting information, the Roadway Engineering Branch manager will request an evaluation from the location engineer. The director of the Division of Right of Way and Utilities will review and approve Item B3. The average of the evaluations shall then become the final rating for the consultant's performance. The Roadway Engineering Branch manager will then prepare a letter to the consultant summarizing the evaluation and the average final rating. If the consultant disagrees with the evaluation rating, he or she may request an appeal within 30 days through the director of the Division of Highway Design.

If the consultant's contract specified that the consultant was responsible for geotechnical work, a copy of the final geotechnical quantities will be submitted with a letter stating that all geotechnical work is complete and no additional charges will be made. Before closing a consultant contract for design, the location engineer consults with the drainage engineer to confirm submittal and approval of the final drainage folder. When all information is satisfactory, the location engineer submits the following to the consultant and to Professional Services:

- Consultant performance evaluation
- Final monthly estimate
- Final geotechnical quantities (if required)
- Copy of the Roadway Engineering Branch manager's completion letter

Contract Modifications:

The project team may deem it necessary for the consultant to do additional work on a project. The project manager and the location engineer should keep in mind that additional funding requests may jeopardize the completion of the project, and they should be judicious when requiring additional work that may lead to additional funding. Some situations that may justify a contract modification are as follows:



DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.):

- The project limits have been substantially revised from those initially indicated in the pre-design minutes.
- A change of scope has occurred.
- The consultant is requested to revise the plans because of a direction change by the Department.

After careful consideration of the implications of requesting additional work, the following is the process for initiating contract modifications:

1. After the scope of additional work is established, the location engineer will contact Professional Services by e-mail or memo to begin the process of a contract modification.

2. When a decision is made to advance the contract modification, Professional Services will notify the location engineer by e-mail or memo to have independent production hours developed by the project manager and consultant. For modifications costing less than $50,000, see point 5 of this section.

3. The location engineer would then contact the project manager and the consultant to request independent production-hour estimates. It should be noted that the creation of production-hour estimates by the consultant and the project manager should be independent of the other.

4. Both the consultant and the project manager would submit their independent production-hour estimates to the location engineer, who conveys them to Professional Services. The location engineer should not deliver the production hours until both sets are received. The location engineer is responsible for contacting either the consultant or the project manager if their respective production hours have not been received within an acceptable time frame.

5. All contract modifications costing more than $50,000 require formal negotiations through Professional Services. After an amount is determined for the additional work, it is communicated to the location engineer. The amount of funding remaining in the project should be monitored by the project manager and the location engineer to determine whether sufficient funds are available to fund the contract modification, or whether additional funding will be required.

   The policy of the Division of Professional Services relative to Departmental concurrence of person-hours includes the following:

   - The contract modification is for highway design work only.
   - This policy applies to normal highway design projects and not to projects to be negotiated under our statewide contracts.

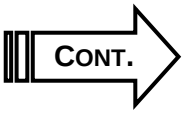
CONT.

DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.):

- The total fee amount for the modification submitted to the Division of Professional Services is less than $50,000.
- The design work is not being subdivided into several modifications in order to keep the fee amounts less than $50,000.
- The project manager is to provide a recommendation in writing to the director of the Division of Professional Services that he or she has reviewed and approves the scope of work, person-hours, employee classifications, and their associated percentages for the design work.
- The project manager does not approve the fee amount.
- The fee amount shall be reviewed and may be approved by the director of the Division of Professional Services.

Contract modifications requested by the consultant that cost less than $50,000 and meet the above criteria should be submitted to the project manager. The project manager will send a copy to the location engineer. The location engineer will send a copy to Professional Services. The project manager may modify the production hours with agreement from the consultant or agree directly with the consultant's production hours with no separate production hours required from the Department. The project manager will provide an endorsement of the agreed-upon hours or recommend other action to the location engineer, who will deliver it to Professional Services within 10 working days. Professional Services will then review the recommendation for use of correct consultant overheads, direct costs, or other issues for which there may be concern. If Professional Services concurs with the submittal, the agreement process will be initiated.

When a contract modification is requested, the consultant shall be responsible for providing a brief explanation (desirably less than one page) for its need. The explanation must be written such that someone not familiar with the project may understand the purpose of the request. It must make clear why the requested work was not covered by the original agreement or in previous modifications. It must also address whether the current contracted dates are to be affected by the change and, if so, provide new projected dates of completion. This information is to be provided to the project manager, who will endorse it to the location engineer and Professional Services. Timely responses should be made to all requests for contract modifications. The consultant and the project manager should be reminded that a 90-day period must pass between contract modifications. The consultant should also maintain a chronology of all the project's modifications to be submitted with each request.



DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.):

6. The location engineer contacts the project manager to advise of the contract modification amount and requests other amounts necessary to complete the additional work, such as Cabinet personnel expenditures, as well as the additional funding required from the aforementioned divisions. At this time, the project manager communicates with each division affected by the proposed contract modification (for example, DEA, Geotechnical, Bridges, etc.) to ascertain the additional funding that may be required for them and Cabinet personnel to facilitate the additional work. The project manager would utilize members of the project team at the district level to help in this endeavor (such as the environmental coordinator). The location engineer should facilitate the process by advising the project manager to consider funding needs by other agencies.

7. If current funding is insufficient to cover the added expenses, then the project manager would complete the *Request for Additional Funding* form to request additional funding to cover the shortfall. The project manager would develop a spend-down plan for funds required. The *Request for Additional Funding* form and the spend-down plan would then be transmitted to the location engineer for further processing.

8. The location engineer would place a signature on the *Request for Additional Funding* form, which would represent the project team. This is <u>not</u> an approval by the location engineer but merely a signature that indicates the project team's approval, of which the location engineer is an active member. The form and the spend-down plan would be delivered to the Division of Program Management and the assistant state highway engineers (ASHEs) for Program Management.

9. The Division of Program Management will review the request. If the additional funds are approved, a TC-10 form would be issued for the additional funds, and a copy sent to Professional Services, the location engineer, and the project manager.

10. Upon receipt of the TC-10, Professional Services would prepare for additional funding approval by the LRC. The request would be signed by the location engineer as a representative of the project team.

CONT.

DETERMINATION OF PROJECT SCOPE & SCHEDULE (cont.):

The ASHEs in Program Management would be contacted by the location engineer in the event some problems arose in the securing of information required to complete the funding request. The ASHEs would communicate directly with the location engineer about questions pertaining to the project, which would help in keeping communication flowing to both the central office and the districts. Questions arising from the Division of Program Management should also be directed to the location engineer, so that the project team could be advised and an answer produced. Communication between the location engineer and the project team should be emphasized, as well as direct communication between the ASHEs and the location engineers.

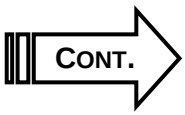
In situations where additional work requires funding above that previously authorized, the project team should communicate through the location engineer the need for additional funding by way of the *Request for Additional Funding* form and a spend-down plan. The location engineer would then communicate this information to the Division of Program Management. The decision on these additional funds would then be communicated back to the location engineer by way of a copy of the TC 10, along with a copy to the project manager.

Closeout of Consultant Projects:

Once a project is considered completed, the next step is to close out the consultant contract. There has historically been a practice to delay the closeout of projects. The apparent intent of this practice is to permit initiating contract modifications if a revision in the project is required later in the process. This is particularly prevalent when construction lettings are two years or more after completing the plans.

The consultant selection process makes the early closeout of a project have greater importance. Open contracts require the consultant to show the project as an additional active project on his or her workload. Also, in order to evaluate consultant performance properly, the Department needs evaluations to be included in the evaluation database. Both the number of projects shown and the lack of evaluation information may affect consultant selection. It is therefore requested that Department personnel and the consultant cooperate to close out projects as early as practicable. It is important to note that the closeout of a project in no way negates the consultant's responsibility for correction of any erroneous work.

Further discussion on the closeout of projects is provided later in this chapter.



ENVIRONMENTAL OVERVIEWS:

As soon as possible following project authorization, the project manager and environmental coordinator should investigate the potential project impact area to determine the possible presence of environmental concerns. If any issues of environmental concern are detected or perceived, a request for investigation should be submitted to the director of the Division of Environmental Analysis along with the following information:

- 8 1/2" x 11" exhibit or map showing project location
- Topographic map and/or aerial photo showing proposed centerline and estimated disturbed limits for all alternates
- A statement addressing displacement of people and businesses, indicating estimated numbers and kinds of displacements
- A written project description addressing project purpose and need, identification of project termini, description of existing and proposed geometrics, and the potential area of impacts

The Division of Environmental Analysis will provide the results of its investigation, along with any recommendations for consideration. The project team will evaluate this information and incorporate the recommendations into the project.

During the conceptual design phase, the project team should determine if U.S. Army Corps of Engineers Section 404 permits may be required. If required, a request for a Section 404 Environmental Assessment should be submitted to the director of the Division of Environmental Analysis along with the project information noted in **Chapter 500** of this manual. Upon completion of the Section 404 Environmental Assessment, the Division of Environmental Analysis will provide the resulting information, along with any recommendations for consideration.

For more information concerning environmental and permit concerns, please see **Chapters HD-400** and **HD-500** of this manual. Additional information may be found in the *Division of Environmental Analysis Guidance Manual.*

CONT.

GEOTECHNICAL OVERVIEW:

A determination of the types and locations of soils and rock is essential to the design and construction of a roadway. Typically, a request for soils analysis is made after preliminary line and grade approval. When soil and subsurface exploration is required, state forces or consultants may perform the work, and the procedure to be followed is as outlined in the *Geotechnical Manual*. The designer is responsible for the submission of adequate information to the Division of Materials, Geotechnical Branch, concerning project alignment, grades and cross sections, and any changes that occur in them. The Geotechnical Branch will provide a report of its recommendations to be placed in the project file. Upon receipt of the soils profile and geotechnical report, the designer is to incorporate the recommendations in the plans, either by design or plan note. The project manager is responsible for incorporating recommendations contained in the geotechnical report on the plans.

PUBLIC INVOLVEMENT PLAN:

Public involvement is an essential component in the development of a project. The viewpoints and opinions of the public are important considerations in the transportation decision-making process.

The project development team shall establish an outline of the public involvement plan as early in the project development phase as possible. For more information concerning public involvement, see **HD-600** of this manual.

BUDGET & FISCAL MANAGEMENT:

Cash Flow Budgeting: The Cabinet currently utilizes a cash flow budget. Cash flow budgeting is a process where we estimate future revenue and compare it to estimated future expenditures. We then must ensure that we have enough future available cash to pay bills. The decision then becomes how much money we authorize in the different phases (design, right of way, utilities, and construction) at any given time. Therefore, we are required to ensure that cash management plans are in place for all projects. The district cash flow manager, as directed by the preconstruction engineer or the project manager, has the responsibility to assure that cash flow management plans are in place and that appropriate updates and related information have been provided to the Division of Program Management. For those projects that are managed in the Division of Highway Design (rehab projects, interstate widening projects, CVM stations, etc.), the project manager will provide the necessary information to the district cash flow manager.

CONT.

BUDGET & FISCAL MANAGEMENT (cont.):

Preliminary Project Estimates: Six-Year Highway Plan projects will have estimates of cost associated with each phase. These estimates may have been determined from a number of sources. Many project estimates were determined by the project team or the preconstruction engineer. The time given to prepare the estimate varies significantly from project to project, and this will obviously have an impact on the quality of the estimate. Once a project is included in the Six-Year Highway Plan, the Six-Year Highway Plan estimates become the budget for the project.

When a project manager is assigned a project, he or she will need to revisit the project estimates. If the project manager determines that the estimates are not viable, guidance should be sought from the Division of Program Management. The project manager is also responsible to update the Oracle Preconstruction system when phase estimates change.

Preparation of Spend-Down Schedule: In order to predict future expenditures, a spend-down schedule is required for project funding authorizations. The Division of Program Management has a *Project Spend-Down* form **(Exhibit 200-07)** that should be utilized for the funding request and the corresponding spend-down plan. The project manager should utilize the milestones for the project to determine when future expenditures may occur. They will work with the district cash flow manager to keep this data updated in the Oracle Preconstruction system.

Requests for Additional Funding: During the course of a project, the need for additional funding may occur. As stated above, the funding established within the Six-Year Highway Plan should be considered the budget for a project. However, changes occasionally occur beyond the control of the project team that may require additional funding. When this occurs, the location engineer should contact the ASHEs for Program Management to complete the funding request. The ASHEs will communicate directly with the location engineer pertaining to the project, which will help in communication flowing to both the central office and the districts. Questions arising from the Division of Program Management should also be directed to the location engineer so that the project team can be advised and an answer produced. Communication between the location engineer and the project team should be emphasized, as well as direct communication between the ASHEs and the location engineer. Once additional funding is obtained, the location engineer will inform the project manager accordingly.

KYTC Highway Design

Chapter

ADMINISTRATIVE PROCEDURES

Subject

Conceptual Design

CONCEPTUAL DESIGN:

Once a project is in the Six-Year Highway Plan, the project team is responsible for moving the project through the design process. The first step in the design process is the conceptual design. The product of the conceptual design phase is a transportation decision with an approved environmental document based on an alternate and includes the preliminary line and grade plans. There is only one product: the transportation decision documented in the environmental document and reflected in the engineering plans. Design is only one component of the conceptual design phase. The project team must work together with other disciplines such as Environmental Analysis to deliver the conceptual design phase.

In the first chapter of this manual, we discussed the transportation decision-making process, which includes the key decision points and the NEPA process. The key decision points include the purpose and need, range of alternates, scope of impacts, and selected alternative. The descriptions of these are included in the first chapter. The following write-up provides a general overview of the conceptual design process for a typical capacity improvement project that requires a finding of no significant impact (FONSI). For a flow chart of the conceptual design process, see **Exhibit 200-14.** A chart is also included in **Exhibit 200-15** to show the number of weeks to allow central office and/or FHWA to review key decisions of a project.

FLOW CHART:

1. Purpose & Need - The first key decision point involves the purpose and need. This is a meeting where the project team discusses the purpose and need for the project, determines the resources needed to complete the project, and begins developing a public information plan. For consultant projects, this would be the initiation of the consultant contract and would include the pre-design conference.

2. Public Meeting #1 - The first public meeting would typically be informal and act as a kickoff for the design of the project. The purpose of this meeting is to gather information, determine community support of the project, and understand community issues and desires. The project team can use this information to finalize the purpose and need and help determine the possible range of alternatives.

CONT.

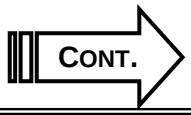
FLOW CHART (cont.):

3. Range of Alternatives - The range of alternatives is another project team meeting where the project team reviews the different alternatives provided by the design team. The design team develops a range of alternatives that meet the purpose and need of the project. Alternatives/corridors previously evaluated during the development studies conducted by the Division of Planning should be the beginning point. An environmental footprint should also be available before alignment studies commence. While a preferred alternative may stand out, the project team should resist making a recommendation until they understand all the impacts and issues.

   Following the review of the alternatives, the subject-matter experts (SMEs) would then proceed with an evaluation of those alternatives left for consideration. SMEs are those professionals within our various divisions and who are available through consultant contracts who have specific expertise available to the project team. While some of these SMEs may be core members of the project team, each division is responsible for responding with the necessary level of timely support and guidance when this expertise is not available at the district level. It is the responsibility of the project team and project manager to identify and request these services. Evaluation of the range of alternatives should include preliminary information about the total project costs.

   The output from the range-of-alternatives phase should consist of the list of possible, practical, and feasible alternatives that fulfill the purpose and need. The study area for each alternative should also be available.

4. Scope of Impacts - After the SMEs have studied the range of alternatives, the project team should come together to discuss the scope of impacts. The SMEs should present to the project team the results of their investigations, including the baseline studies and the corresponding impacts of each of the alternatives on the study area. They would also offer suggestions on the risk associated with moving forward with each alternative and the time frame involved in resolving identified impact issues. Right-of-way professionals and utility agents would also present their findings during this meeting so that the project team could fully consider the possible impacts that property acquisition and utility location might have on the transportation decision.



FLOW CHART (cont.):

When determining the impacts, the project team must work through the decision-making process, which includes avoidance, minimization, mitigation, and enhancement of the impact. After full consideration of all issues and impacts, the project team would discuss and possibly determine a recommended alternative. The decisions that are made will be documented, and the environmental document would be finalized, reviewed, and approved. The output from the scope-of-impacts phase could include the draft environmental assessment or categorical exclusion, preliminary alternative plans, right-of-way and utility impacts with associated costs, possible mitigation measures, and corresponding project costs and schedule impacts. If public and resource agency involvement is determined to have been sufficient to do so, the project team may even identify a preferred alternative in the environmental document before the public hearing.

5. Public Meeting #2 - Once the project team has a reasonable number of alternatives and understands the potential impacts, it should be ready for another public meeting. The purpose of this public meeting is to present the potential alternatives and gather public opinion.

6. Project Team Meeting - After the public meeting data has been accumulated, the project team comes together to discuss the public input and the scope of impacts. They use the available data and professional judgment to narrow down the alternatives and possibly decide on a preferred alignment.

7. Finalize Environmental Assessment - The environmental assessment (EA) is the document that accumulates all the information gathered for the project. This will include the base studies that are completed. The EA also documents the different alternatives considered and how the project team narrowed down the alternatives. The EA should describe the proposed action in sufficient detail; the purpose and need for the proposed action; all alternatives; and the environmental, social, and economic impacts, along with the secondary and cumulative effects of the proposed action for each of the alternatives. The EA should have proposed mitigation measures. It should also have a list of the persons and agencies consulted during the early coordination process. Once the draft EA is completed and approved by FHWA, the project team is ready for a public hearing.

8. Public Hearing - The public hearing is the only public meeting that is required by law. The details of how to conduct a public hearing are in the “Public Involvement” chapter, **HD-600.**

CONT.

FLOW CHART (cont.):

9. Selected Alternative - Following the approval of the environmental assessment and the public hearing, the project team would meet and select a preferred alternative based on environmental, economic, and engineering issues and public input. The final environmental document would then be prepared, reviewed, and approved. The output would be the final approved environmental document and the selected alternative to proceed into phase II (final) design.

10. FONSI & Location Approval - The finding of no significant impacts (FONSI) is the final environmental document that details what decision was made. The FONSI focuses on the selected alternative and also responds to issues raised during the public hearing. The EA should be attached to the FONSI, as it provides the supporting documentation for the decisions made for selecting the alternative. It should have a statement included stating that the proposed project will have no significant impacts on the environment. The FONSI should reflect compliance with all applicable environmental laws and regulations. The project team will then prepare and announce location approval to inform the public of the decision. The announcement may be provided through whatever media is deemed appropriate (e.g., newspaper).

11. Final Design - The FONSI is signed, and the project team continues the detailed design, preparing plans for right-of-way acquisition and construction.

The above process can change significantly from project to project. We may have to have more public meetings due to controversy on a particular project or the need to deal with a number of different alternatives. We also discuss in the “Public Involvement” chapter the possibility of having advisory committees, focus groups, etc., which will require more public meetings. The above is shown to provide an example to help explain the different aspects of delivering a project through the conceptual phase.

Categorical exclusion projects can be performed similarly. However, typically you can combine a number of the meetings and expedite this process. A public hearing is also not required.

On larger, controversial projects, an environmental impact statement may be required. We still use a similar process; however, we will require more input from interested agencies, and more documentation is required. Please review **Chapter 400,** “Environmental Considerations,” in this manual and the *Division of Environmental Analysis Manual* for further information.

CONT.

COMMUNICATING ALL PROMISES (CAP):

During the course of project development, many commitments (promises) are made by different people associated with the project. In order to ensure that commitments are kept, the project manager will accumulate all promises and track those promises in the Oracle Preconstruction database system. The Precon system has an entry labeled "CAP" that allows the entry of:

- A description of the promise
- To whom the promise was made
- The date the promise was made
- Location of the work or activities to fulfill the promise

All project reports/documents prepared in the planning phase shall contain a CAP list as a separate listing. The project manager shall enter the promises from the planning report into the Precon CAP system and will remain the keeper of the CAP for each individual project. All subsequent project promises are to be communicated to the project manager, endorsed by the project team, and only then officially logged into the CAP system by the project manager.

The extent to which project promises can be made by other individuals is to be determined by the project manager. The project manager shall retain the responsibility for ensuring that all promises (roadway features, environmental, right of way, utilities, structure design, etc.) are ultimately brought to reside in the system. The system is designed to not permit deletions. If a promise is to be changed or countermanded, an additional entry will be required to document this change. The project manager should understand that the goal is not to increase the number of promises made but to ensure that we deliver on the promises that are made.

The project manager should use the report function that is included in the Precon system to aid in creating a CAP report. This report should be included in the documents submitted to PS&E for letting. The CAP report shall be included in the bid package and shall remain a part of the contract document.

CONCEPTUAL DESIGN MEETING MINUTES:

As detailed in the conceptual design section, minutes of all the meetings should be prepared. Include the comments and recommendations of all members of the inspection party in those minutes. Also, note the scales to be used for plan development (if different from standard) and a tentative list by station and size of all structures or a statement on no structures and a cost estimate.

CONT.

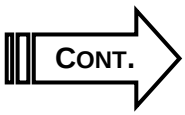
CONCEPTUAL DESIGN MEETING MINUTES (cont.):

The preparation of an attachment to the conceptual design meeting minutes entitled "Avoidance Alternatives to Water-Related Impacts" is required on all projects. This document may address the minimization aspect when appropriate. The document must identify each blue-line crossing and describe anticipated construction activities (e.g., bridge, culvert, channel change.) Document projects that do not involve any water-related impacts as such in the body of the report. Blue-line streams on the quad sheets are the streams that require specific attention to avoidance alternatives. The document may exclude some blue-line streams from the attention noted in these requirements. Examples include streams with minimal contributing area resulting in flows of a very intermittent frequency or steep gradients. The inspection party should address these situations and document their exclusion in the conceptual design meeting minutes.

Approval of the conceptual design meeting minutes constitutes approval of an alignment for the geometric design. Once the environmental document is signed and the conceptual design minutes approval is obtained, the alignment decision is complete. This alignment will continue to be refined, with appropriate attention to further minimizing impacts to wetlands, streams, historic areas, and other environmental considerations as this detail is developed. Once the project reaches a stage that avoidance and minimization steps have been satisfied, the designer will then be responsible for the development of a mitigation plan with guidance from the Division of Environmental Analysis. Incorporate the appropriate material into the plans to mitigate any environmental-related impact. This step should occur before the final inspection.

DESIGN EXECUTIVE SUMMARY:

The design executive summary (DES) is the record of engineering decisions related to the project. A signature from the director of the Division of Highway Design constitutes geometric approval and confirms the rationale used in determining geometric aspects of the proposed facility. The DES contains information about the project description, roadway characteristics, typical geometric criteria recommended for the roadway, existing conditions, and the project team's recommendations. The DES contains rationale concerning requested design exceptions and is utilized by the Division of Environmental Analysis in determining environmental actions that may be required. Since the DES documents the rationale used when making important design decisions, it is important to document reasons for conclusions that are made to provide a record of approvals. Should these decisions ever be challenged, the DES shows that a conscientious effort was made by the project team when reaching conclusions.



DESIGN EXECUTIVE SUMMARY (cont.): A lower-than-minimum standard shall not be used without prior approval of the director of the Division of Highway Design. Sound engineering reasoning and justification must accompany a written request to grant approval for the incorporation of any lower-than-minimum standard.

The project manager or a designated representative completes the DES and forwards it to the location engineer with the signatures of the project engineer and the project manager. After the location engineer reviews and confirms the information, the location engineer signs the DES and forwards it to the manager of the Roadway Design Engineering Branch for review and approval. After the branch manager's approval and signature have been obtained, the DES is delivered to the Division of Highway Design director for final approval. A copy of the approved DES is returned to the project manager and the location engineer to be filed in the project file after the director has signed the document. FHWA must approve exceptions for interstate projects. Elements to be included in the DES are as follows:

- TC 61-9 form fully completed as applicable
- Project location map
- Project description
- Purpose and need
- Description of alternatives (including no-build alternative)
- Cost comparison of each alternative
- Choice of preferred alternative (and why)
- Brief but concise MOT plan
- Typical sections (including bridge typical, if applicable)
- Discussion of design exceptions (see **HD-704)**
- Preferred alternative cost vs. Six-Year Highway Plan budget
- Reason for cost overrun (typically if the estimated costs exceed the Six-Year Highway Plan budget costs by 15 percent or more)
- Avoidance of water-related impacts discussion sheet
- Consideration of bike and pedestrian facilities

A blank copy of the DES is provided in **Exhibit 200-16,** and an example DES in **Exhibit 200-17.**

CONT.

ADVERTISEMENT FOR LOCATION APPROVAL:

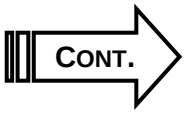
Advertisements for location approval are required for those projects that have an EIS or FONSI document. While there is no regulatory or statutory obligation to advertise for location approval for projects that have categorical exclusions (CEs) and programmatic categorical exclusions (PCEs), advertisements are encouraged as an indication of the Cabinet's willingness to share information with the public. While approval in newspapers with either statewide circulation or regional and local circulation is not a requirement, location approval on all federally funded projects should continue. It is important that every effort be made to keep the public involved and informed concerning environmental clearance/location approvals. The decision as to the manner of the advertisement is a matter of balancing the costs of advertising with the expected benefits to be derived. The project team may elect to advertise location approval notices for projects in bulk, through the Web, or by other innovative advertisement means. Projects that require an EIS or a FONSI should be advertised in local or regional newspapers and, when appropriate, one newspaper with statewide circulation.

VALUE ENGINEERING STUDIES:

Regulations require that value engineering (VE) and related life-cycle cost analyses be conducted for projects on the National Highway System (NHS) with total phase costs of $25 million or more. Typically, these VE studies are conducted shortly after the preferred alternative has been chosen. Whenever a candidate project is identified, the value engineering coordinator at the central office Division of Highway Design should be contacted so that a VE study can be scheduled. The VE team should be populated with Cabinet personnel from Design, Construction, and other disciplines. The VE study may be conducted through the statewide VE consultant, if desired. The project team has the discretion to consider VE studies for other projects not on the NHS if the facility has a relatively high cost or is of a complex nature. Use of the statewide VE consultant is at the discretion of the Division of Highway Design.

INTERCHANGE JUSTIFICATION STUDIES:

The FHWA requires an interchange justification study (IJS) to add access (interchanges and ramps) to the existing interstate system. This policy is applicable to new or revised access points to existing interstate facilities regardless of the funding of the original construction or the funding for the new access points. Revised access is considered to be a change in the interchange configuration even though the number of actual points of access may not change. For example, replacing one of the direct ramps of a diamond interchange with a loop, or changing a cloverleaf interchange into a fully directional interchange, would be considered revised access for the purpose of applying this policy.



INTERCHANGE JUSTIFICATION STUDIES (cont.):

All requests for new or revised access points on completed interstate highways must be closely coordinated with the planning and environmental processes. The FHWA approval constitutes a federal action and, as such, requires that the NEPA procedures be followed. The NEPA procedures will be accomplished as part of the normal project development process and as a condition of the access approval. This means the final approval of access cannot precede the completion of the NEPA process. To offer maximum flexibility, however, any proposed access points can be submitted for a determination of engineering and operational acceptability prior to completion of the NEPA process.

The project team should obtain engineering and operational acceptability as early in the process as possible. The IJS should be submitted to the FHWA. It should consist of an introduction that describes the project and its need. The document should be clearly written for someone who is not familiar with the project, the area, or the state.

The request shall address eight policy points (italicized) as described below, along with a short explanation of what should be written to satisfy the eight policy points:

1. *The existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design year traffic demands while at the same time providing the access intended by the proposal.*

   Describe the proposed new or revised access and explain the need for the access point. Establish need by showing that the current or future traffic cannot be accommodated by improvements to the existing roadway network and the existing interchanges/ramps, and that traffic demanding the new/revised access is for regional trips rather than local traffic circulation.

2. *All reasonable alternatives for design options, location, and transportation system management type improvements (such as ramp metering, mass transit, and high-occupancy vehicle [HOV] facilities) have been assessed and provided for if currently justified or provisions are included for accommodating such facilities if a future need is justified.*

   Describe the different alternatives considered and why the selected alternative was chosen. This description should include why the layout for the selected alternative was chosen, including the other configurations considered and whether something is prohibiting the use of an alternative design. Cost is usually not the only reason. It plays a role in the decision, but it is not a justification for a poor design. Answer the question: Why this design?

CONT.

INTERCHANGE JUSTIFICATION STUDIES (cont.):

3. *The proposed access point does not have a significant adverse impact on the safety and operation of the interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include analysis of sections of interstate to and including at least the first adjacent existing or proposed interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with new or revised access points.*

   A traffic and operational analysis needs to be performed that includes an analysis of adjacent segments of the freeway as well as nearby existing and proposed interchanges.

   The limits of the analysis on the interstate shall at a minimum be through the adjacent interchanges on either side of the proposed access. The limit of the analysis on the existing or improved surface street system will be the extent of the system necessary to show that the surface street system can safely and adequately handle any new traffic loads resulting from the new/revised access point.

   The analysis should utilize the current "Highway Capacity Manual" operational analysis procedures. If other procedures are used (i.e., CORSIM), it should be verified that appropriate assumptions are made and that the FHWA and the Cabinet agree with the results.

   The IJS must contain mainline and crossroad/local street traffic volumes (ADT and DHV) including turning movements for current year and design year. An accident analysis must identify accident history and rates in the freeway section and surface streets affected and project the rates that will result from traffic flow and geometric conditions imposed by the proposed access.

4. *The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" for special-purpose access for transit vehicles or HOVs or into park-and-ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed current standards for federal-aid projects on the interstate system.*

   It should be illustrated that the access connects to a public road and will provide for all traffic movements. If a less than "full interchange" is being requested, justification must be provided. If the interchange is being built in phases where there will be a time where a less than "full interchange" is provided, the phasing and operations should be described in detail.

CONT.

INTERCHANGE JUSTIFICATION STUDIES (cont.):

5. *The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and/or statewide transportation plan, as appropriate; the applicable provisions of 23 CFR, part 450; and the transportation conformity requirements of 40 CFR, parts 51 and 93.*

   The Cabinet will coordinate with MPOs, when appropriate, and local and regional planning groups to ensure consistency with any land use plans.

6. *In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.*

   If the access request is occurring in a developing area or in an area that has the potential for future interchange additions, it should be shown how this access has been part of a comprehensive interstate network study and is consistent with it.

7. *The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements*.

   When the request for a new or revised access is generated by new or expanded development, demonstrate appropriate coordination between the development and related or otherwise required transportation system improvements.

8. *The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.*

   The request should conform to the Six-Year Highway Plan. The status of the environmental processing should include the type of environmental document and when it was signed. If it has not been signed, briefly describe the status and schedule of the document along with its anticipated completion date.

The IJS should specifically mention each of the above eight policy points with an explanation and analysis, if appropriate.

KYTC Highway Design	***Chapter*** ADMINISTRATIVE PROCEDURES
	Subject Final Design

OVERVIEW*:* The project moves into the final design phase once a selected alternative has been chosen and the transportation decision has been documented. Resolutions of project-specific issues or special circumstances identified in the conceptual design phase must be carried through to the final design.

The decisions made during the final design phase create the plans needed for right-of-way acquisition, utility relocation, and construction letting. This section contains information regarding the final design process.

RESPONSIBILITIES: Incorporation of design elements into the final design is the responsibility of the designer. The project manager is responsible for assuring this occurs.

REQUEST FOR PAVEMENT DESIGN: The responsibility for designing the pavement depends on the average daily traffic (ADT), percentage of trucks, and equivalent single axle loads (ESALs). A pavement design submittal folder shall be submitted after a selected alternative has been chosen. For more information on pavement design see **HD-1000** of this manual.

ROADWAY SIGN DESIGN: On projects that require signing plans, the roadway designer should coordinate with the Roadway Sign Design Function before right-of-way plans are submitted to coordinate with utilities and ensure there is adequate space provided for the signs. Signing plans shall be completed to a conceptual stage in time for delivery to the project team prior to the joint inspection in order that right-of-way and utility needs may be accommodated. Conflicts between roadway design elements and the placing of the signs also need to be addressed. The roadway designer should again coordinate with the roadway sign plans before the project letting date so that the signing plans will be completed in time. For more information on signing, see **HD-1200** of this manual.

CONT.

SOIL & SUBSURFACE EXPLORATION:

Recommendations from the geotechnical report will be used in the final design. (More information on the geotechnical report is described above in the geotechnical overview.) Further geotechnical information may be needed during final design for structural design elements.

SUBSURFACE UTILITY INFORMATION:

Complete and concise locations of existing utilities shall be obtained early in the design process. If during the design process it becomes apparent that roadway construction may conflict with underground utilities, a more accurate location of the utility can be requested. The project team shall determine the quality level of utility locations that are appropriate for the various stages of project development.

For more information on subsurface utility location, see **HD-303**.

ROADSIDE SAFETY DESIGN:

Roadside safety design is a very important component of the total highway design and should be thoroughly considered during the design process. The goal of roadside safety design is to create a "forgiving roadside," which allows for errant vehicles leaving the roadway and supports a roadside design where serious consequences are reduced.

For more information on roadside safety design, see **HD-800**.

INTERSECTION DESIGN & SIGNAL PLANS:

The designer should use the traffic capacity analysis, site data, and crash data to prepare studies of alternative configurations/alignments for the intersecting roadways. The intersection's configuration decision and potential use of traffic control devices should be discussed and decided by the project team on an intersection-by-intersection basis.

The project manager is ultimately responsible for making sure the appropriate traffic plans are identified and included in the total plan set. In order to facilitate this process, the project manager should notify the district traffic engineer of project team meetings and inspections as early in the process as feasible.

When the project team identifies locations that might require signal, signing, and/or lighting plans, the district traffic engineer should notify central office Traffic in writing and provide appropriate supporting information.

For more information on intersection design and signal plans, see **HD-900**.

CONT.

RAILROAD COORDINATION: Coordination with railroad companies must be done when highway improvements encroach upon railroad facilities. The central office railroad coordinator should be contacted as soon as possible, but no later than the selection of the preferred alternative, in order to facilitate the necessary approvals and identify what additional considerations should be made concerning the potential impacts of the highway on their facilities. The project manager should also ensure that the Preconstruction Project Database documents the need for railroad involvement. This is typically done by adding "Railroad Involvement" in the project concerns area.

For more information on railroad coordination, see **HD-1400**.

ACCESS MANAGEMENT: Access management includes several principles and techniques that are designed to increase the capacity of roads, manage congestion, and reduce crashes. Since these are goals in the planning and design of new roads and the reconstruction of existing roads, designers should incorporate access management techniques into project designs.

For more information on access management, see **HD-1100**.

PEDESTRIAN FACILITIES/BIKE FACILITIES: The project development team (PDT) may need to consider incorporating pedestrian facilities or bicycle facilities in the project. For guidance on where and when to include pedestrian facilities/bicycle facilities in roadway projects, see **HD-1500**.

MAINTENANCE OF TRAFFIC: The project team should consider and discuss traffic control procedures at the preliminary line and grade inspection and address them in the inspection report. The designer should design a detailed suggested sequence of construction for presentation and review at the joint inspection. Maintenance-of-traffic schemes should be developed and placed as drawings and notes on traffic control sheets within the plans. If limited notes are required, place these notes on the General Notes sheet for the project. The maintenance-of-traffic plan is to be developed using the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* as a basis. Write only those requirements not provided in the *Standard Specifications* for maintaining and controlling traffic into the maintenance-of-traffic plan.

CONT.

MAINTENANCE OF TRAFFIC (cont.):

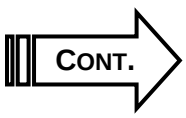
The maintenance-of-traffic plan will clearly indicate all required phasing, method of traffic control, and any time or construction limitations on the contractor. Give attention to developing strategies that will limit impact to the traveling public. As much as possible, maintain the existing number of lanes throughout a construction project, particularly on the interstates and other major routes. Where it is determined that lane restrictions are necessary, consider options that limit closures. Some considerations for these decisions will include restricting work during peak periods of traffic flow on the route and the use of nighttime construction. The maintenance-of-traffic plan should also take into account other adjacent roadway sections that may be under construction and avoid conflict between competing phases of adjacent projects. Approval of the maintenance-of-traffic plans is the responsibility of the project team. The project team will agree upon appropriate documentation for each maintenance-of-traffic plan, but this documentation, at a minimum, should consist of the signatures of the district branch managers for Preconstruction, Construction, and Traffic (and FHWA on interstate projects). This documentation should be placed in the project file within the district, with a copy to the location engineer.

The designer should read the *Standard Specifications* to become familiar with the requirements for each bid item. Section 112 of the *Standard Specifications* specifically involves maintenance-of-traffic issues. Bid temporary or permanent signs required for a project on a square-foot basis. This includes those signs shown routinely in the *Standard Drawings.*

The project team is responsible for developing all permanent and temporary striping plans, including the use of pavement markers if required for the project. For more information on pavement markings, see **HD-1201**. Other traffic control devices, such as message boards and flashing arrows, must also be identified and bid in adequate numbers for each project.

Diversion Geometric Design - On-site diversions should desirably be constructed to the standards, design speed, and pavement widths that are present on the existing facility. Where this is not feasible, the appropriate speed warning signs should be included in the traffic control plan.

Detours – Plans for detours involving road closures should consider the length of the detour route, condition of the detour route, weight limits of structures, and costs of conditioning and maintaining the detour route. A detour map will be included in the plans showing the detour route(s) and the signs necessary. The project team will decide who will be responsible for posting the project's detour signs.



MAINTENANCE OF TRAFFIC (cont.):

Maintaining Traffic – On projects where plans for maintaining through traffic and detailed detour plans are not provided, the following note applies:

> All main line diversions and specified cross roads constructed to maintain through traffic that are to be used for a period of seven days or more shall be paved as directed by the engineer. Pay the paving at the contract unit prices for the respective materials used. Diversions constructed as a convenience to the contractor that are to be used for a period of seven days or greater shall be paved also; however, the contractor shall bear the total cost.

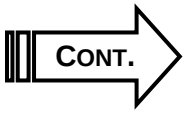
Maintenance-of-Traffic Bid Items - All projects shall include a bid item for "Maintain and Control Traffic." The unit shall be lump sum. Bid all traffic control items in accordance with the *Standard Specifications for Road and Bridge Construction,* current edition.

All roadway projects that contain a diversion in the plans shall also include a bid item for "Diversions." The lump-sum bid shall include all necessary grading, culverts, and bridges to construct the diversion and shall include removal. Compute earthwork for all diversions shown on the plans and note quantities of excavation and embankment on the plans for the contractor's information only. These quantities shall not be included in the pay items for earthwork. Note the opening for drainage structures in square feet for the contractor's information. Please refer to the *Drainage Manual* for the proper sizing of drainage structures for a diversion.

As traffic control plans become more extensive and complex, separate pay items shall be required. These pay items apply to traffic signals, stationary signs, flashing arrows, temporary barrier walls, temporary guardrail, temporary crash cushions, temporary pavement markers, and temporary removable striping tape. The designer should also consider bid items needed for relocating the above features when detailed on the maintenance-of-traffic plans. Other pay items may include variable message signs and any other special or unusually expensive items peculiar to the project, in addition to the "Maintain and Control Traffic" item. Bid all traffic control items in accordance with the *Standard Specifications for Road and Bridge Construction,* current edition.

INNOVATIVE BID PROCESSES:

The designer should carefully consider the impacts of construction on motorists. Innovative bid processes are recommended to be used only when the public will experience extreme disruption and delays or when the time of completion of a project or an individual phase is particularly critical. Should the designer choose to use this methodology, a well-developed maintenance-of-traffic plan with all phases well thought out and developed is mandatory. Base the rates applicable in each of the following described processes on established practices for benefit/cost ratios based on road user delay costs. The Division of Planning may help in the development of these ratios.



INNOVATIVE BID PROCESSES (cont.):

Incentive/Disincentive - To charge liquidated damages against all project completion dates is common. Liquidated damages may also be charged in excess of rates established in the *Standard Specifications* when deemed appropriate and when the expected impacts to the public may be considered to be greater than the damages established by specification. Liquidated damages may also be charged against individual phases of a contract, particularly when the phase is deemed to be particularly critical to the operation of the highway or for the safety of the motoring public. However, the use of incentives/disincentives described below is probably a more effective method to handle the impacts of individual phases.

Incentive/disincentives should be considered on projects having high traffic volumes and involving construction requirements that will greatly restrict or even shift traffic away from the existing facility. The incentive/disincentive contract compensates a contractor the same per day for early completion of a contract or phase as penalizing the contractor for late completion. If a decision is made to apply a different incentive and disincentive cost, the incentive rate shall not be greater than the disincentive. Base the amount applied for the incentive/disincentive on estimates of such items as traffic safety, traffic maintenance, and road-user delay costs. Generally apply incentive/disincentives only to work that directly affects motorists; therefore, this frequently does not replace normal contractual liquidated damages. The incentive/disincentive provision should be of an adequate amount to motivate a contractor to complete the project or phase ahead of schedule.

In considering the use of incentives/disincentives or any of the other innovative practices that follow, the designer must assure that the work zone will be free of delays that will be beyond the contractor's control, e.g., utility work. The use of incentive/disincentive contracts should be based on a calendar day completion or a fixed completion date rather than a workday completion. Therefore, the proposal must address or waive any contractual language that suggests a conflict with the times established for the incentive/disincentive. This includes the end of construction seasons or other seasonal construction limitations and impacts by holidays. Incentive/disincentive contracts should take into account a contractor working beyond a normal 40-hour work week to accomplish the work.

Another consideration the project team should discuss is how the construction engineering and inspection (CEI) will be accomplished. The project team should work with the Division of Construction for workload scheduling. There will be occasions when the Cabinet may determine to contract out this service.

CONT.

INNOVATIVE BID PROCESSES (cont.):

Cost Plus Time Bidding (A+B Bidding) - Cost plus time bidding is utilized where it is desired for the contractor to develop the most timely method of completing a project. Develop bidding for this type of project by the formula A+B=C.

Where A = the traditional bid for contract items and is the actual contractual amount and B = the total number of calendar days required to complete the project multiplied by a road user cost/day established by the project development team. The contract is awarded based on the total bid, C, made by the contractor. A disincentive is included in the contract. It is based on the established road-user costs and is placed in effect if the number of days bid by the contractor is exceeded. Similarly, an incentive cost is usually included in the contract to reward the contractor for completing the work earlier than the time bid. It is best to use A+B bidding for specific major phases of a contract rather than the entire contract.

Cost plus time bidding is effective when multiple bidders will be involved. If the designer determines that there is a likelihood that a single bidder will be involved for a project, it is more appropriate that one of the other two described innovative bidding processes be utilized for that project.

Lane Rental - The lane rental concept is used to encourage contractors to minimize road-user impacts during construction, while permitting them the greatest flexibility in deciding the appropriate time frames for lane closures and restrictions. In this concept, there is no specific bid item for lane rental. Rather, base the award of the project solely on the contractor's estimated bid price. However, a provision for a lane rental fee assessment based on a road-user cost is included in the contract and is assessed against the contractor's contract on his monthly contract payments. Assess the fee for the time that the contractor occupies or obstructs any part of the roadway. The fee may be specific to certain segments of the contract.

The designer may base rental fees on weekly, daily, hourly, or even fractions-of-an-hour rates. Also, consider the lengths of lane closures. Greater fees may be charged for certain times when traffic may be greater; e.g., during rush hours when hourly rates are bid or during holidays when a daily rate is bid. The designer may still make restrictions on lane closures for special events or holidays. Generally, the Department should limit the restrictions placed on the contractor and leave the decision of the best periods for his or her actions within the contractor's judgment. Obviously, critical path method scheduling of this type of an operation is essential for the contractor to assure the economic impact to his or her contract and for the Department's complete understanding of the schedule on which the contractor will complete the work. Neither the Department nor the contractor will give any indication in the project bid as to the anticipated time for which assessments may occur.

CONT.

INNOVATIVE BID PROCESSES (cont.):

Consider lane rentals on projects that greatly affect the traveling public. Major urban projects are prime candidates. The intent of lane rentals is to encourage contractors to schedule their work to keep lane restrictions to a minimum, both in terms of duration and the number of closures or other obstructions that occur. Lane rentals also encourage lane closures at low-volume times.

Consider pre-bid conferences whenever using innovative bidding methods. This allows the contractor to understand the established restrictions, the time frames involved in the overall project, and specific phases that require extra control and effort.

Construction Practices - The Transportation Research Board completed a series of studies that measured the actual flow of traffic in work zones. The following chart is an indication of expected impacts to traffic flow when lane reductions occur:

NUMBER OF NORMAL LANES	NUMBER OF OPEN LANES	AVERAGE VPH	CAPACITY (PCPHPL)
2	1	1340	1340
3	2	2980	1490
3	1	1170	1170
4	3	4560	1520
4	2	2960	1480
5	2	2740	1370

The average capacities shown are for the expected total traffic on the open lanes in the construction zone and the traffic per vehicle lane. As shown in these charts and as should be expected, the more merging that is required in a construction zone, the less traffic can pass through the work area. Use these numbers for a rough prediction of encountering expected delays because of lane closures. Obviously, having the presence of ramps within the construction zone increases the impact to the traffic flow.

The impact to traffic occurs at the merge point. As traffic flows into the reduced lanes, traffic counts as shown above may be expected. Length of closure has no impact on the amount of traffic that can pass any roadway segment, as the reduced lanes control the number of vehicles that may pass. However, avoid lengthy lane closures, particularly if no apparent work is visible to the motorist, because they are frustrating to travelers. Establish lengths of closures based on a reasonable period to accomplish work activities.

CONT.

INNOVATIVE BID PROCESSES (cont.):

As discussed previously, lane rentals based on a per-mile basis of closure may be an effective method to permit the contractor the maximum closure he or she deems feasible in an established period. The designer may consider complete closures of roadways or ramps to finish construction in the shortest periods possible where alternate routes exist. Another consideration would be to permit closures on only one side of the highway at a time. The appearance of work occurring on one side while the other side is restricted with little activity may be discouraging to the motorist.

Use two-lane, two-way operation (TLTWO) on one roadway of a normally divided highway only after careful consideration of other available methods of traffic control. The PDT should consider the use of median barrier wall for positive separation of traffic on TLTWO. Generally, a TLTWO should be used on urban-type streets or other low-speed operations and where the driver can see the transition back to normal one-way operations. There may still be some reason the project development team may choose using TLTWO in circumstances other than those cited without the use of barrier wall. In these cases, separate the lanes by tubular markers and pay for in accordance to guidance found in the *Standard Specifications*.

Traffic References - The designer is referred to the *Traffic Control through Highway and Street Work Zones Manual*, the *Standard Drawings Manual,* and the *Manual on Uniform Traffic Control Devices*.

DETERMINATION OF EXCESS EXCAVATION AREAS:

Recent experiences by construction contractors in acquiring permanent excess excavation sites, and corresponding permits required by the U.S. Corps of Engineers, demand that attention be given to the volume of materials generated from the project and the final disposition of those materials. The balance of excavation and embankment within economic limits should be considered in conjunction with all alternate alignments and grades studied. Opportunities to correct any imbalances should also be examined during the final plan reviews.

CONT.

DETERMINATION OF EXCESS EXCAVATION AREAS (cont.):

Beneficial utilization of excess excavation material within or adjacent to the right of way is almost limitless. On projects where earthwork distribution indicates excess excavation material will be generated by the project, consideration should first be given to further adjustment of horizontal alignments, vertical grades, and road geometrics to achieve a balanced distribution. Special attention should be given to areas where elimination of guardrail through use of such techniques as flattening of slopes or creation of false cuts may enhance safety. There may be opportunities to adjust the alignment to improve horizontal sight distance, by moving into more of a fill situation or less of a cut. Vertical sight distances may be improved beyond minimum standards by flattening or alternatively raising grades to reduce or lengthen vertical curves, which may subsequently reduce or increase excavation (as the need may be) to meet embankment requirements. Areas for filling between the proposed roadway and existing roads should be explored for opportunities to eliminate hazards or drainage structures, reduce flooding in the area, or enhance overall drainage characteristics. Filling of depressions or depressed properties adjacent to the roadway may enhance drainage and also facilitate utility relocations. Local governments and public agencies may have economically accessible property to fill.

At the earliest stage of project development, the project team should assess earthwork distribution and determine the best method for handling any excess excavation. Due to the economic and time issues involved, this must be part of the decision-making process during the Phase I development and documentation. If it is determined that off-site permanent storage of excess material will be necessary, a sufficient number of reasonably located and economically accessible potential storage sites to accommodate the volume of excess material should be identified and presented to the project team. A determination should then be made by the project team to (a) designate all or part of the fills as part of the plans, or (b) allow the contractor to provide his or her own fill sites. That determination must be based upon an economic benefit to construction of the highway and be supported by an analysis that economically justifies selection of the particular identified fill areas.

Whether or not fill sites are included in the plans, permits required under Section 404 of the Clean Water Act should be obtained from the U.S. Corps of Engineers during project development for all of the identified sites. Corps of Engineers permit applications, including necessary plans, environmental baselines, and other data, should be prepared and ready for submission to the appropriate Corps of Engineers district at the time of right-of-way plan submission to the central office. A permit can be obtained whether or not we intend to purchase the property.

CONT.

DETERMINATION OF EXCESS EXCAVATION AREAS (cont.):

If the earthwork distribution and economic assessments indicate sufficient available fill areas, containing adequate storage space, that would allow the contractor flexibility and have a positive effect upon the project bidding, the preferred choice should be to not designate off-site permanent storage areas in the plans. However, the potential sites should be permitted, and identified accordingly in the plans, but it should be left to the discretion of the contractor to dispose of the excess material in accordance with the Department's *Standard Specifications for Road and Bridge Construction.* If the contractor chooses not to use the permitted sites, he or she will be responsible for obtaining the necessary permits and for completing the project within the specified contract completion time.

If an adequate number of storage areas are not available that would prevent an individual property owner or bidder from adversely affecting the project cost, or otherwise control the bidding process, the project team should consider including the disposal sites in the plans. The plans will include details showing the original and final configuration of the fill area, any site preparatory work such as benching, and both surface and subsurface drainage. Designated disposal sites may be:

- Acquired in fee simple - Excess excavation disposal sites that will be enhanced by construction of the fill should be purchased in fee simple and constructed in an engineered, controlled manner. Material placed in disposal sites that are selected for development should be:

  - Constructed with stabilization methods to reduce significant differential settlement
  - Graded and compacted to facilitate the future development
  - Contoured to minimize water runoff and erosion

  In accordance with KRS 176.050 for disposal sites that will provide at least four acres of land and has the potential to be developed into an industrial site, the Department shall consult with legislative bodies affected by the road construction project and solicit local government officials' preference of sites for such development.

- Acquired as a temporary easement - Disposal sites that have geological accessibility or physical characteristics that may severely limit or preclude enhancement of the property upon construction of the fill should be acquired as a construction easement. Upon completion of the project and expiration of the easement term, control of the property will revert to the landowner.

CONT.

DRAINAGE INSPECTIONS & PRELIMINARY DRAINAGE FOLDERS:

The purpose of the drainage folder is to support the development of plans and to serve as a diary of the drainage design process for a highway project. The folder must contain the basis of the total proposed drainage plan for the project. The Transportation Cabinet's policies, specifications, and standards must be reflected through the most economical and hydraulically feasible alternatives for a proposed drainage plan presented in the drainage folder. Each project is to have a drainage inspection. This inspection may be included along with the joint inspection or may be held separately. The minutes of the drainage inspection may be included in the joint inspection report.

Drainage folders are required for all drainage structures constructed on a project. This includes any structure that is used to transport water directly through or to delay the flow of water into or away from the highway system, and extensions to existing structures or improvement of those structures or drainage systems.

Any item related to a proposed drainage plan on any highway project for which the Division of Highway Design has responsibility is to be coordinated through the central office Drainage Section for approval. This coordination takes the form of the submittal of a drainage folder. Details as to the content of a drainage folder may be found in **Chapter 3** of the Division of Highway Design's *Drainage Manual*. Also, **Exhibit 200-18** shows the drainage review process.

Types of Folders: There are two Division of Highway Design drainage folders: the preliminary drainage folder and the final drainage folder. A third folder, the advance situation folder, is primarily a Division of Structural Design document. See the *Division of Bridge Design Guidance Manual,* **Chapter 66-02,** for the requirements of the advance situation folder.

The preliminary drainage folder will be reviewed to ensure that the proposed drainage plan is consistent with current procedures, accepted methodologies, policies, standards, and specifications.

Transmitting Preliminary Drainage Folders: Two preliminary drainage folders should be assembled at the district or, in the case of consultants, will be submitted to the district prior to the joint/drainage inspection. Typically, preliminary drainage folders are not required unless the drainage features for the project include bridges, bridge-sized culverts, storm sewers, major channel changes, etc.

CONT.

DRAINAGE INSPECTIONS & PRELIMINARY DRAINAGE FOLDERS (cont.): The district shall review the folders, retain one copy, and transmit the other to the Drainage Section for review. This allows the drainage engineer ample opportunity to review the folder and coordinate the scheduling of the drainage inspection with all parties. Early submission of the preliminary drainage folder for uncontroversial minor-impact projects also affords the drainage engineer the opportunity to conduct the drainage inspection with the joint inspection for these project types. A set of plans through the pipe sheets should accompany all drainage folder submissions to the Drainage Section. The transmittal may include a request for a drainage inspection. The project manager will set a date for the inspection. Consultant firms shall send all folders to the district office for review and signature.

Any folder arriving at the central office that is not endorsed at the district level may be returned to the sender as incomplete.

EROSION CONTROL PLAN: The erosion control plan (ECP) is an essential component of the plan development process required by the Kentucky Point Discharge Elimination System (KPDES). Site-specific erosion control plans for any particular phase of construction is usually an educated guess by the designer. The contractor and the resident engineer are in the best position to generate effective erosion control plans as the job progresses. Changes, revisions, and additions are needed in order to improve the erosion control plan development process to achieve the best management practices (BMP) plan.

The KPDES permit states that the BMP shall include any requirements that have been approved by the local storm water programs. The project manager shall advise the design engineer of this requirement and, upon completion of the ECP, verify that the appropriate local agency is in agreement with the plan. See the following web address for a list of appropriate local agencies:

www.kytc.state.ky.us/EnvAnalysis/Stormwaterquality/local_prog_links.htm

When developing an erosion control plan, the designer should use the following process:

CONT.

EROSION CONTROL PLAN (cont.):

- Silt traps are not to be shown on the ECP with some exceptions mentioned below.

- The ECP provided by the designer shall show a required volume to contain sediment prior to discharging onto each adjacent downstream property owner. The required volume and the maximum disturbed acreage in that watershed used to compute the volume shall be shown at the point of containment. The disturbed area is bounded by the clearing and grubbing limits and shall be computed by the designer as the area between the proposed right-of-way limits. Deductions for undisturbed areas may be applied. Any additional areas disturbed during construction must be measured and added to the original amount.

- The required volume shall be computed based on 3,600 cubic feet per disturbed acre as required by the KPDES permit.

- A silt trap shall be sized to accommodate the required volume at the point of containment prior to discharge into a stream. Multiple structures may be used to accommodate the total volume requirement. Easements shall be shown as needed to contain all silt control structures. It is recommended that the designer include a sufficient number of silt traps to eliminate or minimize the need for additional right of way.

- Per KPDES requirements, a sedimentation basin is recommended, if possible, when the contributing disturbed drainage area is at least 10 acres. A sedimentation basin shall be designed in accordance with current standard engineering practices. Detailed site plans shall be added to the plan set, which shall include a sedimentation basin detail sheet. Refer to the *Drainage Guidance Manual,* **Chapter 10,** "Erosion Control," for a discussion of the requirements for the design of a sedimentation basin.

- The designer shall include in the plans an estimate of the number of Silt Traps A, B, and C required for the job. The actual number will be determined during construction by the contractor with approval of the engineer. A spreadsheet tool has been placed on the Division of Highway Design's homepage to assist in the calculation of volumes upstream of silt traps placed in roadway ditches or similar situations.

- The designer shall show erosion control features, methods, or practices that are deemed critical in the development of the best management practices on the erosion control plans.

CONT.

EROSION CONTROL PLAN (cont.):

- As the job progresses during construction, the erosion control plan shall be modified to reflect specific construction activities or phases. Additional silt control structures may be added or removed as are necessary to accommodate the required volume.

- The required volume calculation for silt control structure shall be determined by the contractor and approved by the engineer. To achieve the BMP, the required volume as shown on the ECP may be reduced by the following amounts:

  - Areas not disturbed (acres)

  - Areas that have been reclaimed and protected by erosion control blanket or other ground protection material (acres).

  - Areas that have been protected by silt fence (acres). Areas protected by silt fence shall be computed at the rate of 100 sq. ft./linear ft. of silt fence.

  - Areas that have been protected by silt traps (acres).

- Temporary erosion control ditches are not to be shown on the ECP by the designer unless they are deemed essential to the project. These ditches will be added to the plans during construction as needed for each phase of construction.

- Permanent ditches shall be shown on the ECP by the designer.

- The CADD standards include a line style for blue-line streams. The designer shall use this line style to depict all blue-line streams on the project in the ECP.

INITIAL/ULTIMATE DESIGN PLANS: Some projects contain a geometric design typical section calling for two-lane initial and four-lane ultimate construction.

1. Establish centerline and grade to fit both initial and ultimate construction and to ensure a symmetrical median and conformity to superelevation.

2. Show initial and ultimate construction using solid and broken lines for all drainage, structures, special detail sheets, and cross section templates.

3. Construction notes, quantities, earthwork distribution, and general summary are for initial construction only.

CONT.

INITIAL/ULTIMATE DESIGN PLANS (cont.):

4. Show disturbance limits for initial construction; however, must determine the outside limits for ultimate construction and show for right-of-way determination.

5. Right-of-way acquisition and utility relocation, if necessary, shall be for ultimate construction.

FINAL INSPECTIONS:

All projects shall have a final inspection. The project manager may combine some conceptual design meetings with the final inspections (e.g., bridge replacement projects). Leave the appearance of a set of plans to the designer except in matters that may have an impact on the contractor's ultimate bid on the project. All roadway earthwork calculations should be directly shown on the project cross sections. A full set of inspection prints will be submitted to the district design office (and partial sets as required) one to two weeks before the inspection date. Additional full sets may be required if determined necessary by the project manager. One full set of inspection prints is also required for the FHWA and the city or county, when those agencies are involved. The project development team will conduct final inspections on signing and lighting plans if required. This inspection may be included with the final inspection if these plans are essentially complete. A construction cost estimate shall be included with the inspection prints.

Final Inspection Report - The final inspection report shall document the comments of all members of the final inspection party. The report will document the maintenance-of-traffic methodology and any specific comments made about that plan. In addition, the report will provide a complete list of all box culverts and bridges, a cost estimate comparing the current estimate to the Six-Year Highway Plan, recommendations for any roads to be conveyed to local jurisdictions, any noted environmental effects that might be different from those previously identified, and any recommendations for traffic devices that are not currently existing.

Show the estimates required for inclusion in the inspection reports as follows:

	Current Project Estimate	***Six-Year Highway Plan Budget***
Right-of-Way	_____	_____
Utility	_____	_____
Construction	_____	_____
Engineering & Contingency (10% of Construction)	_____	_____
Total	_____	_____

CONT.

FINAL INSPECTIONS (cont.):

For projects less than $1 million construction, add 15 percent engineering and contingency. The *State Highway Engineer Guidance Manual* establishes the policy for project authorization overrun and modifications to project authorization.

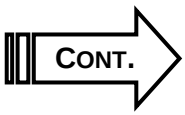
At the final inspection stage, the project development team discusses construction time and documents it as part of the report. The project development team will be responsible for setting the number of construction workdays and/or completion dates for all projects. The project manager is required to submit the construction time as part of the submission of final plans. If using construction days, a printout of the workday calculation shall accompany the submission. The project manager should have the recommended construction time approved by the district construction member of the project development team and of other team members as deemed appropriate.

Also, provide an attachment to the final inspection report that addresses avoidance, minimization, and mitigation. This attachment shall be entitled "Assessment of Water-Related Impacts" and must incorporate the "Avoidance Alternatives to Water-Related Impacts" report prepared with the design executive summary.

Drainage Inspection - The final inspection and the drainage inspection are usually held at the same meeting. The person(s) responsible for writing the final inspection report shall also be responsible for writing the drainage inspection report. The drainage report will preferably be directly included as part of the final inspection report, with drainage comments following final inspection comments. Address all drainage in the report. Those individuals responsible for the review of the drainage, both in the district office and in the central office, shall review and provide necessary comments to the inspection. Review and approval of non-major structures (< 54 inches) shall be the responsibility of the district drainage engineer. It shall be the responsibility of the project manager to see that the central office drainage engineer's endorsement of the comments is included with the report.

To expedite the scour review of proposed bridges, commence the sounding layout after reviewing the bridge location and span arrangement. Document this review in the drainage inspection report. This report will contain the recommended location, span arrangement, abutment type, and the sounding layout for the piers and abutments.

When the drainage inspection is held at a different time than the final inspection or when otherwise deemed appropriate by the project manager, a separate drainage inspection report may be written.



FINAL INSPECTIONS (cont.):

Right-of-Way Plan Inspection – Due to time constraints involving the acquisition of right-of-way parcels, the PDT may decide to conduct the right-of-way inspection months prior to the final inspection. A right-of-way inspection is not routinely part of the majority of projects and should be utilized only at the discretion of the project manager to expedite the right-of-way process, i.e., aiding project authorization, initiating total takes, or to accomplish some advance acquisition of properties.

The difference between a right-of-way inspection and a final inspection is that the final plan design is not as complete. This should be the exception on the majority of our projects. A final inspection is still required on these projects at a later date.

Submittal of Inspection Reports- The consultant or district design engineer prepares the report and sends it to the project manager. The project manager sends it registered in electronic format to all inspection team members for comment and/or endorsement. The minutes should be sent out within 10 working days after the meeting or inspection. Comments should be returned to the project manager within 10 more working days. The project manager will then work with the consultant or designer to finalize the report. Failure to provide comment will constitute an approval of the document. If more time is required because of conflicts, need for decisions, or other factors, the individual shall advise of the need for additional time and the date that a response may be expected. The project manager decides whether to grant the time extension. Document the time delay in the report and in the consultant's monthly report, if applicable. Incorporate the comments from the inspection team into the inspection report and redistribute it to the inspection team. Expect no further approval or comments for this report at this time unless the report clearly documents the need for further studies, recommendations, or approvals. In addition to the project development team members, copies of the inspection report shall be sent to other involved divisions such as Structural Design, Environmental Analysis, or Traffic that may not be directly represented on the team. These copies are for information only unless the project development team requests specific direction. On federally funded projects not under certification acceptance, submittal to the FHWA is required for their comments before distribution.

CONT.

ENVIRONMENTAL IMPACT CHECKLIST:

The applicable environmental impact checklist, TC 61-200 and TC 61-201 **(Exhibit 200-19)** or TC 61-202 **(Exhibit 200-20),** will be submitted with right-of-way plans and final plans submission of federally funded projects. Forward the checklist directly to the director of the Division of Environmental Analysis in both cases. Send copies of the checklist to the central office location engineer and the central office programming staff. Also, send a copy to the director of the Division of Right of Way and Utilities with the right-of-way plan submission. Desirably send the checklist 30 days before the actual right-of-way plan submittal to allow review time in advance of the actual demand for the federal funding.

This submission schedule in no way relieves the project development team from recognizing significant project changes during earlier project stages, such as inspections, that may have an impact on the environmental process. The project development team must have an awareness of the environmentally sensitive issues on each project and must notify the Division of Environmental Analysis immediately of any significant changes or awareness of any previously unidentified environmental issues. Early identification of environmental issues will allow lead time to address the concerns and will avoid delays in obtaining funding that may occur later if the issues are not yet resolved. In all cases, the reviewer's name and date of review shall appear in the upper right-hand corner of the form. Attach these forms to the submittal of right-of-way plans and final plans.

SUBMISSION OF RIGHT-OF-WAY PLANS:

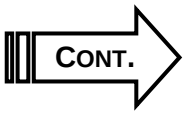
Right-of-way plans shall be submitted after a final inspection. At the time of submission, the final design needs to be complete enough to ensure that adequate right of way or easements are available for side slopes, drainage structures, signs, etc.

See **HD-1305** and **HD-1306** for more information on right-of-way submittal.

UTILITY RELOCATION COORDINATION:

The relocation of existing utilities is a primary concern during project development. Complete and concise locations of existing utilities shall be obtained early in the design process.

See **HD-303** for more information about locating underground utilities.



UTILITY RELOCATION COORDINATOR (cont.):

At any stage of design, the utility companies should be an integral part of the design process and should be invited to key meetings to be advised of and consulted about impacts the roadway will have on their facilities. The project manager should utilize the district utility section to coordinate with the utility companies. Invitations to utility companies should be extended for public involvement meetings as well, to afford the companies the opportunity to supply input. The choice of alternatives for the proposed roadway should reflect this information in an effort to first avoid the utility conflict, secondarily minimize the effect, and thirdly mitigate the conflict.

REQUEST FOR PERMITS:

Permits are always required for state and federally funded projects that involve the waters of the United States (lakes, rivers, streams, or wetlands) in the Commonwealth of Kentucky. As early in the project process as practical, the project team should identify the types of resources impacted. Once the project team determines what permit type may be required for the project alternatives, the Division of Environmental Analysis (DEA) shall be notified. Notification should occur during the range-of-alternatives analysis. When right-of-way plans are submitted (or before), the project manager will provide DEA a copy of the plans, drainage folder, and permit drawings. Once a permit is approved, DEA will notify the project manager, PS&E, and the district office. For more information on permits, see **Chapter 500** of this manual.

ADVANCE & FINAL DRAINAGE FOLDER:

The final drainage folder shall reflect the recommendations of the review process and become the record document for the project drainage plan. It shall contain all required information to support the selection of drainage items proposed on the plans. Where variations of current practices and standards are incorporated into the drainage plan, those variations shall be fully documented in the final drainage folder.

Two copies of the advance situation folder are typically submitted to the district prior to the delivery of the right-of-way plans. This folder should not be submitted until the drainage inspection report is approved. This report will be issued after the formal drainage inspection or review is conducted. When the district has determined the folders to be acceptable, a copy of the folder is to be routed to the central office Drainage Section for review. The central office Drainage Section will complete their review and return the copy of the advance folder to the district with comments, if applicable. After the advance folder has been deemed acceptable by the district, both copies are to be endorsed and routed to the Division of Structural Design. The project manager should secure Central Office Drainage approval of the advance folder before sending it to the Division of Structural Design.

CONT.

ADVANCE & FINAL DRAINAGE FOLDER (cont.):

The advance folder is considered the "order form" from the project manager to the Division of Structural Design to begin structure design. The final drainage folder shall be assembled by or submitted to the district prior to the submittal of final plans. The final folder should have district office approval and signatures prior to its arrival in the Drainage Section. When the district has determined the folder to be acceptable, the original final folder shall be endorsed and routed to the Drainage Section. The district should retain the copy until the project is constructed.

For further information, please consult **Chapter 3** of the *Drainage Guidance Manual* and **Exhibit 200-18** on the drainage review process.

REVIEW OF STRUCTURE PLANS:

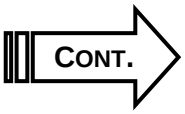
In an effort to facilitate structure review, the Division of Structural Design produces a structure plan file to help communicate the design features of all bridges and culverts being designed in-house. This file is made available to the project manager and project team members, which allows coordination of the proposed structure with the project while the final detailing of the structure progresses.

The structure plan file provides details for the proposed bridge or culvert design features in plan view. The structure design features shown will essentially be the plan view of the substructure units (e.g., footers) at their project datum coordinate location values.

Project managers are encouraged to compare this structure plan to the roadway plan to coordinate projects and ensure that structure designs do not conflict with other project details (e.g., utilities, MOT, environmental concerns, etc.).

CHECK PRINTS TO PLAN PROCESSING:

Check prints shall be submitted to the Plan Processing Section of the Division of Highway Design approximately three months before the scheduled letting date. A cost estimate and estimated completion date for the project shall also be submitted at this time. Plan processing will return the plans with corrections and comments to the designer. After the corrections are made, the designer returns the set of plans with corrections and comments along with the final plans on Mylar to plan processing. For more information, see **HD-206, "**Submittal of the Final Contract Plans."



CONSTRUCTIBILITY REVIEWS:

Constructibility reviews (CRs) are a means of understanding project elements through the eyes of construction. *Constructibility* is defined by AASHTO as "a process that utilizes construction personnel with extensive construction knowledge early in the design stages of projects to ensure that the projects are constructible, while also being cost effective, biddable, and maintainable." The designer uses sound engineering decision-making in development of the design features, while a constructibility review allows those with construction expertise to examine the decisions to provide sound advice in construction phasing, traffic control, ease of construction, environmental considerations, and construction scheduling. To obtain maximum benefits from CR, it should be initiated early in the design process and continue through design and until just before the project is let to contract. A valuable tool in CR is the utilization of lessons learned from past projects, which will reduce significantly the need for change orders during construction.

All KYTC projects will be reviewed for constructibility issues utilizing the CR process. The extent of the review will depend on the complexity of the project. The Division of Highway Design will handle oversight and support of the program, with primary oversight by the Roadway Design Engineering Branch manager and the head of the Value Engineering Section. The responsibility for ensuring that constructibility reviews are conducted in a timely fashion and for gathering of information for delivery to project teams is assigned to the location engineer in cooperation with the project manager for each project. Participation from construction personnel is essential as part of the project team throughout the life of a project, and these constructibility reviews are <u>not</u> intended to replace or supplant this participation. The CR process is simply a resource to the project team to identify issues from a constructibility standpoint. Construction's involvement from the earliest stages of a project allows recommendations at times when key decisions are made to address design issues that could be reconsidered in light of constructibility issues. Constructibility reviews will typically be conducted in a two-stage process, involving two separate constructibility reviews. An outline summary of these two reviews is below.

OUTLINE FOR CONSTRUCTIBILITY REVIEW PROCESS:

Purpose: The constructibility review process is being implemented as a means of minimizing change orders and identifying design errors and omissions before projects are let. The review is intended to contribute to the project development decision-making process at all stages of the project. Constructibility reviews are <u>not</u> intended to replace the project development team process. Participation by Construction, Traffic Operations, Geotechnical, and other disciplines is <u>essential</u>.

CONT.

REVIEW PROCESS (cont.):

I. Constructibility reviews will be done on all projects with plans. Division of Highway Design will oversee the program and provide logistical support. Options available for administering the program are the following:

A. Branch Manager for Roadway Engineering

1. Value Engineering Section
2. Plan Processing Section
3. Location engineers

B. Statewide Value Engineering Contract

1. Facilitator for constructibility review team meetings if necessary
2. Provide specialized expertise for constructibility review teams if necessary

II. Focus for the review on the following areas:

A. Determine feasibility of alternatives
B. Implement lessons learned from previewing projects
C. Identify preliminary ROW, Utilities, Railroad, and other issues on the project
D. Include and evaluate environmental issues
E. Evaluate potential waste or borrow sites
F. Evaluate traffic and highway capacity issues
G. Evaluate need for auxiliary lanes and geometrics involved

III. Constructibility reviews (CRs) will be conducted in two stages. There will be two separate constructibility reviews:

A. Constructibility Review No. 1 (CR-1): CR-1 will be conducted before right-of-way plans are finalized.

1. Objectives of CR-1

a) Consider findings of a formal VE study if conducted.
b) Provide detailed evaluation of the project design from the perspective of constructibility, ROW issues (especially easement and entrances), utilities, railroad issues, maintenance of traffic, and opportunities for innovative bidding techniques. Use Lessons Learned database from post-construction review and review of the database for design errors and omissions to identify common constructibility issues.

CONT.

OUTLINE FOR CONSTRUCTIBILITY REVIEW PROCESS (cont.):

2. Team Composition for CR-1 (for projects over $2 million)

   a) Facilitator—Location engineer
   b) Project manager
   c) Two construction subject-matter experts (SMEs)—Resident expected to oversee project and resident from different district with experience on similar type of project
   d) Traffic Operation SME
   e) Right-of-Way SME
   f) Others as needed dependent upon complexity and characteristics of project

3. Team Composition for CR-1 (for projects under $2 million):

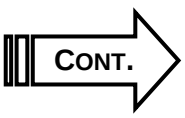
   a) Facilitator—Location engineer
   b) Project manager
   c) Two construction SMEs—Resident expected to oversee project and resident from different district with experience on similar type of project or central office construction liaison for the district
   d) Others as needed dependent upon complexity and characteristics of project

4. Location engineer will prepare a constructibility review report for distribution to the project manager

B. Constructibility Review No. 2 (CR-2): CR-2 will be conducted at the end of final design and will coincide with the submission of "check prints."

1. Objectives of CR-2:

   a) Ensure that project plans, specifications, and details are adequate for bidding.
   b) Address final issues of constructibility and maintenance of traffic.
   c) Review contract time recommendations and any recommendations for innovative contracting.
   d) Perform quality assurance check of at least one major bid item for the project. This essentially involves thoroughly checking a randomly selected major bid item for accuracy.



OUTLINE FOR CONSTRUCTIBILITY REVIEW PROCESS (cont.):

2. CR-2 Team Composition:

   a) Facilitation—Value Engineering Section or location engineer
   b) Project manager
   c) Two construction SMEs—Resident expected to oversee project and resident from different district with experience on similar type project or central office construction liaison for the district
   d) Traffic Operations SME
   e) Plan Processing Section reviewer

3. The branch manager for Roadway Engineering will designate the appropriate individual to prepare a constructibility review report for distribution to the project manager.

At all stages of constructibility reviews, the Lessons Learned database should be consulted. The section head of the Value Engineering Section of the Division of Highway Design will be responsible for assuring that information is input into the database. Information gathered from constructibility reviews will be added to this database, along with lessons learned from post-construction reviews, past VE studies, etc. Minutes of all meetings should be sent to the value engineering coordinator's office in Frankfort for inclusion in the Lessons Learned database. The Lessons Learned database is available on the Division of Highway Design's Web page, under Value Engineering.

Practices used for the constructibility review process are to be consistent in all KYTC districts. CR teams would consist primarily of construction personnel from the districts, central office (as required), and the location engineer. Other disciplines (such as Geotechnical, Pavement Design, Traffic, etc.) may be considered if desired. Construction personnel from other districts may be used as needed, depending on the relative complexity of the project. In cases of major or complex projects, the statewide value engineering consultant can be used to conduct constructibility reviews, along with district Construction personnel. The statewide VE consultant would provide personnel with extensive construction knowledge to assist the CR team. The use of a statewide VE consultant to do constructibility reviews will be at the discretion of the project team and the Division of Highway Design.

KYTC Highway Design

Chapter

ADMINISTRATIVE PROCEDURES

Subject

Miscellaneous Administrative Issues

URBAN, MUNICIPAL, COUNTY, & OTHER BOUNDARIES: When a roadway project crosses boundaries, such as county or rural-urban, funding separations may also be required. Federal project funds are separated by county or by rural-urban boundaries, with different federal project numbers when two or more are required, and by participating and nonparticipating quantities when applicable. A roadway project crossing county boundaries requires separation of state project funds only. Tie all boundary lines to the project centerline by station and bearing. Separate and summarize quantities for each section.

When FHWA declares expenditures on a federal-aid project nonparticipating, notify the Office of Program Planning and Management and the Division of Accounts. When the Department retains salvable material, federal participation decreases the cost of dismantling by the value of the salvaged materials. Transportation charges for moving of salvable material to another location for future use are a nonparticipating item.

REMOVAL ITEMS: Items that are included in the description of “Roadway Excavation” in the *Standard Specifications for Road and Bridge Construction* are not to be included as separate bid items on the plans, but noted as "Remove."

BORROW EXCAVATION: Borrow excavation is the removal of material from pits isolated from the finished cross section of the roadway and will not include any material taken from the widened roadbed, widened cut, ditches, or enlarged ditches. The specifications allow payment for borrow only on projects where the quantity of material to be obtained from designated pits is sufficient to justify the use of special equipment. The specifications may also allow payment where the estimated unit cost is materially different from the cost of roadway excavation. Generally, "Embankment-in-Place" is the preferred bid item, except in unusual circumstances.

ROCK QUANTITIES: The designer is responsible for determining the quantities of rock available from roadway excavation and that needed for rock roadbed, embankment, and channel lining class IV. Forms and procedures to follow are in the *Division of Materials Geotechnical Manual*.

CONT.

EMBANKMENT IN PLACE: "Embankment in Place" is the preferred bid item any time additional material (borrow excavation) is needed for embankment construction, including hydraulic embankments, except when unusual circumstances may dictate otherwise.

CHANNEL LINING CLASS IV: Channel lining class IV is a separate direct pay item. In addition, determine the quantity of material required by the designer and included in the quantity of "Roadway Excavation" or "Embankment in Place," as applicable.

EARTHWORK CALCULATIONS: The designer shall endeavor to provide an approximate "balanced" grade; however, some situations preclude this possibility. The pay items for earthwork are "Roadway Excavation" or "Embankment in Place" and are the design quantities. The earthwork calculations on summary sheets are to show the distribution of the various quantities for the entire project. It does not matter whether the pay item is “Roadway Excavation” or “Embankment in Place,” except when involving large quantities of rock excavation. Common excavation is the material above the rock disintegration zone (RDZ) line when one is present, or above the solid rock line when indicating no RDZ on the cross sections. Also, note on the summary sheets that the estimate for earthwork calculations is for design only. Advise the contractor that the earthwork calculations shown are for information only. Assumptions for shrinkage and swell factors are the contractor’s responsibility.

On projects requiring alternate pavement designs, earthwork quantities will be adjusted, and the appropriate pay item (“Roadway Excavation” or “Embankment in Place”) and quantity shall be shown on the paving quantities summary for each alternative rather than on the general summary.

WATER FOR DUST CONTROL: As a contract bid item, water is for the control of dust created partially or entirely by the traveling public. Water for the control of dust created entirely by the contractor or to obtain compaction is considered incidental to construction. Guidance for estimates of quantities is 500M to 2000M gallons per mile, varying with the volume and length of time.

FILLING & CAPPING: A bid item must be established for filling and capping various items such as wells, manholes, catch basins, etc. Structures under 24 inches in diameter will be itemized as "each"; the units for structures 24 inches and over will be square feet. Plot and appropriately note all such structures on the plans.

ENTRANCES: Notes on plans for the construction of entrances should include the width, type, and area in square feet, but will not contain the word *private.*

CONT.

DIVIDE OR BREAKOUT PROJECT SECTIONS: Sometimes it becomes necessary to divide or break out a project into smaller design, right-of-way, or construction sections. In such cases, the designer shall furnish a description of the revised project limits to the central office PMC, who will make the appropriate distribution.

STRUCTURES: For projects designed by consulting engineers, all structures, including bridges, box culverts, tunnel liners, retaining walls, and noise barriers, will be designed by the consultant and submitted to the Division of Structural Design for review and approval. For Department projects, the Division of Highway Design (designer) shall furnish all necessary data to the Division of Structural Design for analysis and design.

FARM UNDERPASSES & OVERPASSES: Farm underpasses and overpasses, including cattle passes to allow for the movement of farm animals from one side of a road to the other, are a right-of-way consideration. Do not show these on the plans until determined feasible by the Division of Right of Way and Utilities. To help in determining if an animal underpass is feasible, use the following general criteria:

- Place the structure in a relatively small fill area to decrease length.
- A 5-foot x 7-foot structure is the nominal size.
- Select an area that provides good drainage at a minimum cost.
- The structure should be sloped from the center out in flat areas or from one end to the other in rolling terrain to aid cleaning.
- Do not obstruct the view through the structure, and use a slope of 1:50.
- Use standard headwalls and connect fence to headwalls.
- If it is apparent that erosion or mud holes will be a problem, use aggregate stabilization at entrances and exits.

If determined to be economically feasible by the Division of Right of Way and Utilities, submit a separate situation folder for transmittal to the Division of Structural Design.

KYTC Highway Design

Chapter

ADMINISTRATIVE PROCEDURES

Subject

Preparation of Plans

OVERVIEW:

Discussed herein are the policies and procedures for the preparation of Contract Plan Sets and roadway construction plans. Procedures for dealing with the submittal of final contract plan sets are given in this chapter, at **HD-207.** Procedures for dealing with right-of-way plan submittals and revisions are given in the "Right of Way" chapter **in HD-1305** and **HD-1306.**

CONTRACT PLAN SET:

Contract plan sets are the highway plans that are awarded through the letting process. The contract plan sets are the product of the preconstruction process and comprise the roadway, structures, traffic, and/or utility relocation plans.

The *CADD Standards for Highway Plans* policy documents the required standards for all electronic files representing submittals of contract plans and proposals to the Kentucky Department of Highways (KDOH). The primary goal of these standards is to ensure the best possible use of these files in the review, publication, construction, and archive processes. The standards presented in the policy represent the minimum requirements that must be met for the development of highway plans. Refer to the *CADD Standards for Highway Plans* policy for more information: http://www.kytc.state.ky.us/CADDstandards/

SHEETS OF THE PLAN SET:

The following guidelines should be followed in the development of plans to produce legible, reproducible, and permanent documents:

- Final contract plans are to be plotted on first-generation Mylar as the record plan set (e.g., legal, binding set).
- Plan sheets prepared by either district offices or consultants should be sized to the proper dimensions (22 inches x 36 inches). Standardized sheets are available from the CADD cell library.
- No data shall be outside the inside borderline of the plan sheets.

CONT.

SHEETS OF THE PLAN SET (cont.):

All sheets shall contain a sheet information block in the upper right-hand corner showing the project item number, county, and sheet number. The full construction numbers will be required only on the front layout sheet, the first roadway plan sheet, and the first cross section sheet. The total number of sheets will be shown only on the layout sheet.

A letter designation as illustrated below will be used to denote the various sheet types of the final contract plans. The "sheet type" notation is used to label the sheet number in the sheet information block. The sheets types include the following:

Sheet Types
R – Roadway
S – Structure
T – Traffic
U – Utility Relocation
X – Roadway Cross Section

Sheet Information Blocks

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	2-101	R3

Project title blocks shall appear on the first plan sheet and the first cross section sheet. The project title blocks will show the county, state project number, and, when applicable, the federal project number. No signatures are required in these title blocks.

Project Title Blocks

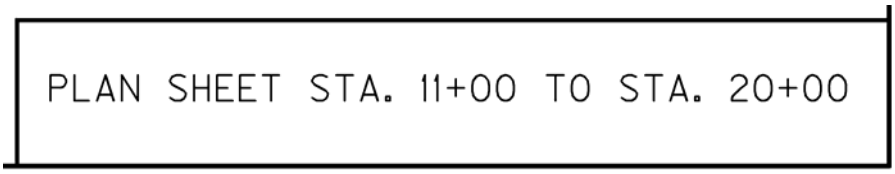
KENTUCKY
DEPARTMENT OF HIGHWAYS
COUNTY OF
HENDERSON

PROJECT NUMBERS
FD52 051 0060 022–024
STPS 5053

PLAN SHEET STA. 11+00 TO STA. 20+00

CONT.

SHEETS OF THE PLAN SET (cont.): A sheet title box in the lower right corner of all sheets of the plan set is required. The sheet title box will guide the user when sorting through the sheets. Use station ranges in the sheet title box when applicable (e.g., PLAN SHEET STA. 11+00 TO STA. 20+00)



SHEETS IN THE CONTRACT PLAN SETS: Contract plan sets should be assembled in the following order (when applicable):

ROADWAY:

1. Layout sheet
2. Right-of-way revision sheet
3. Typical sections, summaries of quantities, and general note sheet
4. Plan and profile sheets
5. Utility reference sheets
6. Right-of-way summary
7. Right-of-way strip maps
8. Detail sheets
9. Maintenance-of-traffic sheets
10. Erosion control
11. Coordinate control sheets
12. Mitigation plans
13. Soil profile sheets
14. Pipe drainage sheets

STRUCTURE

TRAFFIC

UTILITIES RELOCATIONS

ROADWAY CROSS SECTION

CONT.

SHEETS IN THE CONTRACT PLAN SETS (cont.):

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
R1	LAYOUT SHEET
R1a	RIGHT OF WAY REVISION SHEET
R2-R2J	TYPICAL SECTIONS-SUMMARY OF QUANTITIES
R3-22	PLAN AND PROFILE SHEETS
R23-R28	UTILITY REFERENCE SHEETS
R29-R32	RIGHT OF WAY SUMMARY SHEETS
R33-R37	RIGHT OF WAY STRIP MAP SHEETS
R38-R45	DETAIL SHEETS
R46-R55	TRAFFIC CONTROL SHEETS
R56-R59	EROSION CONTROL SHEETS
R60-R64	MITIGATION PLAN SHEETS
R65-R71	COORDINATE CONTROL SHEETS
R72-R74	SOIL PROFILE SHEETS
R75-R89	PIPE DRAINAGE SHEETS
S1-S15	STRUCTURE PLANS
T1-T12	TRAFFIC PLANS
U1-U20	UTILITY RELOCATION PLANS
X1-X80	CROSS SECTION SHEETS

SHEETS NOT INCLUDED IN TOTAL SHEETS
R2a-R2J

LAYOUT SHEET: The layout sheet **(Exhibit 200-21)** is the cover or title sheet for the set of plans. The layout sheet shall contain an area map, including towns and boundaries. Clearly show the project's construction and right-of-way limits with beginning and ending stations, a north arrow, and the geographic coordinates (latitude and longitude) of the approximate project midpoint to the nearest minute. The layout sheet shall include road name, federal and state route numbers, and type of work. Include a notation if the highway is listed on the National Highway System. Note the type of access control proposed for the project on the layout sheet. (See **Chapter 1100** to find the different types of access control.) When using alternate funding, show project limits by funding category. If the project is broken out into sections, show breakouts for county lines and separate project numbers. The Standard Drawings used on the project should be shown by drawing number only.

CONT.

LAYOUT SHEET (cont.):

DESIGN CRITERIA

CLASS OF HIGHWAY URBAN ARTERIAL
TYPE OF TERRAIN ROLLING
DESIGN SPEED 45 MPH
REQUIRED NPSD 325 FEET
REQUIRED PSD N/A
LEVEL OF SERVICE C
ADT PRESENT (1996) 19,500
ADT FUTURE (2020) 49,000
DHV 4200
D % 4
T % 6

GEOGRAPHIC COORDINATES

LATITUDE 38 DEGREES 16 MINUTES NORTH
LONGITUDE 85 DEGREES 37.5 MINUTES WEST

DESIGNED

% RESTRICTED SD 0%
LEVEL OF SERVICE C
MAX. DISTANCE W/O PASSING N/A

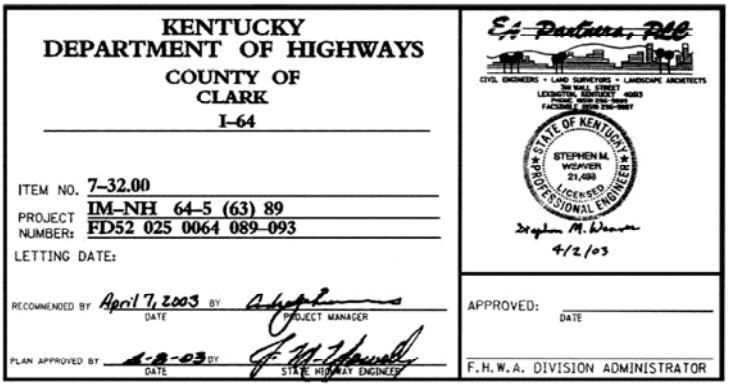
All final contract plans prepared by state forces shall bear the signature of the state highway engineer and the project manager. Final contract plans prepared by consulting engineering firms shall bear the additional signature and seal of a professional engineer (civil or highway) licensed in the Commonwealth of Kentucky.

The layout sheet is the designated location for the authorization signatures for plan sets as detailed above. Two signature lines are included in the lower right-hand corner of the layout sheet. The top line, “Recommended by,” will be for the project manager. The bottom, “Plan Approved,” will be for the state highway engineer. The block to the lower right will be used for the consultant information, which includes the firm’s name, project engineer’s signature and his/her P.E. seal, as well as a signature line for the FHWA where applicable.

CONT.

LAYOUT SHEET (cont.):

Signatures on Plans



LAYOUT SHEET
SIGNATURE BLOCK

Project Lengths - Compute project lengths in miles to three decimal places for project totals. Round to the nearest three decimal places for subsections in such a manner that the totals of the subsections will add to equal the project total.

When combining two separate federal projects into one plan, compute each federal project to three decimal places. The total for the two combined projects should be the length in miles, without regard to whether the lengths for the two separate projects add to make the exact total sum computed.

Compute lengths for state projects in a similar manner, except make the total for a summation of separate state projects equal the project total by adjusting the individual project lengths as outlined in the first paragraph above for federal projects. That is, adjust all section lengths so that they add up to the total project length, except where two or more federal projects are included in one set of plans.

Railroad Track Deductions - Use the following deductions in surfacing lengths for railroad crossings:

	Single Track (feet)	Double Track (feet)
90 degrees	8.5	22.5
30 degrees	9.8	26.0
45 degrees	12.0	31.8
60 degrees	17.0	45.0

For skews not shown above, divide the overall railroad width (8.5 feet for single track and 22.5 feet for double track) by the cosine of the skew angle.

CONT.

RIGHT-OF-WAY REVISION SHEET: When a revision occurs, a sheet is added to the right-of-way plans. This sheet is labeled "Right-of-Way Revision Sheet" and inserted directly after the layout sheet. This sheet shall be numbered as sheet number "R1a."

Each time a right-of-way revision is processed on the project, a block shall be added to the new sheet showing:

- Right-of-way revision number
- Plan revision date
- Sheets revised
- Parcels involved
- Any relevant remarks

(See **Exhibit 1300-06.)**

This sheet can be updated electronically, reprinted, and inserted into the plans each time a revision is processed, if desired.

TYPICAL SECTIONS, SUMMARIES OF QUANTITIES, & GENERAL NOTE SHEETS: The typical sections, summaries of quantities, and general note sheets follow the layout sheet in the roadway construction plans. These sheets are designated as "R2," "R2a," "R2b," "R2c," etc.

Typical Section Sheets - The basic geometric criteria for the functional classification of the roadway generally determine the typical section used on a project. The typical section sheet shows the geometric and pavement details for each project **(Exhibit 200-22).** In addition to geometrics and pavement details, the typical section sheet should show the pay limits of roadway excavation for solid rock undercut and removal of low bearing soils, utilized in the cross sections.

The typical sections sheet(s) included in the roadway construction plans shall depict the typical cross section of the mainline roadway. A normal crown and a superelevated section (if applicable) should be shown, along with a bridge typical section (if applicable). Typical sections of approach roads and entrances should also be included.

Summary Sheets – The cell libraries described in the graphic standards shall be used for general summary, pipe drainage summary, right-of-way summary, paving quantities, and paving areas. For smaller projects, combined summaries can be used. All pay items are to be shown on the general summary other than those on the pipe drainage, paving, and bridge and culvert summaries. The structure, utility, and traffic (S, U, and T) summaries should stay with their respective sets.

CONT.

TYPICAL SECTIONS, SUMMARIES OF QUANTITIES, & GENERAL NOTE SHEETS (cont.):

Bid item codes and descriptions are maintained by the Plans, Specifications, and Estimates (PS&E) Branch of the Division of Construction Procurement and should be used on all summary sheets for all bid items. The PS&E Branch assigns code numbers for special or nonrecurring items not included in the current listing after submitting the plans to the Central Office.

Summarize pipe quantities to the nearest one-foot length.

Vertical elongation of culvert pipe represents an additional cost to the supplier. Therefore, use reference notes to specify when vertical elongation is required, in accordance with current Standard Drawings.

Entrance pipe, perforated pipe, and nonperforated pipe does not require being shown by location on the drainage summary but only by quantities. Entrance pipe 36 inches or greater in diameter, which is considered culvert pipe, is to be shown by location, with the quantity listed on the summary as culvert pipe.

General Notes Sheets - At least once a year, the Plan Processing Section produces a listing of current special notes, special provisions, and general notes, and issues the list through design memorandum. The designer is to select the project applicable notes from this list and include them on the general note sheet(s).

PLAN & PROFILE SHEETS:

Plan sheets may be either a stand-alone sheet with separate profile sheets or half-plan, half-profile sheets. All graphics shall be represented according to the current version of the CADD standards.

Plan Sheets - The first plan sheet should be numbered "R3" and can contain the standard symbols (if a separate standard symbols sheet is not used). The first plan/profile sheet will show a list of utility owners (with addresses, contact persons, and phone numbers). A project title block in the lower right-hand corner is required. Show the beginning and ending stations of the project's construction and right of way on all applicable sheets. When a project begins or ends at an existing road, the station for edge of pavement of the existing road should be the beginning or ending for construction. All plan sheets will have a north arrow and should show station equations for main line and approach intersections, if applicable. The direction of centerline stationing should run in the cardinal directions from south to north and from west to east as the sheets progress. The alignment will show the centerline stationing at 100-foot intervals. An example plan sheet is shown in **Exhibit 200-23.**

CONT.

PLAN & PROFILE SHEETS (cont.): Show all points of intersection (PI), points on tangent (POT), points on spiral tangent (POST), and triangulation points. Each tangent shall have its calculated bearing shown. Show the points of curvature (PC), points of tangency (PT), tangent to spiral (TS), spiral to curve (SC), curve to spiral (CS), and spiral to tangent (ST) with the station number. Show curve data for all simple and spiral curves as follows:

SIMPLE CURVES	SPIRAL CURVES
PI Station	PI Station
Δ = Delta Angle	Δ = Delta Angle of the Combination of Circular Curve & Spiral Curves
T = Tangent Distance	Ts = Tangent Distance Spiral Curve
L = Length of Curve	Ls = Length of Spiral Curve
R = Radius of Curve	Lc = Length of Circular Curve
E = External Distance	Θs = Spiral Angle
e = Rate of Superelevation	LT = Long Tangent Spiral Curve
Runoff = Superelevation Runoff Distance	ST = Short Tangent Spiral Curve
Runout = Superelevation Runout Distance	R = Radius of Circular Curve
	Es = External Distance of the Combination of Circular & Spiral Curves
	e = Rate of Superelevation of Circular Curve
	Runoff = Superelevation Runoff Distance
	Runout = Superelevation Runout Distance

Scales - Generally, the alignment and topography on plan sheets are depicted using a scale of 1 inch = 50 feet in rural areas and urban areas of sparse topography. Urban areas of dense topography and city street projects should use a scale of 1 inch = 20 feet.

Profile Sheets - On the profiles, the existing ground line and the proposed grade line should be shown on the same horizontal scale as the plan. The ratio of the vertical scale to the horizontal scale typically is 1:10. Show ground line and grade line elevations at 50-foot intervals. The existing ground line elevations are shown to the tenth of a foot, and the proposed grade line elevations are shown to the hundredth of a foot.

Profile sheets should show proposed drainage structures with labeling for the location, type, size and skew, flood evaluation data, profile benching, perforated pipe, surface, and special ditches (along with elevations and slopes shown). In cases where pipes are located parallel to the facility, it may be necessary to provide edge of pavement or gutter line profiles as well. This will be required when indicated by the project manager. Descriptions of all cardinal control points should be shown as well. An example profile sheet is shown in **Exhibit 200-24.**

Diversion plan and profile sheets are to be included and numbered with the plan and profile sheets.

CONT.

UTILITY REFERENCE SHEETS: The utility function goal is to relocate existing utilities prior to roadway construction. Depending upon the complexity of the project and the number of utilities involved, utility reference sheets may be used to show where the proposed utilities will be located in the field when the road construction begins. The designer should refer to the *Utilities Guidance Manual* for specific procedures. Consideration should be given to the effect utility installations have on safety, aesthetics, operational characteristics of the highway, construction phasing, and cost of utility construction and maintenance. The designer should coordinate with the district's chief utility agent to assure compliance with all applicable local, state, and federal permits and regulations.

RIGHT-OF-WAY SUMMARY SHEET(S) & STRIP MAP(S): Right-of-way plans are required on all projects. **Chapter HD-1300** of this manual contains details and procedures for the development of right-of-way plans. The right-of-way summary sheet(s) and strip map(s) are included in the roadway construction plans.

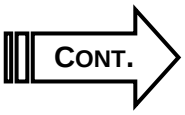
DETAIL SHEETS: Detail sheets consist of all other sheets not classified in the index of sheets on the layout sheet. They include special detail drawings, standard drawings not yet in the *Standard Drawings Manual,* pavement and superelevation development sheets, interchange and intersection layout sheets, railroad detail sheets, environmental mitigation plans, mineral ownership detail sheets, contour grading schemes, and other sheets that detail aspects of the roadway project's construction. The PDT will determine which detail sheets are necessary on a project-by-project basis.

Pavement development sheets are very useful for intersection and ramp design. Traditionally pavement development sheets have been created utilizing the "bubble sheet" methodology. The PDT may choose other methods to communicate the intersection design layout and vertical profiles.

MAINTENANCE-OF-TRAFFIC SHEETS:

Maintenance-of-traffic (MOT) sheets show the proposed traffic operations during construction. A discussion of traffic management during construction can be found in **HD-204.**

The PDT will determine whether separate MOT and/or phasing plans sheets are required. The PDT must keep in mind the need to communicate the intent and the details of the MOT scheme. The MOT plans may show typical sections, profiles, roadway construction phasing details, striping plans, traffic control devices, signing, detours, etc.



EROSION CONTROL PLANS:

Every project requires complete erosion control plans as necessitated by the Kentucky Pollution Discharge Elimination System (KPDES) requirements. A complete erosion control plan set shall consist of contoured plan sheets plotted either directly on the roadway plans where sheets would not be overly cluttered or on separate sheets developed specifically for the erosion control plan set. These plans shall show the centerline, right-of-way and easement lines, permanent drainage features, disturbed areas, point and overland discharge locations, critical erosion control features, and construction notes for all erosion control items. More information about erosion control plan development can be found in **HD-204** and in **Chapter 10, Section 05,** of the *Drainage Guidance Manual*. An example erosion control plan is given in **Exhibit 200-25.** Also refer to the erosion control detail drawings in the Standard Drawings.

COORDINATE CONTROL SHEET(S):

The coordinate control sheet(s) document the control information that facilitates the field survey process. These sheets have information about the project's coordinates, including the origin of levels, the State Plane Coordinate System, and the project datum factor. The coordinate control points should have a point name, description, Northing (Y), Easting (X), Elevation (Z) (when applicable), and station/offset description. Plot the following points on the coordinate control sheet(s):

- Existing and established control points in the project area
- All reference points (coordinates for beginning and ending of project and the alignment points)
- Right-of-way monuments and witness monuments

The coordinate control sheet(s) should be drawn to a scale that best depicts the project limits and shows the coordinate control points. As an alternative, the coordinate control may be documented on the plan sheets if the plan sheets are not cluttered.

An example coordinate control sheet is given in **Exhibit 200-26.**

SOIL PROFILE SHEETS:

Soil profiles are typically shown utilizing 1 inch = 100 feet horizontal and 1 inch = 10 feet vertical scales. The soil profile is for the use of the designer in establishing cut and fill slopes, CBR values for pavement design, cut and embankment stability sections, rock refill, and shrinkage and swell factors. It is the result of a cooperative effort between the designer, the Division of Highway Design and the Division of Materials.

CONT.

PIPE SHEETS: Plot all inlets, manholes, pipes, and culverts with the exception of entrance pipes and longitudinal pipes on standard cross section sheets with slope lengths and sizes shown. Show pertinent data such as discharge, high-water elevations, flood evaluation data, and material quantities. When appropriate, the limits of flowable fill will be shown. See the *Drainage Manual* for more detail.

CROSS-SECTION SHEETS: Cross sections are to be plotted at a scale of 1 inch = 10 feet both horizontally and vertically for all multilane interstate freeways and expressways. A scale of either 1 inch = 10 feet or 1 inch = 5 feet may be used on rural arterial, collector, and local roads; and a scale of 1 inch = 5 feet can be used on urban arterial, collector, and local roads.

These sheets will show the cross-sectional view of the proposed roadway at 50-foot intervals and at critical stations. Each cross section will show the station, offset (left and right) of centerline, the proposed roadway template, permanent drainage features, earthwork quantities, and construction notes. It may be useful to show right-of-way and easement limits, erosion control features, utilities, MOT items, etc.

STRUCTURES, TRAFFIC, & UTILITY RELOCATION PLANS: The contract plan sets may also contain structures, traffic (lighting, signal, and sign plans), and/or utility relocation plans. The project manager will work with the different subject-matter experts to ensure that the final contract plan set includes all the applicable plans.

KYTC Highway Design	***Chapter*** ADMINISTRATIVE PROCEDURES
	Subject Submittal of the Final Contract Plans

SUBMITTAL OF THE FINAL CONTRACT PLANS:

Submitting final contract plans on time is essential to prevent scheduling problems and delayed lettings. The project manager shall submit final contract plans to the Plan Processing Section a minimum of 90 days in advance of all lettings requiring PS&E, and 60 days in advance for all other projects. The Plan Processing Section will be advised at that time of any additional information that they will be requested to insert into the plans. The project manager confirms that all information (roadway, structures, traffic, and/or utility relocation plans) needed in the final contract plans is submitted on schedule and made available to the contractors. The Plan Processing Section will perform no other activities with the plans after final submittal other that that directly identified by the project manager.

All final contract plans prepared by state forces shall bear the signature of the state highway engineer and the project manager. Final contract plans prepared by consulting engineering firms shall bear the additional signature and seal of a professional engineer (civil or highway) licensed by the Commonwealth of Kentucky.

The project manager will include the following items with the submission of final contract plans to the central office Division of Highway Design:

- Final contract plans plotted on first-generation Mylar signed by the project manager as the legally binding set
- A completed plans submittal form appropriate for the project—for federal TC 61-10, **Exhibit 200-27,** and for state, TC 61-11, **Exhibit 200-28)**

CONT.

SUBMITTAL OF THE FINAL CONTRACT PLANS (cont.):

- Information needed to create the proposal, including the following, when applicable:

  - CAP report (even when there are no entries in the CAP)
  - Final estimate (including all items in the complete contract plans)
  - Project construction schedule (fixed completion date or maximum work days)
  - Permit/water-quality certification
  - Utility impact notes
  - Special provisions for protection of railroad interest
  - Project-specific special notes or specifications

- Electronic files representing the contract plans and proposal delivered to central office via ProjectWise (ProjectWise will also be used for internal Cabinet deliveries to the project manager. See the *CADD Standards for Highway Plans* for more detail.)

- The supplemental electronic files (delivered via ProjectWise) as required by the *CADD Standards for Highway Plans.* (There shall be an overt distinction between the files that represent the contract plan and supplemental files. Supplemental files are given for informational purposes only.)

- A copy of the appropriate environmental checklist (**Exhibit 200-19 or 200-20),** if required. (Send a separate copy to the Division of Environmental Analysis for their use in any required reevaluation of the environmental approval.)

KYTC Highway Design	***Chapter*** ADMINISTRATIVE PROCEDURES
	Subject Project Closeouts

OVERVIEW: A project is not complete until after it is closed out through the Cabinet's accounting system. The following activities typically occur in the project closeout process: consultant evaluations, final pay estimates, and audits.

CONSULTANT EVALUATIONS & FINAL PAY ESTIMATES:

Before final consultant pay estimates are submitted to the central office, the project manager evaluates the consultant's performance and completes the TC 61-8 form, *Consultant Performance Evaluation* **(Exhibit 200-13).** The district's chief right-of-way agent or the agent's representative shall review Item B3, "Right of Way and Utility Plans," and sign the form. After all ratings are checked, they should be multiplied by the weighted factor shown on the right side of the evaluation, totaled, and shown as the consultant's rating score out of 100 possible points. The computation is done by the form. Discuss information that might reflect reasons for scores on an evaluation (such as the degree of complexity of a project) in the comment section.

Upon completion, the project manager will transmit the evaluation and original final engineering pay estimate to the Roadway Design Engineering Branch manager in the central office.

Upon receipt, the Roadway Design Engineering Branch manager will request an evaluation from the location engineer. The location engineer will ask the director of the Division of Right of Way and Utilities to review and approve Item B3. The average of the district and central office evaluations shall then become the final rating for the consultant's performance. The Roadway Design Engineering Branch manager will then prepare a letter to the consultant summarizing the evaluation and the average final rating and will send copies to the Director of Professional Services and the district and central office. Professional Services shall be sent the original copies of the evaluations and final pay estimate.

CONT.

CONSULTANT EVALUATIONS & FINAL PAY ESTIMATES (cont.): The consultant can appeal the evaluation through the director of the Division of Highway Design within 30 days of receipt. If an appeal is filed, the director of the Division of Highway Design will discuss the evaluation with the project manager and location engineer and assess whether a reevaluation is warranted. The director will respond to the consultant with the results of the reevaluation.

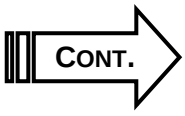
If the consultant's contract specified that the consultant was responsible for geotechnical work, the consultant will submit a copy of the final geotechnical quantities with a letter stating that all geotechnical work is complete and no additional charges will be made. Before closing a consultant contract for design, the location engineer consults with the central office drainage engineer to assure submittal and approval of the final drainage folder.

CLOSEOUT OF IN-HOUSE & CONSULTANT PROJECTS: The closeout process is the responsibility of the respective location engineer. The project closeout process should begin with the award of the contract for construction. Soon after the award, if a consultant was used, the project manager should request a final pay estimate. Of importance to the process is:

- The Division of Professional Services is to be in receipt of the original final pay estimate and consultant evaluations.
- The MARS encumbrance is to be zero.
- The available budget is to be non-negative.

If there are remaining funds encumbered after the final pay estimate has been submitted, the Division of Professional Services should be requested to zero this account. A balance in the encumbrance may indicate that a portion of the contract was for cost-plus work. As part of the process, the project should be investigated to see if part of the consultant's contract was for cost-plus work. If cost-plus was part of the contract, that portion of the contract must be audited before it can be closed out. The audit process is handled through Professional Services.

If the funding in the available budget is negative, a funding request must be sent to the Division of Program Management. The funding request should be adequate to cover the negative amount.



CLOSEOUT OF IN-HOUSE & CONSULTANT PROJECTS (cont.):

After the above has been accomplished, the location engineer shall contact the project manager, Division of Environmental Analysis, Division of Materials, Geotechnical Branch (if applicable), and the Division of Structural Design (if applicable) to see if there is ongoing work that would necessitate that the project remain open. If this is the case, it should be documented by the location engineer along with expected time of completion. Occasionally the Division of Environmental Analysis will continue to use design funds to monitor stream mitigation work or wetlands. If possible, construction funding should be used for these activities.

After it has been determined that there are no longer charges to the project, the location engineer should submit a closeout request to the branch manager of the Roadway Design Engineering Branch. The branch manager will submit the information (project item number and MARS number) to the Division of Accounts for closeout.

CHECKLIST FOR DESIGN PHASE CLOSEOUTS:

The following is a checklist that the project manager and/or location engineer may use when preparing to close out a project.

- □ Has all design work been accomplished? The location engineer and/or project manager determine this after conferring with all appropriate central office divisions. (Highway Design, Structural Design, Environmental, Geotechnical, etc.)
- □ *Are there any consultant contract modifications to be executed? (Highway Design, Structural Design, Environmental, etc.)
- □ *Have all consultant final pay estimates, including statewide if appropriate, been processed?
- □ *Have all consultant evaluations been completed? (Highway Design, Structural Design, etc.)
- □ *Has an audit of cost-plus components of the consultant contracts been issued?
- □ *Have all encumbrances been zeroed out?
- □ Are additional state or federal-aid design funds required to complete the design phase for the project?

CONT.

CHECKLIST FOR DESIGN PHASE CLOSEOUTS (cont.):

- □ Is environmental monitoring required for the project? Have funding and project identity been established?

- □ Has a recommendation to close the design phase been sent to Accounts?

- □ **Has a design phase closeout letter been sent to FHWA?

* Not required for department completed projects.
** Federal-aid highway projects

KYTC Highway Design	***Chapter*** ADMINISTRATIVE PROCEDURES
	Subject Design Participation in Construction Phase

OVERVIEW: The project manager's involvement with a project does not end with the letting and award. Often, issues during the construction of a project arise that require clarification about the designer's intent. Unforeseen circumstances may necessitate that changes to the original design be executed. Project manager responsibilities include:

- Attending preconstruction meetings
- Reviewing change orders
- Assisting with construction revisions
- Visiting projects

PRECONSTRUCTION MEETINGS: The project manager should attend the preconstruction meetings to explain notes and to report on any important or unusual information concerning the project or anything that has occurred during the development of the plans. The project manager should provide any updates on R/W acquisition, utility relocation, and special environmental concerns. The project manager shall report any special commitments such as CAP or environmental mitigation measures that were agreed to prior to letting the project and shall explain any nonstandard bid items.

CHANGE ORDER APPROVAL PROCESS: The project manager plays an important role in the process when a change order is considered in the construction phase of a project. The resident engineer for construction is required to notify the project manager that the initiation of a change order is being considered. This notification can come in various formats, but the formal approach centers around notification by e-mail originated through the Transport Site Manager Construction Management Program. The project manager's role in the change order review and approval process is outlined as follows:

1. When a change order is in draft status, the user (usually the resident engineer) forwards the draft change order for parallel review using the Forward Change Order for Review function in Site Manager (e-mail sent to project manager advising there is a change order to review).

CONT.

CHANGE ORDER APPROVAL PROCESS (cont.):

2. The project manager, in consultation with the district TEBM for Preconstruction, will review the draft change order to determine if the intent of the original design as well as conformance to the appropriate design standards is met. Upon making that determination, the project manager shall make a recommendation for approval or disapproval to the Division of Construction.

3. At the request of the Division of Construction, the project manager shall arrange a meeting with the parties responsible for the original design. The agenda for the meeting should include a discussion of why the design change is necessary and a determination of who is responsible for executing any work necessary to implement the change. When the change order will involve plan modifications or further engineering review, the project manager will act as coordinator to assist the Division of Construction and the party deemed responsible for the work to complete the processing of the change order.

4. The project manager should exercise special care when reviewing change orders. Any information that might prove useful for future projects should be forwarded to the central office location engineer as well as be input into the Department's Lessons Learned database.

LESSONS LEARNED DATABASE & CHANGE ORDER REVIEW PROCESS:

The project manager should forward any information learned during the change order review process to the central office location engineer and record the information in the Department's Lessons Learned database. The Lessons Learned database was created to provide continuous improvement of department plans. Value engineering studies, constructibility reviews, post-construction reviews, and review of change orders from Department projects are all good sources of information for use in the database.

When it is suspected the change order is the result of a design error or omission in the original project design plans, the central office location engineer shall be notified and all supporting documentation available shall be forwarded to the central office Division of Highway Design, Roadway Engineering Branch, for review.

CONT.

PROCESS FOR REVIEW OF CHANGE ORDERS IDENTIFIED AS DESIGN ERROR, DESIGN OMISSION, & PLAN ERROR:

The details presented below outline a process for reviewing construction change orders identified as plan errors, design errors, omissions, etc. The intent of this process is to integrate a procedure for identifying plan errors, design errors, and omissions in the plan development process in such a manner as to provide for continuous improvement of plans.

I. Copies of change orders identified as plan error, design error, omission, etc., should be forwarded to the designer (in-house or consultant) for review along with an explanation of factors contributing to the identified error or omission. Currently, the project manager (responsible for the project during the preconstruction phase) is included in the review process for proposed change orders. This process of change order review will be expanded to include the Division of Highway Design. The branch manager for Roadway Engineering will oversee the expanded review, utilizing the Value Engineering Section (VE) and the location engineers, to gather information, to process, and to make the findings available to Design project managers and consultants for their use. The information would be presented in a confidential format through the existing Lessons Learned database Web site and through project constructibility reviews.

A. When a proposed change order is identified for review, the branch manager for Roadway Engineering will gather preliminary information utilizing the VE Section, the respective location engineer, and the central office Construction liaison to determine what categories the change order items represent. The items included on the change order will be classified in the following categories:

1. Errors: A change order is needed to correct an error for an original contract item due to insufficient quantities established to construct item in accordance with the original contract and plans.

2. Omissions: A change order is needed to add a new item to the contract that was necessary to construct the project as shown in the original contract and plans (forgotten or omitted bid items).

3. Enhancements: A change order is needed to add a new item to the contract that enhances or adds to the original contract and plans.

CONT.

PROCESS FOR REVIEW OF CHANGE ORDERS IDENTIFIED AS DESIGN ERROR, DESIGN OMISSION, & PLAN ERROR (cont.):

4. Other: A change order is needed to add a new item to the contract that is associated with unforeseen circumstances.

5. Contractual Items: A change order is needed for supplemental items established by the contract or specifications.

B. Upon classification of change order items and preliminary gathering of information, the branch manager for Roadway Engineering will have the following options:

1. Prepare and submit memo to the director of the Division of Highway Design recommending that no further action be taken. Identify any items that would be useful to other designers and forward information to Lessons Learned database Web site. Send copies to Construction, Preconstruction Branch manager, and location engineer.

2. Prepare and submit memo to the director of the Division of Highway Design recommending that further information be gathered from the project team.

C. When more information from the project team is deemed necessary, the requests for information will be forwarded to the Preconstruction Branch manager. The Preconstruction Branch manager will have the following options to gather information:

1. In-house projects: project manager
2. Out-sourced projects: consultant project manager identified in the contract

The Preconstruction Branch manager will receive copies of all change order documentation available to the branch manager for Roadway Engineering at the time of his or her review for reference and information. It is anticipated that both the Preconstruction Branch manager and the project manager will be familiar with the change order and will be in the best position to decide if further information is needed from the consultant project manager for out-sourced projects. The chief district engineer in the respective district should also receive copies of correspondence regarding this issue.

CONT.

PROCESS FOR REVIEW OF CHANGE ORDERS IDENTIFIED AS DESIGN ERROR, DESIGN OMISSION, & PLAN ERROR (cont.):

D. Information gathered for submittal in regard to the change order items in question shall include the following:

1. Project identification information (PCN and Design Item No.)
2. Formal review, including any plan sheets, sketches, and a written explanation to clarify the factors contributing to the items in question on the change order
3. Supporting documentation from the consultant project manager when appropriate (see example form letter**, Exhibit 200-29).** For out-sourced projects, if the project manager elects not to gather information from the consultant project manager, reasons outlining this decision should be provided.
4. Preconstruction Branch manager will be given 30 days from date of the request to provide a response. Electronic transmission of this information is encouraged.

E. All information gathered in Part D shall be returned to the Division of Highway Design to the attention of the branch manager for Roadway Engineering. The branch manager for Roadway Engineering will coordinate review of the explanations provided and will coordinate final recommendations to be made to the director of the Division of Highway Design. The VE Section will enter information gathered in the change order review process, along with any other information obtained from value engineering studies, constructibility reviews, and post-construction reviews into the Lessons Learned database at the direction of the branch manager for Roadway Engineering. The general format the VE Section will use to maintain confidentiality is as follows:

1. General project description
2. Description of the change order and description of the error, omission, or other issue
3. Brief explanation to help clarify
4. Costs associated with the change order items in question

Location engineers will be responsible for continually monitoring the Lessons Learned database in an effort to gather information to assist project managers in making informed decisions regarding project development and constructibility issues. Ideally, the location engineers will have firsthand knowledge from the database as well as experience in surrounding districts to aid the project team. The location engineers are expected to play a key role in the constructibility review process currently being developed.

CONT.

PROCESS FOR REVIEW OF CHANGE ORDERS IDENTIFIED AS DESIGN ERROR, DESIGN OMISSION, & PLAN ERROR (cont.):

In general, all information gathered will be published and distributed on a periodic basis as determined appropriate by management. Distribution of this information would be similar to the process a design memo currently follows. Other ways of marketing the information will be explored. When published, the information should focus on the identified errors, omissions, or other issues and the costs involved. Improving communication and distribution of information are critical areas for bringing into focus errors, omissions, and other constructibility issues. Once identified, project managers should be well equipped to avoid similar issues on future projects. This process, when fully developed, should provide insight to the Division of Highway Design that can be used to identify changes in processes and procedures for plan development, engineering criteria, etc., that should result in continuous improvement of plans and ultimately the finished product.

CONSTRUCTION REVISIONS:

Construction revisions occur for many reasons. Some of the more common reasons are:

- Right-of-way changes
- Typical section changes
- Major design feature changes

Design shall assist with these revisions by providing data files, standards, and MicroStation help and/or training to Construction as the revisions are drawn.

If requested by Construction, Design shall assist with plan revisions by arranging project team meetings and coordinating plan revisions.

When a construction revision is necessary, the use of first-generation reproducible on sensitized film is required. The original copy of the revision becomes a part of the original plans and helps in the development of the as-built plans. When right of way is not changed, distribution is as follows:

- Original and six copies to originating district
- Four copies to Division of Construction

When making right-of-way changes, distribution shall be the number of copies required by the Division of Right of Way.

CONT.

PROJECT VISITS: Highway Design has a responsibility to visit projects to verify the suitability (or effectiveness) of what was designed. The project manager should help answer property owner questions and assist in dealing with any right-of-way issues. The project manager should periodically check with the resident engineers and project inspectors to see how construction is proceeding and determine the effectiveness of information presented on the construction plans.

KYTC Highway Design

Chapter

ADMINISTRATIVE PROCEDURES

Subject

Use, Distribution, & Retention of Plans

SHOW PLANS: Prior to the letting, one copy of the contract plan set (comprising the roadway, structures, traffic, and/or utility relocation plans) is sent to the district office for public viewing.

RECORD PLANS: Two contract plan sets are identified as "record plans." One full-size set of record plans is issued to the district office, and a half-size record set is issued to the Division of Construction.

AWARD PLANS: Upon award of the contract, plans are prepared as follows:

- Contract Plan Set: Five complete, full-size sets (one of which is the record plans) and 10 complete, half-size sets to the chief highway district engineer. One electronic copy of the scanned contract plan set will be maintained in the blueprint section.
- Original Roadway Plans: Sent back to the chief highway district engineer
- Original Bridge/Structures Plans: Sent back to the Division of Structural Design
- Building plans (other than loadometer stations): Eight complete sets to the Division of Property and Supply Services

INFORMATION PLANS: Half-size plans, less cross sections, will be furnished to the following offices for informational purposes:

- Contract Procurement (1 set)
- FHWA (1 set)
- Office for Business and Occupational Development (1 set)
- Division of Materials (1 set)
- Division of Structural Design (3 sets of Bridge/Structure Plans only)
- Division of Construction Procurement (1 set to Plans, Specifications, and Estimates Branch)
- The project consultant, when applicable (1 set)

CONT.

AS-BUILT PLANS After awarding the contract and making all necessary copies, send the originals to the chief highway district engineer and retain a reproducible copy in the central office. Upon completion of the project, the directors of the Divisions of Construction and Right of Way and Utilities will attest to the originals, showing any changes that occurred during construction as being the as-built plans. Transmit the as-built plans to the Department for Libraries and Archives for microfilming.

The central office Division of Highway Design and the district office shall retain microfilm of the as-built plans.

The Department shall retain the original as-built plans for Libraries and Archives.

FIELD INFORMATION: **Location Field Information -** Normally, the district retains the location field information until the award of the contract and then sends it to the Division of Construction with the original plans. Treat any data collected and stored by electronic data collecting methods (floppy disks or hard copy of the data) as standard field information.

RETENTION SCHEDULE FOR FILES: The following chart contains the retention schedule for highway design documents as described by the Kentucky Department for Libraries and Archives, Public Records Division. In this chart the definition of indefinite is not a retention period and does not mean permanent. It is the period of time before the retention of a record begins.

Series No.	Record	Central Office Retention (Years)	Libraries & Archives Retention	Final Action
Location Section				
215	Location Project File	Indefinite	--	Destroy 15 years after contract letting date
216	Terrain Data	Indefinite	--	Destroy when construction project completed
217	Engineering Design Reports and Studies	15	--	Destroy
Drainage Section				
218	Drainage Correspondence by County	Permanent	--	Retain in central office
219	Drainage Folders	Indefinite	50	Transfer to State Records center after construction of bridge/culvert is complete

CONT.

Series No.	Record	Central Office Retention (Years)	Libraries & Archives Retention	Final Action
Reproduction Section				
220	Project Plans (Originals & Books)	Indefinite	--	Transfer to Division of Construction when awarded
221	Sepia Copy of Original Plans	Indefinite	--	Destroy 5 years after project contract is awarded
Plans, Specifications, & Estimates Section				
222	Notice to Proceed	Indefinite	--	Destroy 3 years after submission of final design voucher
03655	PS&E Certification & Acceptance File (duplicate)	5	--	Destroy after audit
03656	State Project Proposals (working file)	3	--	Destroy after audit
Pavement Section				
224	Project Progress Log	Permanent	--	Retain in central office
225	Pavement Design (Original)	Permanent	--	Retain in central office
Roadway Plan Review				
226	Final As-Built Roadway Plans – Transparent Original	Indefinite	Permanent	Transfer to State Records Center after microfilming
227	Retrieval Log (Finding aid for plans transferred to state archives)	Permanent	--	Retain in central office
228	Microfilm (As-Built)	Permanent	--	Retain in central office
229	Roadway Plan Review Project Files	5	--	Destroy
Standard Drawings Section				
230	Original, Reproducible Standard Drawings	Permanent	--	Retain in central office
Roadside Development Section				
231	Landscape Design Plans	Permanent	--	Retain in central office

CONT.

Series No.	Record	Central Office Retention (Years)	Libraries & Archives Retention	Final Action
232	Correspondence Pertaining to Location of Roadside Parks, Rest Areas, and Information Center	10	--	Destroy
Photo-Tec Section				
237	Aerial Photograph Negatives	Permanent	--	Retain in central office
238	Photographic File Documentation	Permanent	--	Retain in central office
239	Photologging Photographic Negatives	Permanent	--	Retain in central office
240	Aerial Photograph Files (Contact Prints)	Indefinite	--	Destroy when obsolete
241	US Coast and Geodetic Records – State Plane Coordinates	Indefinite	--	Destroy when obsolete
242	US Geological Survey Records	Indefinite	--	Destroy when obsolete
243	Control Photo Prints from which Maps are Made	Indefinite	--	Destroy when obsolete
244	Requisition of Aerial & Photographic Work	2	--	Destroy
Rail Section				
42	Guidelines for Local, Regional, and/or Rail Line Abandonment	Permanent	--	Retain 1 copy in central office.
Districts – Project Development				
486	Project Files of Highway Classifications & Needs Study	Indefinite		Destroy 5 years after completion
487	Project Authorization & Completion Records	Indefinite		Destroy 5 years after completion
488	Research Studies & Plans & Locations of Roads	5		Destroy
489	Municipal Aid File	3		Destroy

CONT.

Series No.	Record	Central Office Retention (Years)	Libraries & Archives Retention	Final Action
Districts - Design				
490	Microfilm (As-Built)	Permanent	--	Retain in District
491	Design Project Folders	Indefinite	--	Destroy after receipt of microfilm of as-built plans and 3 years after completion of construction
492	Utilities Project Folders	Indefinite	--	Destroy after receipt of microfilm of as-built plans and 3 years after completion of construction
493	Field Books	Indefinite	--	Transfer to central office when project is completed
494	Research Studies on Plans & Locations of Roads	Indefinite	--	Destroy after 5 years & when no longer useful
497	Design Public Hearing Records of New Projects (Duplicate)	5	--	Destroy
Districts – Right of Way				
498	Right-of-Way Project Parcel Folders	Indefinite	--	Destroy 3 years after completion of project or receipt of copy of as-built plans (microfilm)
499	Right-of-Way Project Plans	Indefinite	--	Destroy 3 years after completion of project or receipt of copy of as-built plans (microfilm)
500	Right-of-Way Deeds (Duplicate)	Indefinite	--	Destroy 3 years after completion of project or receipt of copy of as-built plans (microfilm)

KYTC Highway Design

Chapter

ADMINISTRATIVE PROCEDURES

Subject

Coordination with Outside Agencies

OVERVIEW: The design of a roadway often involves other state, federal, and local agencies. The designer shall be responsible for ascertaining the extent of other agency involvement and initiating the Department's requirement for gaining agreement or cooperation as necessary. The general policy is to preserve all historic sites, public parks, recreation areas, fish and wildlife areas, and waterfowl refuges and not encroach upon them except as a last resort or when the roadway being designed is for their use.

NATIONAL PARKS & FORESTS: National parks and forests are under the jurisdiction of the U.S. Forest Service. The *State Highway Engineer Guidance Manual* outlines the procedures for approval of encroachment.

FEDERAL DAMS & WATERWAYS: Generally, the U.S. Army Corps of Engineers will be involved with projects involving dams and waterways. Agencies such as the Federal Power Commission, U.S. Coast Guard, and Tennessee Valley Authority may also be involved. (See the *State Highway Engineer Guidance Manual* and coordinate through the Coordination Section, Division of Highway Design.)

AIRPORTS: Federal highways located within two miles of an airport require coordination with the Federal Aviation Agency. Nonfederal airports are under the control of the Department of Aviation.

STATE HEALTH & POLLUTION AUTHORITIES: Consult the state health and pollution authorities in the development of plans involving sanitary facilities to rest areas, utilization of combined sewers to outlet highway drainage, and adjustment or relocation of existing sanitary sewers.

LOCAL PLANNING BOARDS: Consult local planning agencies on their studies in the joint use of highway facilities.

CONT.

REST AREAS, LOADOMETER STATIONS, & WELCOME CENTERS:

Rest areas, loadometer stations, and welcome centers are to be designed for the needs and safety of the traveling public and the personnel who man, operate, and maintain the facilities.

Necessarily, the design of these facilities must be coordinated with other divisions. The Division of Maintenance staffs and operates rest areas; the Department of Vehicle Regulation, loadometer stations; and the Division of Maintenance and the Tourism Cabinet, welcome centers.

The FHWA issued a study, FHWA-1P-81-1, on safe rest area planning, location, and design as a general guide and exchange of information. The AASHTO Design Guide makes several comments about these types of facilities along the highway system.

The Division of Highway Design's current design criteria will govern the design of exit and entrance ramps, pavement, drainage, etc.

TRAFFIC AGREEMENT WITH CITIES FOR CONSTRUCTION:

Construction or reconstruction projects within the incorporated limits of cities may utilize the TC 61-39 form, *City Traffic Agreement for Construction* **(Exhibit 200-30)** or a TC 61-48 form, *City Ordinance Form* **(Exhibit 200-31).** Include these agreements with the plans submitted to the central office for review. The district engineering branch manager for Preconstruction is responsible for obtaining approval from local governments before submittal. A copy of the traffic control plan should be included with the submittal.

The agreements require the approval of the Deputy State Highway Engineer for Project Development. Distribute the agreements to the Division of Highway Design and to the district office.

CONT.

CLOSING OF PUBLIC ROADS & STREETS:

The Department of Highways has the authority to close, alter, or relocate any public road or street involved with the construction of a limited access facility. The construction of any state highway that is not a limited access facility requires initiation of legal proceedings by the local governing body having jurisdiction over the street or road to effect such closings. The district has the responsibility of maintaining a liaison and informing the local officials in the case of a limited access facility. The director of the Division of Highway Design shall forward the district's report and recommendation along with the Director's own recommendations and endorsements to the Commissioner of Highways. If closure is endorsed, the director shall include an official order implementing the closure recommendations. The official order should be routed through the Deputy State Highway Engineer for Project Development, the State Highway Engineer, and General Counsel for approval.

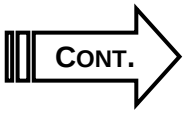
Complete all work on projects that require a design public hearing for determining the Department's position before the hearing. On projects that do not require a design public hearing, the Department's position on road closures should be determined before approving the plans-in-hand inspection report. No permanent ingress or egress ramp on the state primary road system on fully controlled access facilities shall be closed, except for repairs, unless a public hearing is first held in the area to be affected by the closing. The Department shall advertise in a newspaper of general circulation in the affected area at least 20 days before the hearing, notifying interested persons of the date, time, and place of the hearing.

SANITARY LANDFILLS AFFECTED BY HIGHWAYS:

Whenever a proposed highway crosses or interferes with a sanitary landfill, the district engineering branch manager for Preconstruction shall furnish applicable information to the Division of Highway Design by preliminary line and grade stage. Concurrence and approval of a recommended alignment will not be given until review and consultation with the Solid Waste Branch of the Division of Waste Management, Environmental and Public Protection Cabinet. The review must indicate whether the potential problems of removal and disposal of unsuitable materials and/or relocation of the landfill can be satisfactorily resolved.

RETURN OF RECONSTRUCTED FACILITIES TO COUNTY JURISDICTION:

Where substantial lengths of reconstructed county roads and frontage roads are involved, the Commonwealth is often being held responsible for maintenance of these improvements because they are constructed on state right of way.



RETURN OF RECONSTRUCTED FACILITIES TO COUNTY JURISDICTION (cont.):

In situations where it is desirable to return these facilities to county jurisdiction, it will be the responsibility of the project development team to make this recommendation at the time of the joint inspection. This will require conveying to the county involved the completed facility, including the right of way, thereby eliminating the responsibility for maintenance by state forces.

When the project team recommends that a completed facility be transferred to the county, the chief highway district engineer will be responsible for initiating and coordinating the activities required to transfer these facilities.

It is the policy of the Transportation Cabinet to convey maintenance responsibility and associated rights of way to local jurisdictions (county/city) for the following facilities:

- All segments of state roads left to serve as frontage or local access roads following construction
- All frontage or access roads constructed with the new highway
- All segments of local roads that are relocated with the new highway construction, and for which right of way is purchased by the Cabinet

With the design and construction of any new facility, the functional classification system in the general area affected by the new construction should be reexamined. A determination should be made whether the facilities being replaced are relevant to the state road system as defined by their functional usage.

Before the final inspection, the district office planning engineer, with the assistance of the Division of Planning, will prepare a highway systems map of the general area showing the new alignment. At the final inspection, the inspection party reviews each abandoned state road, frontage road, access road, and relocated local road. In addition, a review of any other newly classified or existing supplemental road facilities is made to assure that it is in the best interests of the Cabinet to convey them to the local jurisdiction. The project team will then make a recommendation accordingly.

The designer will include deed descriptions for the right of way for all portions of the abandoned state road, access road, frontage road, or local road that lies outside the normal right-of-way limits required for maintenance of the new roadway. It will be the responsibility of the Chief Highway District Engineer and his or her staff, in consultation with the Division of Planning, to initiate and coordinate the activities required to transfer maintenance responsibilities and associated rights of way to local jurisdictions for these facilities.

CONT.

FISHERMAN ACCESS AT STREAM CROSSINGS: Review access to streams during the early stages of plan development. As appropriate, reconstruct or relocate existing entrances to the area adjacent to streams. Use of abandoned roadbeds for access shall be limited to providing reasonable access to the area. Provide boat launching ramps, parking areas, and access to these facilities only with an agreement with the Department of Fish and Wildlife Resources, which will require a commitment from that agency for construction funds and future maintenance.

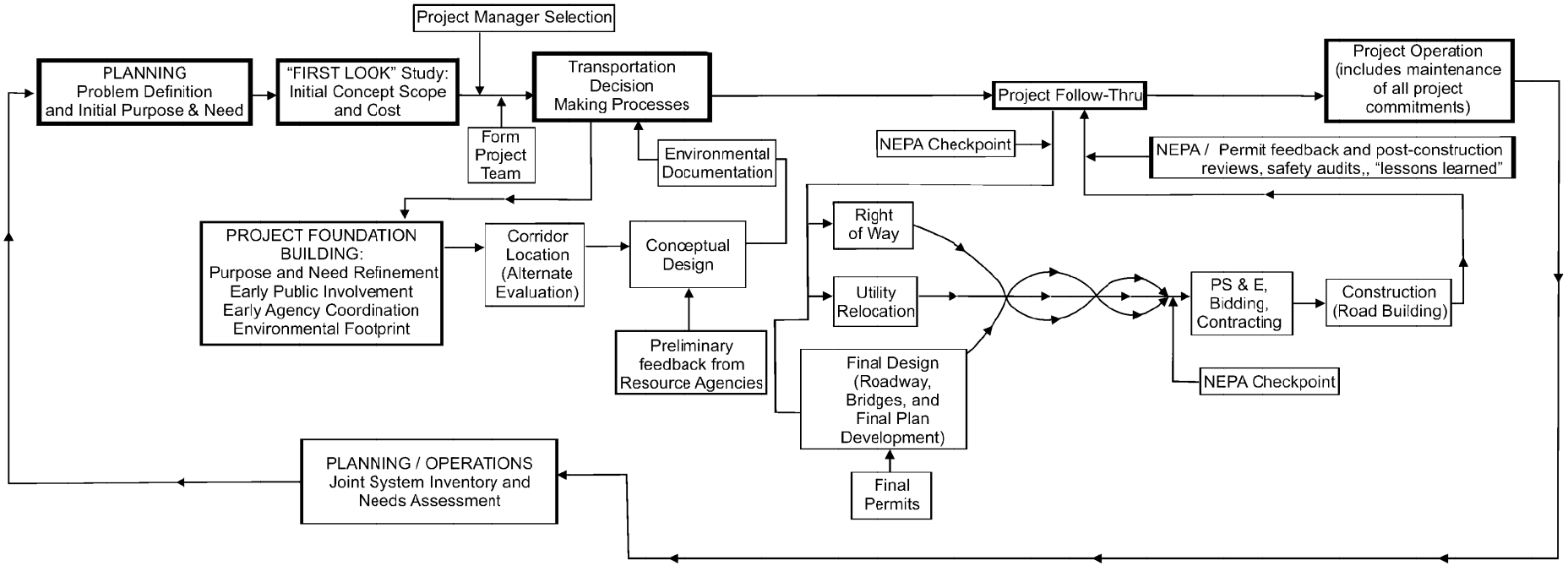
AGREEMENTS WITH CITY/COUNTY AGENCIES: Any agreements with city/county or other public agencies must be prepared between the local government and the state detailing responsibilities. The public agency will be required to follow the same procedures followed by the Department of Highways.

CORPS OF ENGINEERS PROJECTS: Corps of Engineers projects involving the relocation, rearrangement, or alteration of any state or county highway requires the approval of the Department of Highways. The *State Highway Engineer Guidance Manual* contains the policies and procedures for coordinating Corps of Engineers projects affecting highways.

NATIONAL FOREST OR PARKS PROJECTS: The *State Highway Engineer Guidance Manual* contains the policies and procedures governing the coordination of United States Forest Service projects.

Project Delivery Core Processes

("Project ID+Scope" Thru "Road Building" and Maintenance)



8-08-2005

EXHIBIT 200-01

CONSULTANT MONTHLY REPORT

CONSULTANT _____

COUNTY _____ ITEM NO. _____

PROJECT NUMBER _____ CH NO. _____

PROJECT DESCRIPTION:

DATE OF NOTICE TO PROCEED FOR STUDIES _____

DATE OF NOTICE TO PROCEED CONCEPTUAL DESIGN _____

DATE OF NOTICE TO PROCEED FINAL DESIGN _____

DATE OF RECEIPT OF MANUSCRIPT _____

LETTING DATE (FY OR ACTUAL) _____

REPORT OF MONTHLY ACTIVITIES (SUBMISSIONS, ACTIONS NEEDED, ETC.):

CONSULTANT:

DEPARTMENT:

RECOMMENDED BY: _____ DATE _____
CONSULTANT

APPROVED BY: _____ DATE _____
KTC PROJECT MANAGER

CONSULTANT MONTHLY REPORT

PAGE 2

CONSULTANT _____

ITEM NO. _____

ACTIVITY	SCHEDULE		
	CONTRACT	REVISED	ACTUAL
I. ENVIRONMENTAL			
A. SUBMIT BASE STUDIES			
1. AIR			
2. NOISE			
3. WATER			
4. BIOLOGICAL			
5. CULTURAL / HISTORICAL			
6. ARCHAEOLOGICAL			
7. TERRESTRIAL			
8. SOCIO-ECONOMIC			
9. HAZMAT/UST (Phase 1)			
B. SUBMIT EA / DRAFT EIS FOR REVIEW			
C. SUBMIT EA / DRAFT EIS TO FHWA			
D. APPROVAL OF EA / DRAFT EIS BY FHWA			
E. HOLD PUBLIC HEARING (APPROX. 90 DAYS AFTER EA APPROVAL)			
F. FONSI / EIS APPROVAL (APPROX. 60 DAYS AFTER HEARING)			

CONSULTANT MONTHLY REPORT

PAGE 3

CONSULTANT _____

ITEM NO. _____

ACTIVITY	SCHEDULE		
	CONTRACT	REVISED	ACTUAL
II. CONCEPTUAL DESIGN			
A. SUBMIT P. L. & G. PLANS			
B. HOLD SELECTED ALTERNATIVE MEETING (APPROX. 14 DAYS AFTER SUBMITTAL)			
C. SUBMIT SELECTED ALTERNATIVE REPORT (APPROX. 7 DAYS AFTER INSPECTION)			
D. SELECTED ALTERNATIVE REPORT APPROVAL (APPROX. 21 DAYS AFTER SUBMITTAL)			
E. SUBMISSION OF CRITICAL CROSS SECTIONS TO GEOTECH			
F. SUBMIT DESIGN EXECUTIVE SUMMARY			
III. FINAL DESIGN			
A. SUBMISSION OF FINAL CROSS SECTIONS TO GEOTECH			
B. SLOPE RECOMMENDATIONS RECEIVED FROM GEOTECH			
C. SUBMIT PRELIMINARY DRAINAGE FOLDER			
D. HOLD DRAINAGE INSPECTION (APPROX. 14 DAYS AFTER SUBMITTAL)			
E. SUBMIT FINAL DRAINAGE FOLDER			
F. SUBMIT FINAL INSPECTION PLANS			
G. HOLD FINAL INSPECTION (APPROX. 14 DAYS AFTER SUBMITTAL)			

CONSULTANT MONTHLY REPORT

PAGE 4

CONSULTANT _____

ITEM NO. _____

ACTIVITY	SCHEDULE		
	CONTRACT	REVISED	ACTUAL
III. FINAL DESIGN CONTINUED:			
G. SUBMIT FINAL INSPECTION REPORT (APPROX. 7 DAYS AFTER INSPECTION)			
H. FINAL INSPECTION REPORT APPROVAL (APPROX. 21 DAYS AFTER SUBMITTAL)			
I. SUBMIT FINAL RIGHT OF WAY PLANS			
J. SUBMIT ADVANCE SITUATION FOLDER			
K. SUBMIT REVIEW SET OF FINAL PLANS			
L. FINAL REVIEW COMMENTS RECEIVED (APPROX. 30 DAYS AFTER SUBMITTAL)			
M. SUBMIT FINAL PLANS			
IV. STRUCTURAL DESIGN			
A. RECEIVE GEOTECH INFORMATION (APPROX. 180 DAYS AFTER RECEIPT OF ADVANCED SITUATION FOLDER)			
B. SUBMIT STAGE I PRELIMINARY PLANS			
C. SUBMIT STAGE II PRELIMINARY PLANS			
D. SUBMIT PHASE I FINAL PLANS			
E. SUBMIT FINAL STRUCTURAL PLANS			

CONSULTANT MONTHLY REPORT

PAGE 5

CONSULTANT _____

ITEM NO. _____

HISTORY and PROJECT DOCUMENTATION

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN

TC 61-6E
Rev. 01/02
Page 1 of 3

PROJECT SCOPING SUMMARY

I. COUNTY _____

II. ROUTE NUMBER _____ **ROAD NAME** _____

III. IDENTIFIED SIX YEAR PLAN PROJECT ☐ **Yes** ☐ **No**

IV. PROJECT DESCRIPTION (attach map, additional sheets as necessary)

A. Need

B. Roadway Characteristic

Project Length _____

☐ Local ☐ Collector ☐ Arterial ☐ Interstate

☐ Rural ☐ Urban

Expected Design Speed _____

ADT (current) _____

Projected ADT (where available) _____ (Year) _____

DVH (where available) _____ (Year) _____

Terrain:

☐ Level ☐ Rolling ☐ Mountainous

C. Alternatives Considered

D. Recommended Alternative

E. Other Project Effects (crossroads, signals, etc.)

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN

PROJECT SCOPING SUMMARY

F. Design Criteria for Recommended Alternative

Number of Lanes _____

Pavement Width _____

Shoulder Width, Slope _____

Ditch Width, Slope _____

Bridge Width _____

G. Access Control

Permit _____ Fully Controlled _____

Partial _____ Spacing _____

H. Estimated Costs

Design _____

Right of Way _____

Utilities _____

Construction _____

TOTAL _____

V. Possible Funding Types

State (Bond, Rural, Secondary, etc.) _____

Interstate (4R) _____ Primary _____

Secondary _____ Hazard Elimination _____

Other (specify) _____

VI. Possible Environmental Actions

☐ N/A ☐ Categorical Exclusion

☐ FONSI ☐ EIS

☐ Other (4f, 106, etc.) _____

VII. Expected Public Involvement

☐ N/A ☐ Public Meetings ☐ Public Hearing

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN

PROJECT SCOPING SUMMARY

VIII. Right of Way Requirements

Number of Parcels _____

Number of Relocations: Residential _____ Commercial _____

IX. Hydraulics

Number of Entrance Pipes _____

Number of Pipes < 54" _____

Number of Pipes >= 54" _____

Number of Box Culverts (list size) _____ _____

_____ _____

_____ _____

Number of Bridges (list size) _____ _____

_____ _____

_____ _____

X. Project Scales

Plans 1" = _____

Cross Sections 1" = _____

Pipe Sections 1" = _____

XI. Work to be Performed by the Department (when consultants to be utilized)

Photogrammetry _____

Surveying _____

Environmental _____

Geotechnical _____

Structures _____

Other (specify) _____

XII. Other Comments

Prepared By: _____ **Date:** _____

Reviewed By: _____ **Date:** _____

Chief District Engineer or Division Director

PRELIMINARY COST ESTIMATE

Project Indentification Form
Preliminary Cost Estimate

General Information:	County	Route	MP
UNL # or Item #	Prepared By:	DATE:	

Length (Mi.)		Median wid.	# Lanes		Pave. Depth (in.)
Ex.R/W (Ft.)	NewR/W(Ft.)		Total Width (all lanes)		Shoulder Width (each side)
Brief Description Summary from Project ID Form					

TOTAL PROJECT ESTIMATE: $ -

Planning:	$ -	Design:	$ -	Right of Way:	$ -
Utilities:	$ -	Construction:	$ -		

Construction Total Construction Cost $ -

☐ **PerMile AverageCost:**

Total Project Cost = $ -

☐ **Itemized Construction Estimate:** (Use Best Available Information)

	Quantitiy	Unit	Unit Price	Total Cost
Excavation:				
Asphalt	0	Ton		
DGA	0	Ton		
Detour				
Bridge				
Other				
Other				
Other				
Other				
Other				
Other				
Other				
*Miscellaneous		%	$0	$ -
		Total Construction Cost =		$ -

* Miscellaneous charges are a Percentage of all other major cost not listed above. This cost might include cost of Clearing and Grubbing, Mobilization, Demobilization, Guardrail, Seeding, Staking, Striping, Culvert Pipes, etc. Any of these individual cost could be added above in the OTHER cell if approximate quantities are known.

CONSTRUCTION COMMENTS and NOTES	

Design: Total Design Cost $ -

☐ **Per Mile Average Design Estimate:**

Total Design Estimate (mileage) = $ -

☐ **Percent of Construction, Design Estimate** Percent

Total Design Estimate (percent) = **$ -**

DESIGN COMMENTS and NOTES:	

Planning: Total Planning Cost $ -

☐ **Per Mile Average Planning Estimate:**

Total Planning Estimate (mileage) = $ -

☐ **Percent of Design, Planning Estimate** Percent

Total Planning Estimate (percent) = **$ -**

PLANNING COMMENTS and NOTES:	

PRELIMINARY COST ESTIMATE

Project Indentification Form
Preliminary Cost Estimate

Right of Way **Total Estimated R/W Cost** **$ -**

☐ **Per Mile Average Estimated R/W Cost:**
Total R/W Estimated Cost (mileage) = $ -

☐ **Itemized Right of Way Estimate**

	Quantity	Avg. Value	Total Value
Farm Acres			
Commercial Acres			
Non-Developable Acre			
# of Homes			
# of Buildings			
# Commercials Bldgs			
# of Graves			
Other			
Other			
Other			
Administrative & Legal %of R/W		$ -	
**Total Right of Way Cost =			$ -

☐ **Per Acre Average Estimated R/W Cost:** _____
Total R/W Estimated Cost (mileage) = _____

** Right of Way estimates are based on best assumptions at the time of estimate.

RIGHT-OF-WAY COMMENTS and NOTES:	

Utitlities: **Total Utility Cost** **$ -**

☐ **Per Mile Average Utility Cost:**
Total Utility Estimated Cost = $ -

☐ **Itemized Utility Estimate**

	Quantitiy	Unit	Unit Price	Total Cost
Gas				
Power				
Telephone				
Sewer				
Water				
Other				
**Total Utility Cost =				$ -

** Utility estimates are based on best assumptions at the time of estimate.

UTILITY COMMENTS and NOTES:	

EXAMPLE PROJECT AUTHORIZATION

PROJECT AUTHORIZATION

AUTHORIZATION NO: **52077 0**

It is hereby ordered that the project herein described be undertaken and accomplished within the funding level authorized

Project Id	Project Id Number	Federal Project No.	District HWY	District ADD	County	6 Yrp Item Number
	035 5126 A910024		09		FLEMING	

TYPE OF PROJECT	ROUTE NUMBER	FACILTY NAME	SYSTEMS
80 BRIDGE REPLACEMENT	CR 5126	ROCK LICK CREEK	

PROJECT LENGTH	SCOPE OF PROJECT
18 FT	REPLACE BRIDGE OVER DRIP SPRINGS BRANCH 0.45 MILE NE OF KY 158. (C-24)

NUMBER OF BRIDGES	PROGRAM PRIORITY	RS ITEM NUMBER	6 YR PLAN ITEM PARENT NUMBER

PROJECT PHASE AND RESPONSIBILITY	PLANNING	DESIGN	RIGHT OF WAY	UTILITIES
		DOH	COUNTY	COUNTY
	CONSTRUCTION	TITLE DEEDED TO:	MAINTENANCE	OTHER
	COUNTY/CONTRACT		COUNTY	

FUNDING & TIME ACCOUNTABILITY	PARTICIPATING AGENCIES	COUNTY		
	FEDERAL	STATE DOH	LOCAL COUNTY	OTHER

REQUESTED FUNDS FOR THIS AUTHORIZATION

ITEM NUMBER SUFFIX	PHASE	FUND	PROGRAM	FISCAL YEAR FEDERAL	FISCAL YEAR STATE	FEDL APPR. CODE	ENACTED 6YR PLAN AMOUNT	% DIFFERENCE VS 6YP AMT	CURRENT FUNDING REQUEST
.	C	11	FD08		1992				20,879

Current Estimate Approved by	UAR	Date 5/29/1992	Current Funding Request Total	20,879

AUTHORIZATION SUMMARY FOR THIS 10-1 SERIES

PHASE	INITIAL PROJECT ESTIMATE	CURRENT PROJECT ESTIMATE	TOTAL AUTHORIZATION TO DATE (INCL. CURRENT REQUEST)
Construction	$ 20,879	$ 20,879	$ 20,879
Total	$ 20,879	$ 20,879	$ 20,879

REMARKS: THIS AUTHORIZATION REPRESENTS 80% OF CONTRACT AMOUNT FOR REPLACING THIS BRIDGE. CONTRACT AMOUNT ($26,099) 38 DEG. 15 MIN. 08 SEC.; 83 DEG. 35 MIN. 03 SEC. -- DRAWING #22524

Project Approval Recommended By:	Signed and Approved by:
GMK	DCK
6/3/1992	6/4/1992

EXAMPLE DESIGN FUNDS DOCUMENTATION SUMMARY

Design Funds Documentation Summary

County:		Mars Number:	
Item Number:		UPN:	
Route:		Federal Number:	
Description:			
Project Length:		Type of Project:	
Prepared By:		Date:	

Line	Unit	Cost Centers	Charge Centers	Estimated Cost	Project Cost
1	PM	Survey	District	$15,000	
2		Design by district (determined by the project manager/team)	District		
3		Public involvement program (determined by the project manager/team)	District		
4		Design by consultant (estimated by the project manager/team)	Consultant		$0
5		Consultant supervision by project manager (15%)	District	$0	$0
6	DEA	Environmental activities in design (includes meetings & coordination)	District/CO	$5,000	
7		Environmental PCE/CE Level 1	District/CO	$5,000	
8		Environmental CE Levels 2 & 3	District/CO	$15,000	
9		CE Project Field studies for one study (add $12,000 per additional study)	District/CO	$12,000	
10		Programmatic 4(f) issues (add $10,000 for each additional P4(f) issue)	District/CO	$10,000	
11		EA/FONSI 0-.5 mile project (add $40,000 for each .1 mile to 1 mile)	District/CO	$200,000	
12		EA/FONSI for projects 1-5 miles in length (add $80,000 for each mile over 1 mile)	District/CO	$400,000	
13		EA/FONSI for project over 5 miles in length (add $50,000 per mile)	District/CO	$720,000	
14		Environmental EIS (major projects add $500,000 to EA cost - coordinate with DEA)	District/CO	$500,000	
15		Phase II Archeology (See the Guidance for Design Funds Documentation Summary)	CO	$25,000	
16		Phase III Archeology (See the Guidance for Design Funds Documentation Summary)	CO	$75,000	
17		Environmental permits per nation wide NW permit (add $8,000 for Individual Permit)	District/CO	$3,000	
18		Mitigation (See the Guidance for Design Funds Documentation Summary)	District/CO	$35,000	
19	Bridges	Bridge activities in design (includes meetings & coordination)	CO	$1,500	
20		Bridges for one span, add $7,500 for each additional span	CO	$25,000	
21		Culverts single & double barrel no bends no extensions	CO	$1,000	
22		Culverts triple barrel (add $1,000 for each barrel above 3 or on any bends)	CO	$10,000	
23		Culverts extension with, one barrel(add $1000 for each additional barrel or bends)	CO	$8,000	
24		Retaining wall 100' (add $2,000 for each 100' in length)	CO	$4,000	
25		Bridges for one span, add $15,000 for each additional span per bridge	Consultant	$50,000	
26		Culverts (single barrel) add $2,000 for each additional barrel and/or bend	Consultant	$16,000	
27		Retaining wall 100' (add $4,000 for each 100' in length)	Consultant	$8,000	
28	Geotech	Geotech activities in design (includes meetings & coordination)	CO	$5,000	
29		Roadway per mile (add 50% for D-10, D-11, D-12)	CO	$30,000	
30		Bridge for one span(add $5,000 for each additional span)	CO	$30,000	
31		Culvert 1st. (add $5,000 for each additional culvert)	CO	$20,000	
32		Retaining wall(add $5,000 for each additional retaining wall)	CO	$20,000	
33		Landslide(per each, add 50% for D-10, 11, 12)	CO	$20,000	
34		Roadway state wide consultant per mile (add 50% for D-10, 11, 12)	Consultant	$45,000	
35		Bridge for one span(add $7,000 for each additional span)	Consultant	$45,000	
36		Culvert first (add $7,000 for each additional culvert)	Consultant	$45,000	
37		Retaining wall (add $7,000 for each additional retaining wall)	Consultant	$45,000	
38		State wide consultant landslide (per each, add 50% for D-10, D-11, D-12)	Consultant	$75,000	
39	Design	BluePrint	CO	$5,000	$5,000
40		Central office drainage	CO	$7,500	$7,500
41		Central office location	CO	$10,000	$10,000
42		Constructibility review	CO	$5,000	
43		Estimating	CO	$5,000	$5,000
44		Pavement	CO	$5,000	$5,000
45		Phototech	CO	$5,000	
46		Plan processing	CO	$10,000	$10,000
47		PS&E	CO	$5,000	$5,000
48		Railroad agreements	District/CO	$5,000	
49		Ground Mounted Panel Signs (add $250.00 for each additional panel sign)	CO	$500	
50		Overhead Panel Signs on an overhead truss or cantilever	CO	$1,500	
51		Survey coordination	CO	$5,000	
52		Value engineering NHS projects (25M includes D,R,U & C combined)	CO	$30,000	
53	Planning	Basic planning activities in design(includes meetings, coordination, counts, etc...)	District/CO	$5,000	$5,000
54		Alternate studies by planning in design	CO/Consultant	$500,000	
55		Pre-design scoping studies(IPS)	District/CO	$75,000	
56	Other Divisions	Construction activities in design (includes meetings & coordination)	District/CO	$5,000	
57		Legal activities in design (includes meetings & coordination)	District/CO	$5,000	
58		Lighting (roadway)	CO	$10,000	
59		Maintenance activities in design(includes meetings & coordination)	District/CO	$5,000	
60		Multi-modal(traffic projections)	CO	$10,000	$10,000
61		Right of way activities in design (includes meetings & coordination)	District/CO	$5,000	$5,000
62		Utilities activities in design (includes meetings & coordination, plus)	District/CO	$5,000	$5,000
63		Signals (first signal)(add $5,000 for each additional signal)	District/CO	$5,000	
64		Traffic Operation activities in Design (includes meetings & coordination)	District/CO	$5,000	$5,000
					$72,500

EXHIBIT 200-06

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF PROGRAM MANAGEMENT

REQUEST FOR FUNDING AUTHORIZATION

County _____ Road Name _____ Project Manager _____

Six Year Item No _____ Mars No. _____ Authorization No. _____

Funding: ☐ FHWA ☐ State ☐ Local _____ ☐ Other _____

Project Phase and Responsibility:		Planning	Design	Right of Way
Utilities	Construction	Title Deeded To	Other	

Type of Request and Amount Requesting	FUNDING FOR PHASES INDICATED	Previous Amount Authorized
	PLANNING AND DESIGN	
Initial ○ Additional ○	☐ Special Agreement ☐ PE & Environmental ☐ Scoping Study ☐ Phase II Design	
	RIGHT OF WAY	
Initial ○ Additional ○	No. of Parcels _____ Relocation Assistance Acquisition Cost _____ Residences _____ Relocation Cost _____ Businesses _____ Miscellaneous _____ ☐ Hardship ☐ Corridor Preservation _____ ☐ Other _____ *Parcel No* *Owner*	
	UTILITIES	
Initial ○ Additional ○	☐ Utility Adjustment PE _____ ☐ Railroad Adjustment Right of Way _____ ☐ Railroad Protective Devices Construction _____ *Name of Utilities or Railroad Company* *Amount*	

Applicable when requesting Authorization of Funding:

☐ *Yes* ☐ *No* R/W Plans submitted to Program Management

☐ *Yes* ☐ *No* Environmental Cleared

Six-Year Plan Amount	Total Estimated Phase Cost	Phase Cost Overrun/(Underrun)	Percent Overrun/(Underrun)

Comments/Remarks:

Date _____ Request Submitted by: _____

8-08-2005

EXAMPLE PROJECT SPEND DOWN

DISTNO	ITEMNO	PHASECODE	ADD_FUNDS	PCNNO	FUNDCODE	AUTHNO	TYPEWORK	PROJMGR	BRIDGEENG	ROADENG	COUNTYNAME	ENG_AREA	FED_APP
10	8003	D	100,000		FD04	69812	Spot Improvements (O)	Chuck Allen	Department	Baker Engineering Unlimited, INC	Morgan	NOT REQUIRED	NOT REQUIRED

Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04

Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06
									29,318	20,000	20,000	20,000	10,000	10,000	5,000	1,000	1,000	1,000

Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07
1,000	1,000	682																

Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08

Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09

Mar-09	Apr-09	May-09

EXAMPLE ABOVE IS TAKEN FROM AN EXCEL FILE WHERE SPEND DOWN INFORMATION IS RECORDED IN A SINGLE ROW.

EXHIBIT 200-07

9-19-2005

KENTUCKY TRANSPORTATION CABINET
Division of Highway Design
Phototechnic Lab
703 State Office Building
Frankfort, KY 40622
Phone: 502-564-4900

TC 61-1E
Rev. 09/01

REQUISITION FOR AERIAL AND PHOTOGRAPHIC WORK

☐ BW Copy   Date:____________________
☐ Color Copy   Order Taken By:____________   Phone:____________

Requested By:____

Department/Division:______________________________________

Address:

Invoice No.
Order No.
Interaccount No.

**MAKE CHECK PAYABLE TO:
KENTUCKY
TRANSPORTATION CABINET**

SPACE FOR LABORATORY USE ONLY

MATERIALS USED:

☐ TSA   ☐ KYTC Price
☐ AML   ☐ Outside

Affidavit ________ = ____________
Post Affidavit ________ = ____________

ROLL FEES:

Black/White Film ________ = ____________
Black/White Print ________ = ____________
Color Print ________ = ____________
Diapositives ________ = ____________

ROLL FEES: ____________
PRINT CHARGE: ____________
TOTAL: ____________
PAID CHECK #: ____________

E-FORM NOTE: The type and size combination is not available if the Unit Price is blank after tabbing out of the Size category.

ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
							PAGE TOTAL		

KENTUCKY TRANSPORTATION CABINET
Division of Highway Design
Phototechnic Lab

TC 61-1AE
Rev. 09/01

REQUISITION FOR AERIAL AND PHOTOGRAPHIC WORK
CONTINUATION PAGE

☐ BW Copy

☐ Color Copy Order Taken By:________________ Date:________________

Requested By:________________________________

Department/Division:________________________________

Invoice No.
Order No.
Interaccount No.

ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
ROLL NO.	FRAME NO(S)		PERC.	QTY. EA.	TOTAL QTY.	TYPE	SIZE	UNIT PRICE	COST
	MARS ITEM #	PROJECT NUMBER				DESCRIPTION			
							PAGE TOTAL		

PRE-DESIGN CONFERENCE MINUTES

The consultant is to provide engineering and related services for this project for the following items (check all that applies):

[ ] Pre-design scoping study
[ ] Phase I Design
[ ] Phase II Design

Scoping Studies

The type and extent of studies necessary for any given project will be defined at the Pre-design conference. The Department reserves the right to solicit other firms to complete the actual design of the project after studies are completed. The project may be split into design sections or may require the selection of another consultant to perform activities specifically identified during the study phase.

Design Related Services

The following design related services shall be performed as checked below:

	N/A	Department	Consultant
Photogrammetry:	[ ]	[ ]	[ ]
Surveying:	[ ]	[ ]	[ ]
Environmental:	[ ]	[ ]	[ ]
Geotechnical:	[ ]	[ ]	[ ]
R/W & Utility Estimates:	[ ]	[ ]	[ ]
Traffic Analysis:	[ ]	[ ]	[ ]
Pavement Design:	[ ]	[ ]	[ ]
Structure Plans:	[ ]	[ ]	[ ]
Signing Plans:	[ ]	[ ]	[ ]
Signal Plans	[ ]	[ ]	[ ]
Lighting Plans:	[ ]	[ ]	[ ]
Landscaping Plans:	[ ]	[ ]	[ ]
Utility Design:	[ ]	[ ]	[ ]

Unless otherwise specified in the Pre-design Conference Minutes, the Department shall provide:

(1) All existing and projected traffic counts, including intersection turning movements.

(2) The project's photogrammetry will be provided in DGN format, in English units. Additionally, the mass point and breakline files will be provided to aid the Consultant in creating a digital terrain model. Ortho-rectified aerial photographs will also be provided.

(3) Copies of any available record plans of existing roads and construction plans of any proposed road projects as details are finalized and become available.

(4) Copies of any previous pertinent studies, reports or project documentation.

Scope of Work

Include a description of the scope of the project and alternatives to be considered or developed, typical section, public involvement, etc.

Surveying

The consultant's responsibility for surveys shall include:

Explanations of work in most cases are identified within the Production-Hours Documentation, which is to be included with these Pre-design Minutes. Include specific notes pertaining to surveying not specified in the Production-Hours Documentation.

Preliminary Design

The consultant shall be responsible for all studies and construction cost estimates necessary to make a determination of a recommended alignment. Said studies should generally include the following items:

Explanations of work in most cases are identified within the Production-Hours Documentation, which is to be included with these Pre-design Minutes. Include specific notes pertaining to preliminary design not specified in the Production-Hours Documentation.

(1) Preliminary hydraulic studies, including stream sections, stream profile, and necessary channel changes. Consideration of avoidance and minimization of effects on blue-line streams must be included in accordance with Section 404 and 401 of the Clean Water Act. The consultant shall be responsible for obtaining all floodway studies and other pertinent drainage information to be utilized in his design.

Environmental

If the Consultant is responsible for the required environmental documentation, then the Environmental Coordinator will review the project scope with the Director of the Division of Environmental Analysis to determine the level of environmental documentation that will be required (Overview, CE or EA/FONSI). The Consultant will prepare the Production-Hour estimate (for environmental work) based upon this determination and submit the estimate to the Director of the Division of Environmental Analysis for review and approval.

The environmental consultant shall provide a general environmental footprint to the Project Development Team as soon as possible so alternative alignments can be developed.

The District Environmental Coordinator shall be notified upon the discovery of any environmental issue or condition which may influence alignment design or ultimate alignment recommendation.

The Division of Environmental Analysis and the District Environmental Coordinator shall be notified should it become necessary to change an environmental services milestone date.

A preliminary "Purpose and Need Statement" of the project is to be defined early in the initial design and environmental review stages of the project and developed more extensively during the public involvement process. If a Purpose and Need Statement has been developed during the planning phase of the project it will serve as the preliminary Purpose and Need Statement. The Purpose and Need statement shall be continuously evaluated during the development process and modified as needed based on information gained through the public involvement process. The development of the projects "Purpose and Need Statement" will be the responsibility of the project team.

The Consultant or their sub-consultant shall notify the District Environmental Coordinator prior to initiating any fieldwork for the environmental baseline studies.

Public Involvement

If necessary, public meetings or hearings will be held as discussed at the pre-design conference. The consultant will be responsible for providing all necessary exhibits and to attend any public meetings or hearings that may be held.

The extent of Public Involvement is to be identified in these Pre-design Minutes.

Final Design

In the case of a federally funded Phase I contract, the consultant may not advance into the final design stages until such time that all public hearing requirements are met and a final environmental document has been approved.

The consultant shall be responsible for the development of all final details necessary for the complete design of Grade, Drain, and Surfacing Plans suitable for the letting to contract of the project. Plan scales for this project are as follows:

1) Plan and Profile - 1" =
2) Cross Sections - 1" =
3) Cross Section Spacing -
4) Pipe Sections - 1" =
5) Right of Way Strip Maps - 1" =
6) Soil Profile Sheets - 1" =
7) Coordinate Control Sheets - 1" =
8) Erosion Control Sheets- 1" =

Detail sheets shall be provided as required or as otherwise specified in the Pre-design Conference Minutes.

The consultant is responsible for providing an acceptable plan for the maintenance of traffic. This plan shall include, as necessary:

(1) A written description of all required phases and notes to adequately explain the activities required of the contractor during construction to address maintenance of traffic.
(2) Plan and profile views of runarounds, part-width construction or other necessary maintenance of traffic items.
(3) Cross-sections to depict the location of traffic in various phases.

A Final Plans-In-Hand Inspection will be held when the right of way taking, plan construction notes and drainage items are shown on the plans. A detailed maintenance of traffic scheme shall also be available. An updated cost estimate based on all established bid items will be required. Details of Avoidance, Minimization and Mitigation Alternatives for blue-line streams shall be presented. A Drainage Inspection will also be held, frequently concurrent with the Final Inspection. Finalization of plans shall not occur until the approvals of the Final and Drainage Inspection Reports are given by the Department.

A separate Right of Way Inspection may be held, at the discretion of the Department, in order to expedite the Right of Way phase. The Project Manager will make the determination if adequate details have been developed and included within the plans to hold an inspection. Upon approval of the inspection report and incorporation of inspection recommendations into the plans, the Right of Way Plans will be submitted.

It shall be the Consultant's responsibility to see that all comments addressed in all inspection reports have been resolved before submission of Final Plans. Any item that may affect right of way should be resolved prior to the submission of Final Right of Way Plans.

Approximately 6 months prior to the letting date, a complete set of full-size prints of the final plans will be submitted to the Project Manager, to be forwarded to the Plan Processing Section in the Central Office. The Plan Processing Section shall review the plans and return the plans with comments, corrections and revisions necessary to be made to the original plans. The Consultant, prior to submittal of the original mylars of the final construction plans, will perform the required changes to the final plans. With the submittal of the final plans, all electronic plans, terrain models, geometric files, etc. shall be submitted on compact disk (CD), as directed by the Project Manager.

General

(1) The consultant shall be represented at all inspections and meetings. Any plans or exhibits required shall be the responsibility of the consultant.

(2) Any subconsultants utilized must have approval of the Department prior to their performance of any work.

(3) The consultant is responsible for having obtained and being knowledgeable of all Department Manuals including, but not limited to, Design, Drainage, Standard Drawings and Bridges. All work shall be performed in accordance with those manuals or other memos issued subsequent to the publication of those manuals unless otherwise explicitly stated.

(4) The Consultant shall submit the Production-Hour Worksheet, listing only the involved units of work, including supporting documentation of units obtained to the Project Manager to be reviewed. Upon agreement of the Production-Hour units, the Consultant shall submit his fee proposal with detailed production-hours on the Department's standard Production-Hour Worksheet to the Director of Professional Services. The Department's Project Manager shall also submit the Department's detailed Production-Hours

(5) Change orders to this project will not be permitted except in such cases that:

- the project limits have been substantially revised from those initially indicated in the Pre-design Minutes.
- a change of scope has occurred.
- the Consultant is requested to revise the plans as a result of a direction change by the Department.

(6) The consultant is responsible, at all times, for correction of any errors or omissions that he may have made in the preparation of the plans. The consultant shall immediately notify the Project Manager of any item that he feels requires extra work. He shall not proceed with that item of work until such time that the matter of extra work has been resolved.

(7) All original submissions, including pay estimates and consultant monthly reports, shall be sent to the Project Manager. The pay estimate and monthly report may be electronically submitted to the Project Manager. The consultant monthly report shall be submitted even if a pay estimate is not being submitted. All correspondences pertinent to this project shall have the County, Item No. and Project Description noted.

(8) Sets of plans shall be provided for inspections and meetings, as requested by the Project Manager.

(9) The Consultant will be responsible for preparation of all minutes of meetings, including this Pre-design Conference.

(10) Periodic progress meeting will be held with the District as discussed during the Pre-design Conference.

(11) All design work and development of plans, preliminary and final shall be prepared in MicroStation DGN format in accordance with current KTC CADD Standards

(12) The Departments Project Manager assigned to this project is insert name.

(13) The current schedule for this project, as described in the 2002 Six Year Plan is as follows:

Phase	FY
Final Design	20xx
Right of Way	20xx
Utilities	20xx
Construction	20xx

Milestones

The consultant shall provide milestone dates for the following activities:

1) Phase I Design (Preliminary)
   a) Alternate Alignments ready for a Project Team Meeting -
   b) Hold Public Hearing -
   c) Hold PL&G Inspection -
   d) Submit DES -
   e) Submit Electronic Plans -

2) Environmental Services
   a) Submittal of Environmental Base Studies -
   b) Approval of Environmental Base Studies -
   c) Submittal of Draft EA to KTC -
   d) Approval of EA by FHWA -
   e) Receipt of FONSI by KTC -
   f) FHWA Approval of FONSI or EIS -

3) Phase II Design (Final)
   a) Submission of Critical Cross Sections to Geotechnical for obtaining backslopes -
   b) Drainage Inspection -
   c) Advanced Situation Folders -
   d) Final Plans-in-Hand Inspection -
   e) Right of Way Plans Submittal -
   f) Submittal of Review Plans -
   g) Final Roadway Plans Submittal -
   h) Final Structure Plans Submittal -

Other milestones may be added to this list as deemed necessary by the Department or Consultant.

Milestone dates are based on receiving Notice to Proceed by insert date and aerial photogrammetry and digitization by insert date.

KENTUCKY TRANSPORTATION CABINET

TC 61-4
Rev. 6/03

PRODUCTION-HOUR WORKSHEET

COUNTY	PROJECT TYPE
ROUTE	CONSULTANT
DESC.	
	PREPARED BY
ITEM NO.	DATE

SURVEY

No.	ITEM	CREW	UNIT	AMOUNT	HRS/UNIT	HOURS
	RECONNAISSANCE					
1	Control - (existing)	1	Mile			0
2	Utilities - (identify & contact)	1	No.			0
3	Drainage - (sink holes, streams, pipes, etc.)	1	Mile			0
	CONTROL					
4	Horizontal	3	Mile			0
5	Vertical	3	Mile			0
6	Process data	1	Mile			0
	PLANIMETRIC SURVEY					
7	Planimetric location *(specify complete, pickup or update)*	3	Mile			0
8	Utilities location	3	Mile			0
9	Process data	1	Mile			0
	TERRAIN SURVEY					
10	DTM data collection *(Items 11-18 not required if used)*	3	Acre			0
11	Verify terrain model accuracy	3	Mile			0
12	Tie-ins	3	No.			0
13	Drainage situations survey (Bridge)	3	No.			0
14	Drainage situations survey (Culvert)	3	No.			0
15	Drainage pipe section (non-situation size)	3	No.			0
16	Flood plain data	3	No.			0
17	Railroad Surveys	3	No.			0
18	Additional necessary DTM data *(specify pickup or update)*	3	Acre			0
19	Process data	1	Mile			0
	ESTABLISH PROPERTY LINES & OWNERSHIP					
20	Contact & Interview Property Owners	1	Parcel			0
21	Field tie property lines/corners	3	Parcel			0
	STAKING					
22	Stake centerlines, approaches, detours	3	Mile			0
23	Stake core holes - structures *(unit is per structure)*	3	No.			0
24	Stake core holes - roadway *(unit is per core hole)*	3	No.			0
	SURVEY MISCELLANEOUS					
25	Determine roadway elevations (Crown and EP)	3	Mile			0
26	Environmental areas	3	No.			0
27						0
28						0
29						0
	SURVEY TOTAL					**0**

KENTUCKY TRANSPORTATION CABINET

TC 61-4
Rev. 6/03

PRODUCTION-HOUR WORKSHEET

COUNTY	PROJECT TYPE
ROUTE	CONSULTANT
DESC.	
	PREPARED BY
ITEM NO.	DATE

CONCEPTUAL DESIGN

No.	ITEM	UNIT	AMOUNT	HRS/UNIT	HOURS
30	Computer setup	LS			0
31	Prepare existing manuscripts	Mile			0
32	Establish approximate property lines and ownership	Parcel			0
33	Study and develop typical sections	No.			0
34	Study and develop horizontal alignments	Mile			0
35	Study and develop vertical alignments	Mile			0
36	Create and evaluate proposed roadway models	Mile			0
37	Design entrances	No.			0
38	Pre-size pipes (all alternates)	No.			0
39	Pre-size culverts (all alternates)	No.			0
40	Pre-size bridges (all alternates)	No.			0
41	Develop Highway Capacity Analysis	LS			0
42	Study and development of interchange	No.			0
43	Study and development of intersection	No.			0
44	Study and develop maintenance of traffic plan	LS			0
45	Plot/print copies of plans for team meeting and inspections	LS			0
46	Calculate preliminary quantities and develop cost estimates	Alt.			0
47	Revise plans and estimates	LS			0
48	Preliminary R/W with taking areas	Parcel			0
49	Prepare design executive summary	LS			0
50	Develop/document "Avoidance Alternatives to Water Related Impacts"	LS			0
	CONCEPTUAL DESIGN MISCELLANEOUS				
51					0
52					0
53					0
54					0
55					0
56					
57					
58					
59					
	CONCEPTUAL DESIGN TOTAL				**0**

KENTUCKY TRANSPORTATION CABINET

TC 61-4
Rev. 6/03

PRODUCTION-HOUR WORKSHEET

COUNTY		PROJECT TYPE	
ROUTE		CONSULTANT	
DESC.			
		PREPARED BY	
ITEM NO.		DATE	

RIGHT OF WAY PLANS

No.	ITEM	UNIT	AMOUNT	HRS/UNIT	HOURS
60	Deed research	Parcel			0
61	Establish property and ownership	Parcel			0
62	Calculate R/W	Parcel			0
63	Prepare legal descriptions	Parcel			0
64	Complete R/W summary sheet	Parcel			0
65	Generate right of way strip map (scale 1" = xxx')	Sheet			0
66	Prepare R/W Plans Submittal	LS			0
67	R/W revisions after R/W submittal	LS			0
	R/W PLANS MISCELLANEOUS				
68					0
69					0
70					0
	RIGHT OF WAY PLANS TOTAL				**0**

KENTUCKY TRANSPORTATION CABINET

TC 61-4
Rev. 6/03

PRODUCTION-HOUR WORKSHEET

COUNTY	PROJECT TYPE
ROUTE	CONSULTANT
DESC.	
	PREPARED BY
ITEM NO.	DATE

FINAL PLAN PREPARATION

No.	ITEM	UNIT	AMOUNT	HRS/UNIT	HOURS
80	Computer setup	LS			0
81	Update existing topography and terrain model	Mile			0
82	Refine alignments (horizontal & vertical)	Mile			0
83	Develop pavement design	No.			0
84	Finalize templates & transitions	No.			0
85	Develop final roadway model	Mile			0
86	Develop proposed design	Mile			0
87	Generate plan sheets (scale 1" = xxx')	Sheet			0
88	Generate profile sheets (scale 1" = xxx')	Sheet			0
89	Detail cross sections (scale 1" = xxx')	No.			0
90	Design entrances	No.			0
91	Revise roadway plans from soils report	Mile			0
	DRAINAGE				
92	Develop pipe sections (< 54")	No.			0
93	Develop drainage system map	Mile			0
94	Develop drainage situation (bridge)	No.			0
95	Develop drainage situation (culvert)	No.			0
96	Develop blue line stream channel change (=> 200')	No.			0
97	Drainage analysis (entrance pipes)	No.			0
98	Drainage analysis (A < = 200 acres)	No.			0
99	Drainage analysis (200 acres < A < 1.0 sq. mile)	No.			0
100	Drainage analysis (A = > 1.0 sq. mile) level 1 analysis	No.			0
101	Drainage analysis (A = > 1.0 sq. mile) level 2 analysis	No.			0
102	Drainage analysis (A = > 1.0 sq. mile) level 3 analysis	No.			0
103	Special drainage studies	No.			0
104	Roadway ditches and channels	Mile			0
105	Develop Erosion Control Plan	Mile			0
106	Inlet spacing calculations	No.			0
107	Storm sewers calculations	No.			0
108	Perform scour analysis	No.			0
109	Assemble preliminary and final drainage folders	LS			0
110	Prepare advanced situation folder - bridge	No.		80	0
111	Prepare advanced situation folder - culvert	No.			0
	DRAINAGE MISCELLANEOUS				
112	Develop/document "Assessment of Water Related Impacts"	LS			0
113					0
114					0
115					0

KENTUCKY TRANSPORTATION CABINET

TC 61-4
Rev. 6/03

PRODUCTION-HOUR WORKSHEET

COUNTY	PROJECT TYPE
ROUTE	CONSULTANT
DESC.	
	PREPARED BY
ITEM NO.	DATE

FINAL PLAN PREPARATION (Continued)

No.	ITEM	UNIT	AMOUNT	HRS/UNIT	HOURS
116	Prepare layout sheet	LS			0
117	Prepare typical sections	No.			0
118	Prepare Interchange geometric approval	No.			0
119	Prepare intersection geometric approval	No.			0
120	Prepare coordinate control sheet	Mile			0
121	Prepare elevation developments	No.			0
122	Prepare striping plan	No.			0
123	Calculate final quantities	Mile			0
124	Complete general summary	LS			0
125	Complete paving summary	LS			0
126	Complete drainage summary	LS			0
127	Complete pavement under-drain summary	LS			0
128	Prepare cost estimate	LS			0
129	Plot/print copies of plans	LS			0
130	Plan revisions	Mile			0
131	Prepare final construction plans submittal	LS			0
	MAINTENANCE OF TRAFFIC				
132	Write maintenance of traffic notes (TCP)	LS			0
133	Prepare construction phasing plans	Mile			0
134	Develop diversion plan sheets	Sheet			0
135	Develop diversion profile sheets	Sheet			0
136	Develop diversion cross sections	No.			0
137	Develop temporary drainage	No.			0
	FINAL PLANS MISCELLANEOUS				
138	Document available rock quantities	LS			0
139					0
140					0
141					0
142					
143					0
	FINAL PLANS TOTAL				**0**

KENTUCKY TRANSPORTATION CABINET

TC 61-4
Rev. 6/03

PRODUCTION-HOUR WORKSHEET

COUNTY		PROJECT TYPE	
ROUTE		CONSULTANT	
DESC.			
		PREPARED BY	
ITEM NO.		DATE	

MEETINGS

No.	ITEM	UNIT	AMOUNT	HRS/UNIT	HOURS
150	Purpose and Need *(# of persons)*	No.			0
151	Range of Alternatives *(# of persons)*	No.			0
152	Drainage inspection *(# of persons)*	No.			0
153	Scope of Impacts *(# of persons)*	No.			0
154	Selected Alternatives *(# of persons)*	No.			0
155	Project team meetings *(# of persons)*	No.			0
	MEETINGS MISCELLANEOUS				
156					0
157					0
158					0
159					0
	MEETINGS TOTAL				**0**

PUBLIC INVOLVEMENT

No.	ITEM	UNIT	AMOUNT	HRS/UNIT	HOURS
160	Develop and Maintain Mailing List	LS			0
161	Prepare for Advisory Committee/Officials Meeting	No.			0
162	Attend Advisory Committee/Officials Meeting *(# of persons)*	No.			0
163	Prepare for Public Meetings/Hearings	No.			0
164	Attend Public Meetings/Hearings *(# of persons)*	No.			0
165	Prepare and Distribute Newsletter	No.			0
166	Property owner coordination	No.			0
	PUBLIC INVOLVEMENT MISCELLANEOUS				
167					0
168					0
169					
	PUBLIC INVOLVEMENT TOTAL				**0**

QA/QC

No.	ITEM	UNIT	AMOUNT	HRS/UNIT	HOURS
180	Plan review				0
181	Structure review				0
182					0
183					0
184					0
185					0
	QA/QC TOTAL				**0**

KENTUCKY TRANSPORTATION CABINET

TC 61-4
Rev. 6/03

PRODUCTION-HOUR WORKSHEET

COUNTY		PROJECT TYPE	
ROUTE		CONSULTANT	
DESC.			
		PREPARED BY	
ITEM NO.		DATE	

PRODUCTION-HOUR SUMMARY

SURVEY TOTAL	0
CONCEPTUAL DESIGN TOTAL	0
RIGHT OF WAY PLANS TOTAL	0
FINAL PLANS TOTAL	0
MEETINGS TOTAL	0
PUBLIC INVOLVEMENT TOTAL	0
QA/QC TOTAL	0
GRAND TOTAL	**0**

Kentucky Transportation Cabinet
Engineering Services Pay Estimate

TC 61-407
Rev. 09-05

Document No.

Item No.	Estimate No.

Consultant's Name and Address

Date

Effective Date of Notice to Begin Work Work May Not Begin Before This Date

Consultant's Federal ID No.

County

For Work Done
Through

Description of Work	Method of Fee	Total Amount of Contract	Total % Prev. Est.	% This Est.	Total % To Date	Previous Earnings	Earnings This Estimate	Total Earnings To Date
	Totals	0.00				0.00	0.00	0.00
		Less Retainage						
						Total Due Consultant To Date		0.00
						Less Previous Payments		
						Total This Estimate		0.00

Miscellaneous Information

Consultant

Transportation Project Manager

9-23-2005

EXHIBIT 200-11
(Page 1 of 2)

Kentucky Transportation Cabinet
Engineering Services Pay Estimate

TC 61-407
Rev. 09-05

Document No.

Item No.	Estimate No.

Consultant's Name and Address

Consultant's Federal ID No.

Date

County

Effective Date of Notice to Begin Work Work May Not Begin Before This Date

For Work Done
Through

Description of Work	Method of Fee	Total Amount of Contract	Total % Prev. Est.	% This Est.	Total % To Date	Previous Earnings	Earnings This Estimate	Total Earnings To Date
	Totals	0.00				0.00	0.00	0.00

EXHIBIT 200-11
(Page 2 of 2)

9-23-2005

Kentucky Transportation Cabinet
Engineering Services Pay Estimate

TC 61-408
Rev. 09-05

MARS Contract No.

Item No.	Estimate No.

Consultant's Name and Address

Consultant's Federal ID No.

Date

County

Effective Date of Notice to Begin Work Work May Not Begin Before This Date

For Work Done
Through

Description of Work	Method of Fee	Total Amount of Contract	Total % Prev. Est.	% This Est.	Total % To Date	Previous Earnings	Earnings This Estimate	Total Earnings To Date
	Totals	0.00				0.00	0.00	0.00
		Less Retainage						
						Total Due Consultant To Date		0.00
						Less Previous Payments		
						Total This Estimate		0.00

Miscellaneous Information

Vendor

Project Manager

cc: Division of Professional Services
DSHE for Project Development

9-23-2005

EXHIBIT 200-12
(Page 1 of 2)

Kentucky Transportation Cabinet
Engineering Services Pay Estimate

TC 61-408
Rev. 09-05

MARS Document No.

Item No.	Estimate No.

Consultant's Name and Address

Date

Effective Date of Notice to Begin Work Work May Not Begin Before This Date

Consultant's Federal ID No.

County

For Work Done
Through

Description of Work	Method of Fee	Total Amount of Contract	Total % Prev. Est.	% This Est.	Total % To Date	Previous Earnings	Earnings This Estimate	Total Earnings To Date
	Totals	0.00				0.00	0.00	0.00

9-23-2005

EXHIBIT 200-12
(Page 2 of 2)

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN

TC 61-8E
REV. 10/01

CONSULTANT PERFORMANCE EVALUATION

Name and Address of Contractor _____

County: _____

Road Name: _____

Project No: _____

CONTRACT DATA

Contract Number (CH) _____

Type of Work ☐ Study ☐ Design ☐ Other (Specify) _____

Type of Contract ☐ Fixed Price ☐ Other _____

Amount of Original Contract _____

Total Amount of Modifications _____

Total Amount of Contract _____

Date Contract Awarded: _____

Contacted Completion Date Including Extensions: _____

Actual Completion Date of Contract: _____

Type and Extent of Subconsultants: _____

			RATINGS				
			4	3	2	1	WT
A. Project Management	1. Top Management	a. Inspected, Meeting	Attended All ☐	Attended Most ☐	Attended Few ☐	Attended None ☐	1
		b. Involvement	Seemed Aware of All Aspects ☐	Responsive to Most Questions ☐	Relied Heavily on Project Engineer ☐	Uninvolved ☐	2
		c. Leadership	Aware of Department Guidelines ☐	Some Department Guidance Required ☐	Frequent Department Supervision Required ☐	Uninvolved ☐	2
	2. Project Engineer	a. Preparedness	Clearly Presented All Considerations ☐	Presented Most Data, Minor Oversights ☐	Presented Alternatives With Few Facts For Decisions ☐	Seemed to Have Given Little Thought to Alternatives ☐	2
		b. Capacity	All Requests Quickly Resolved ☐	Some Department Guidance Required ☐	Frequent Department Supervision Required ☐	Department Lead Throughout Project ☐	2
	3. Coordination	a. Responsiveness	All Requests Quickly Resolved ☐	Most Request Resolved in Reasonable Time ☐	Too Much Time to Resolve Some Issues ☐	Frequent Calls Required to Resolve Issues ☐	2
		b. Schedule	Met All Control Dates on Tight Schedule ☐	Met All Dates, Normal Schedule ☐	Dates Slipped Minimally Due to Consultants ☐	Dates Slipped Significantly Due to Consultants ☐	2
B. Plan Quality and Accuracy	1. Conceptual Design		All Concerns Clearly Presented ☐	Minor Changes Not Originally Presented ☐	Some Concerns Required Re-Review ☐	Inadequate Presentation Caused Re-Review ☐	2
	2. Final Inspection		Plans Adequate, For Review Minimum Revisions ☐	Plans Adequate, Few Major Revisions ☐	Incomplete Plans, Many Comments As A Result ☐	Inadequate Presentation Caused Re-Review ☐	2
	3. Right-of-Way and Utility Plans		Plans Complete, No Revisions Due To Consultant ☐	Plans Adequate, Minor Consultant Oversights ☐	Plans Required Some Major Revisions ☐	Plans Incomplete, Required Significant Revisions ☐	3
	4. Grade and Drain Plans		Ready For Letting As Planned ☐	Plans Adequate, Minor Revisions Required ☐	Plans Required Some Major Revisions ☐	Plans Incomplete, Required Significant Revisions ☐	3
	5. Drainage Plans		Calculations and Plans Clearly Presented ☐	Consultant Needed Minor Help to Complete Work ☐	Consultant Required Frequent Help To Complete Work ☐	Incomplete Required Re-Submittal ☐	2

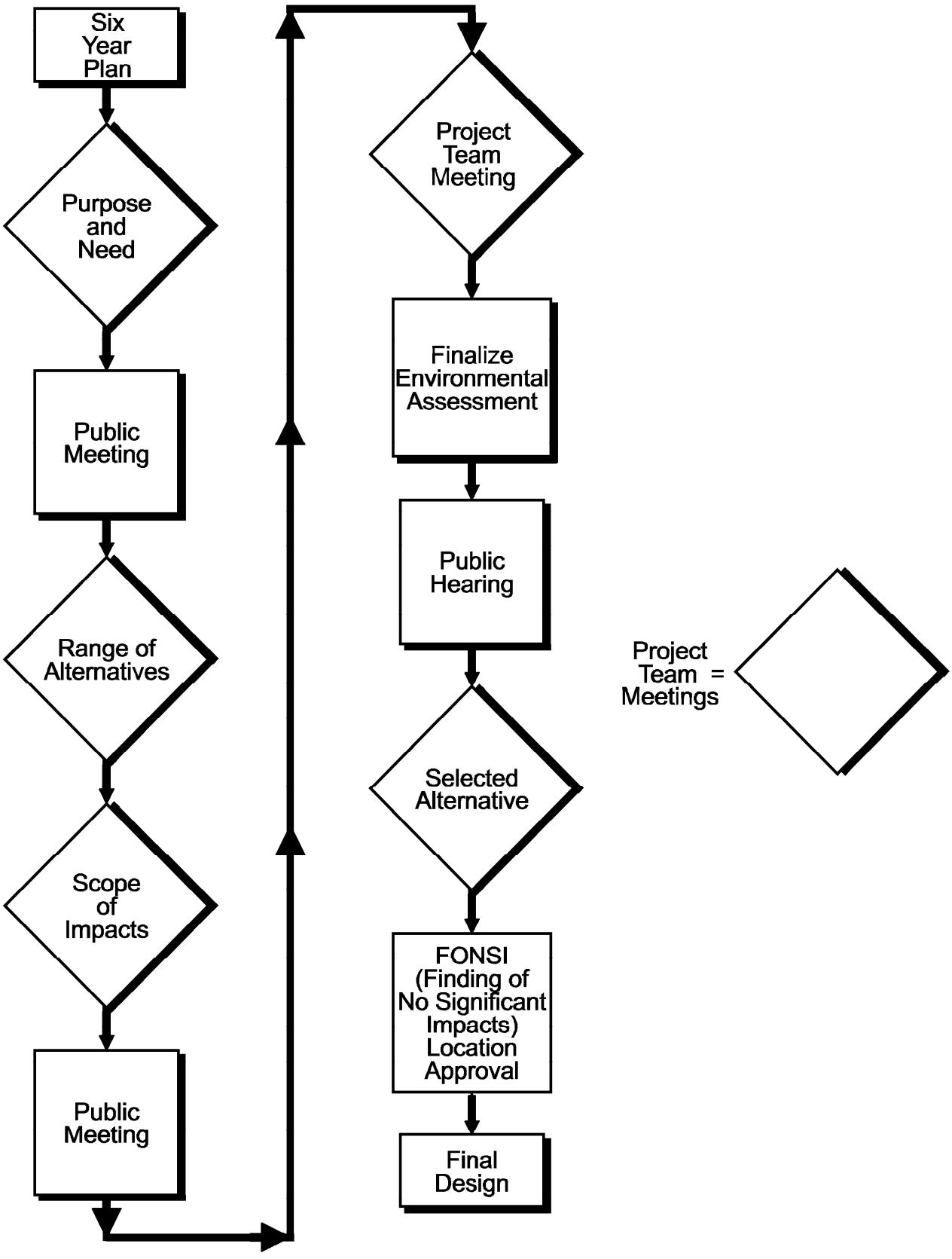
RATING = _____ OF 100 POINTS

Rated By: _____ Signature _____ Date _____
Type Name and Title

Right-of-Way Rated By: _____ Signature _____ Date _____
Type Name and Title

Comments:

CONCEPTUAL DESIGN
TYPICAL FLOW CHART FOR A CAPACITY IMPROVEMENT PROJECT



	Phase	Central Office Preparation and/or Review Week	FHWA Review Week	Total Time (Includes one week mail time)
1.	Preliminary Line and Grade Inspection Report	1	1	3
2.	Final Plans-in-hand Inspection Report	2	2	5
3.	Design Executive Summary	1	1	3
4.	Pavement Design Sheet	1	1	3
5.	Interchange Approval			
	a. Diamond	1	3	5
	b. Cloverleaf	1	4	6
	c. Directional	2	5	8
6.	Channelized Intersection Approval	1	2	4
7.	Railroad Structures Type and Clearance	6	2	9
8.	Navigable Stream Structures Approval Navigable Permits	4	3	8
9.	Preliminary and Final Right-of-Way Plan and Final Right-of-Way Plan Revisions	1	1	3

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAY DESIGN
DIVISION OF HIGHWAY DESIGN

TC 61-9E
REV. 02/05
Page 1 of 2

DESIGN EXECUTIVE SUMMARY

County:_____ Item No.:_____

Federal Project No.:_____ UPN: _____

MARS No.:_____ UPN: _____

Project Description:

Roadway Classification:

☐ Local ☐ Collector ☐ Arterial ☐ Interstate ☐ Rural ☐ Urban

ADT(current) _____ ADT (_____) _____ DHV (_____) _____

Posted Speed Limit: ☐ 55 (rural) ☐ 35 (urban) ☐ Other (Specify):_____

Design speed selected by the Project Team _____

☐ Concurrence in noted Typical Exceptions to be obtained from Director of Design.

DESIGN CRITERIA	EXISTING	TYPICAL	PROJECT TEAM RECOMMENDATION
Number of Lanes			
Pavement Width			
Shoulder Width, Slope			
Bridge Width			
Minimum Radius (e_{max}=_____)			
Maximum Grade			
Minimum Sight Distance			
Border Area (urban)			
_____			

Design Criteria Notes:

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAY DESIGN
DIVISION OF HIGHWAY DESIGN

TC 61-9E
Rev. 02/05
Page 2 of 2

DESIGN EXECUTIVE SUMMARY (continued)

Access Control Type: _____

Environmental Action: _____ Approval Date: _____

Existing Pavement Depths: _____

Attachments:
(1) Map showing project location.
(2) Typical sections, including any bridges, on "8 1/2 X 11".
(3) Cost comparison table of alternates vs. Six-Year Plan.

Discussions:
(1) Alternatives considered including Preferred and No Build.
(2) If Preferred alternate cost is 15% or more above Six -Year Plan cost.
(3) Maintenance of Traffic Plan.
(4) Avoidance Alternatives to Water-Related Impacts.
(5) Consideration for bicycle and pedestrian facilities.
(6) Purpose and Need Statement.

Submitted By: _____ Date: _____
Project Engineer, check one: (Depart of Highway ☐ or Consultant ☐)

Recommended By: _____ Date: _____
Project Manager

Recommended By: _____ Date: _____
Location Engineer

Recommended By: _____ Date: _____
T.E.B.M. for Location

Comments:

GEOMETRIC APPROVAL GRANTED BY:

Signature: _____ Date: _____
Director, Division of Highway Design

MEMO TO: Gary Sharpe, P.E.
Director
Division of Highway Design

ATTENTION: Ananias Calvin, P.E.
Location Engineer

FROM: Randy Turner
Design Section
District Seven

DATE: April 15, 2004

SUBJECT: Montgomery County
KY 11 Reconstruction
Item No. 7-317

In concurrence with Section 61-01.1450 of the current Design Manual, submitted herewith is the Design Executive Summary, as prepared by design consultant. If the summary is acceptable, please add the required signatures and return a copy to the District Office.

If you have any questions or comments, please call this office.

rt
Attachments
cc: James Ballinger / pf
Frank Bush

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAY DESIGN
DIVISION OF HIGHWAY DESIGN

TC 61-9E
REV. 02/05
Page 1 of 2

DESIGN EXECUTIVE SUMMARY

County: Montgomery Item No.: 7-317.00

Federal Project No.: UPN:

MARS No.: 65887 01D UPN: FD04 087 0011 010-015

Project Description:

Mt. Sterling-Flemingsburg Road
Reconstruct and relocate US 460 and Ky 11 from Interstate Drive to approximately 2000 feet north of Ky 1990 (Approximately 5.5 miles).

Roadway Classification:

☐ Local ☐ Collector ☒ Arterial ☐ Interstate ☒ Rural ☐ Urban

ADT(current) 9,670 ADT (2026) 17,400 DHV (2026) 1,760

Posted Speed Limit: ☒ 55 (rural) ☐ 35 (urban) ☐ Other (Specify):

Design speed selected by the Project Team 45 MPH @ 5-lane, 60 MPH @ 4-lane/2-lane

☐ Concurrence in noted Typical Exceptions to be obtained from Director of Design.

DESIGN CRITERIA	EXISTING	TYPICAL	PROJECT TEAM RECOMMENDATION
Number of Lanes	2	5/4/2	5/4/2
Pavement Width	24	62/48/24	62/48/24
Shoulder Width, Slope	2	8', 4%	12', 4%
Bridge Width	N/A	N/A	N/A
Minimum Radius (e_{max} = 8%)	637'	600' (45), 1205 (60)	1432.5' (45 MPH), 1350' (60 MPH)
Maximum Grade	6.0%	6% (45), 4% (60)	4.9% (45 MPH), 4.0% (60 MPH)
Minimum Sight Distance	214'	360' (45), 570' (60)	818' (45 MPH), 597' (60 MPH)
Border Area (urban)			

Design Criteria Notes:

Three typical sections are utilized on this project. The portion from Interstate Drive to just norht of Fairfield Drive will be a 5-lane rural section and will utilize 45 MPH design, access control by permit. A 4-lane depressed median section, designed at 60 MPH with partially controlled access will continue to approximately one-half mile north of Van Thompson Road in Judy. The remainder of the project will be 2-lanes with access control by permit, designed for 60 MPH.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAY DESIGN
DIVISION OF HIGHWAY DESIGN

TC 61-9E
Rev. 02/05
Page 2 of 2

DESIGN EXECUTIVE SUMMARY (continued)

Access Control Type: Permit (5-lane, South end), Partially Control (4-lane), Permit (2-lane, North end)

Environmental Action: Overview, requested March 7, 2000 Approval Date: _____

Existing Pavement Depths: Approximately 10 inches aggregate with 8 inches asphalt

Attachments:
(1) Map showing project location.
(2) Typical sections, including any bridges, on "8 1/2 X 11".
(3) Cost comparison table of alternates vs. Six-Year Plan.

Discussions:
(1) Alternatives considered including Preferred and No Build.
(2) If Preferred alternate cost is 15% or more above Six -Year Plan cost.
(3) Maintenance of Traffic Plan.
(4) Avoidance Alternatives to Water-Related Impacts.
(5) Consideration for bicycle and pedestrian facilities.
(6) Purpose and Need Statement.

Submitted By: _____ Date: _____
Project Engineer, check one: (Depart of Highway ☐ or Consultant ☐)

Recommended By: _____ Date: _____
Project Manager

Recommended By: _____ Date: _____
Location Engineer

Recommended By: _____ Date: _____
T.E.B.M. for Location

Comments:

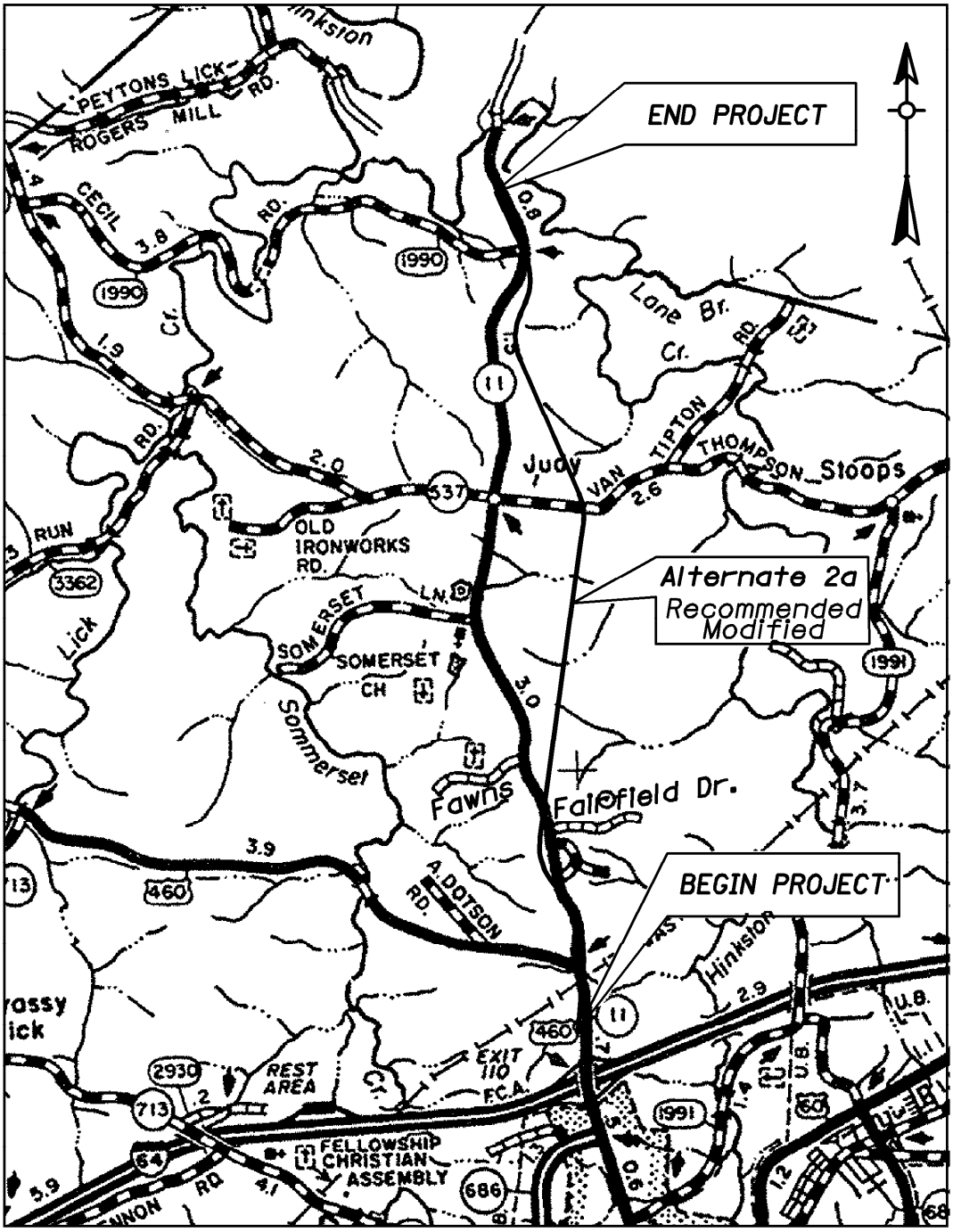
No design exceptions required.

GEOMETRIC APPROVAL GRANTED BY:

Signature: _____ Date: _____
Director, Division of Highway Design

KY 11 VICINITY MAP

MONTGOMERY COUNTY
ITEM NO. 7–317



MAP IS NOT TO SCALE

Item No. 7-317.00
Mt. Sterling – Flemingsburg Road
KY 11
Montgomery County

Project Description

This proposed improvement to US 460/KY 11 begins just north of the existing I-64/US 460 interchange and continues north, nearly to the Bath county line. US 460 leaves the corridor approximately one-half mile into the project. The route is classified as KY 11, a rural minor arterial, for the remainder of the project.

Purpose and Need

The purpose of this project is to reconstruct the KY 11 roadway from interstate 64 northward to 1 mile south of the Bath County Line. The reconstruction will tie in with recent improvements on each end of the project and is part of an initiative to improve the entire KY 11 corridor. On the south end or the beginning, the project will tie into the newly designed I-64 interchange improvement project. On the north end, the project ties into the newly constructed two-lane section of route 11 just 2000 feet north of KY 1990. This stretch of roadway has many geometric and safety deficiencies. There are deficiencies in the existing vertical and horizontal alignments as well as inadequate roadway and shoulder widths. Future traffic volumes also indicate the need for increased capacity between I-64 and Van Thompson Road in Judy.

Alternate Descriptions

No-Build Alternate

The portion of US 460/KY 11 studied does not meet current design criteria for a roadway carrying the existing traffic volume or posted speed limit. Horizontal and vertical curves impede sight distance and the shoulder and ditch widths allow no margin of error for the traveling public. The traffic on this facility is expected to nearly double by the design year (2026), compounding an already undesirable situation. The No-Build option is not considered viable for this project.

Build Alternates

Four Alternatives have been studied for the realignment and widening of KY 11 in northern Montgomery County. A variety of designs have been studied regarding number of lanes and access control types and locations. Alternates 1, 2 and 3 utilize a 5 lane section in the southern portion, 4 lane and 40 foot depressed median section with partially controlled access in the middle of the project. This type of design provides at-grade intersections and allows access points with a minimum spacing of 1200 feet. The

northern portion of these alternates transitions to a 2 lane section to match the adjacent construction section.

Alternate No. 1

Alternate No. 1 begins on the existing road, just north of the I-64 interchange. It remains on the existing corridor and replaces the existing road through the southern section. North of the US 460 intersection, it swings to the west, leaving the existing road in place for access. Alternate No. 1 crosses the existing road near the middle of the project, then parallels it on the east side. It crosses Van Thompson Road approximately 600 feet east of the existing intersection and continues on the east side until it meets the existing roadway, just north of KY 1990.

Alternate No. 2

Alternate No. 2 begins on the existing roadway, just north of the I-64 interchange. It replaces the existing roadway through the southern section before swinging to the East. It then departs from the existing facility a substantial distance, running near the back of several farms. Alternate No. 2 crosses Van Thompson Road approximately 1300 feet east of the existing intersection and continues on the east side until it meets the existing roadway, just north of KY 1990.

Alternate No. 3

Alternate No. 3 begins at the same location as Alternate 2 and is coincident until it approaches the North Ridge subdivision. It then swings to the west, leaving the existing road in place for access. It passes behind much of the existing development along KY 11 and crosses Bunker Hill Road approximately 800 feet west of the existing intersection. Alternate No. 3 continues on the west side until it crosses existing KY 11 approximately 4000 feet north of the intersection at Judy. It then follows the existing roadway, on the east side, and is coincident with Alternate No. 2, until it meets the existing roadway.

Alternate No. 4 was not developed.

Alternate No. 5

Alternate No. 5 was developed as an alternative to the 4 lane facility. It utilized a 5 lane rural section to the US 460 intersection, carried a 3 lane section to Fairfield Drive, and then maintained 2 lanes to the north end of the project. It was intended to be as close to the existing facility as possible with modifications to remedy horizontal and vertical deficiencies and allow for maintenance of traffic during construction. The majority of Alternate 5 is located on the east side and immediately adjacent to the existing roadway.

Cost Comparison

Alternate	Right of Way	Utilities	Construction	Total
Six Year Plan	$3,000,000	$1,500,000	$10,300,000	$14,800,000
Alternate 1	*	*	*	*
Alternate 2A (Mod.) (Preferred)	**$3,150,000**	**$3,000,000**	**$16,700,000**	**$22,850,000**
Alternate 3	*	*	*	*
Alternate 5	$4,100,000	$7,900,000	$10,300,000	$22,300,000

Alternate 4 was not developed

* Costs for these alternates were not determined.

Preferred Alternate

Alternate 2A Modified was recommended by the project team, with substantial public input, for advancement to final design.

Much effort has been expended from an engineering perspective on what type of facility fit the specific needs of this project and where it should be located. The Phase I design for this project has included a substantial amount of public involvement. Several public meetings have been held between March, 2000 and December, 2002 to keep the public informed and gather their opinions.

The benefit of a two lane versus a four lane roadway has been strongly debated. Much of this facility would provide a marginal Level of Service for the design year if two lanes were constructed. A four lane roadway, however, seemed like more than what was necessary for this location. The traffic projections were questioned, reviewed, and the final projections included in the analysis.

Of the three alternates originally developed, Alternate 2 received the most support from the public. It has been modified several times due to public input and has resulted in Alternate 2A Modified. Alternate 2A Modified was presented along with Alternate 5 at a public meeting in December, 2002. The 4 lane, cross-country alignment provided by Alternate 2A Modified was contrasted with the 2 lane, existing location provided by Alternate 5. The public response was overwhelmingly (91%) in favor of Alternate 2A Modified.

Preferred Alternate Cost Versus Six Year Plan

The total cost estimated for the Preferred Alternate is substantially more than the amount provided in the six year plan.

Based on the amount allocated, this project was obviously programmed with a 2 lane facility in mind. The construction cost of a two lane facility matches the allocated funds and would be much less expensive than the 5 lane/4 lane/2 lane facility that has been selected. A two lane facility, however, would still have to be offset for constructability,

requiring more utility relocation funding than provided (see Alternate 5 estimated utility relocation cost). Some of the additional right of way and utility costs can be attributed to the continuing development along the corridor, but the utility relocation costs appear to have been initially underestimated.

Maintenance of Traffic

The alignment of Alternate 2A Modified was developed with an eye for maintaining traffic during construction. It is offset from the existing roadway wherever possible to aid in constructability. Anywhere the alignment crosses the existing roadway, grades are compatible to allow temporary connections during construction. A large portion of the facility is on a new alignment, minimizing conflict with the existing roadway.

Phase IA will include construction of most areas that will not impact the existing facility.

Phase IB will include the construction of any temporary connections to the existing facility.

Phase II should shift traffic to the temporary connections and portions of the new mainline roadway.

Phase III should complete the traffic shift to the new facility and allow removal of the temporary connections and completion of the facility.

Avoidance Alternatives to Water-Related Impacts
Item No. 7-317.00
Mt. Sterling – Flemingsburg Road
KY 11
Montgomery County

This project is in the northern part of Montgomery County, leading from the I-64 interchange in Mt. Sterling northward to Bath County. It involves reconstructing US 460/KY 11 to various widths and lane configurations to improve the capacity and safety of the facility.

Several alternatives were studied for this project, each with different impact to blueline streams. The existing roadway is generally located along a ridge, minimizing the existing pipe crossings. One alternate (Alternate 5) studied a two-lane facility near the existing alignment. That alternate would have minimized the stream impact, but was not preferred by the public and was not chosen by the project team.

Another alternate (Alternate 1) crossed the existing facility several times and was located nearer to the ridge. This alternate would also have had less stream impact, but was not preferred by the public and was not chosen by the project team.

Another alternate (Alternate 3) was located substantially west of the existing facility, away from the ridge and would have similar impacts to the preferred alternate.

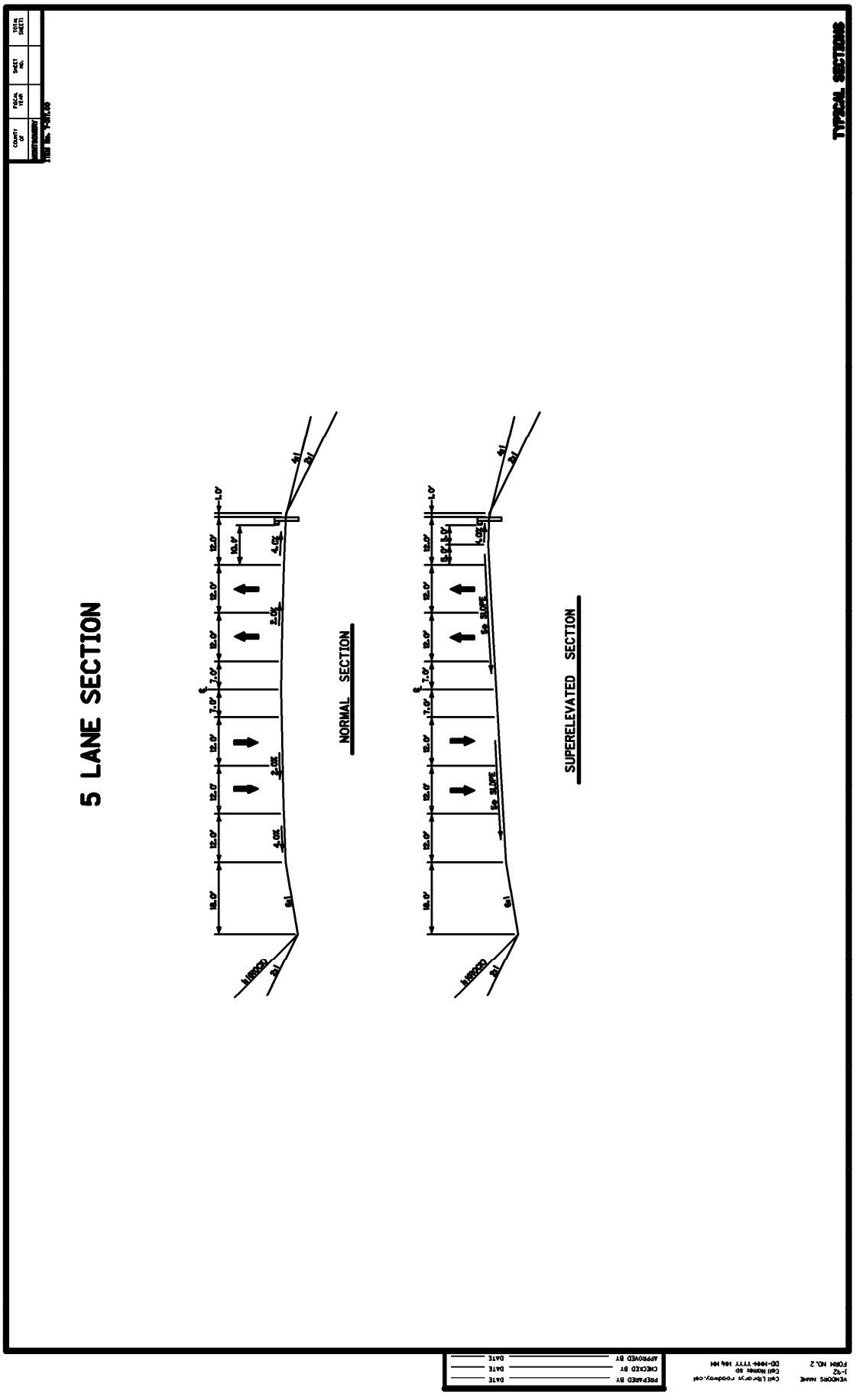
The preferred alternate (Alternate 2A Modified) is on the east side of the ridge and was refined to minimize impact to some ephemeral streams, but most blueline crossings could not be avoided. Most crossings, however, are barely blueline streams (see estimated culvert sizes below), thereby avoiding significant water resource impact.

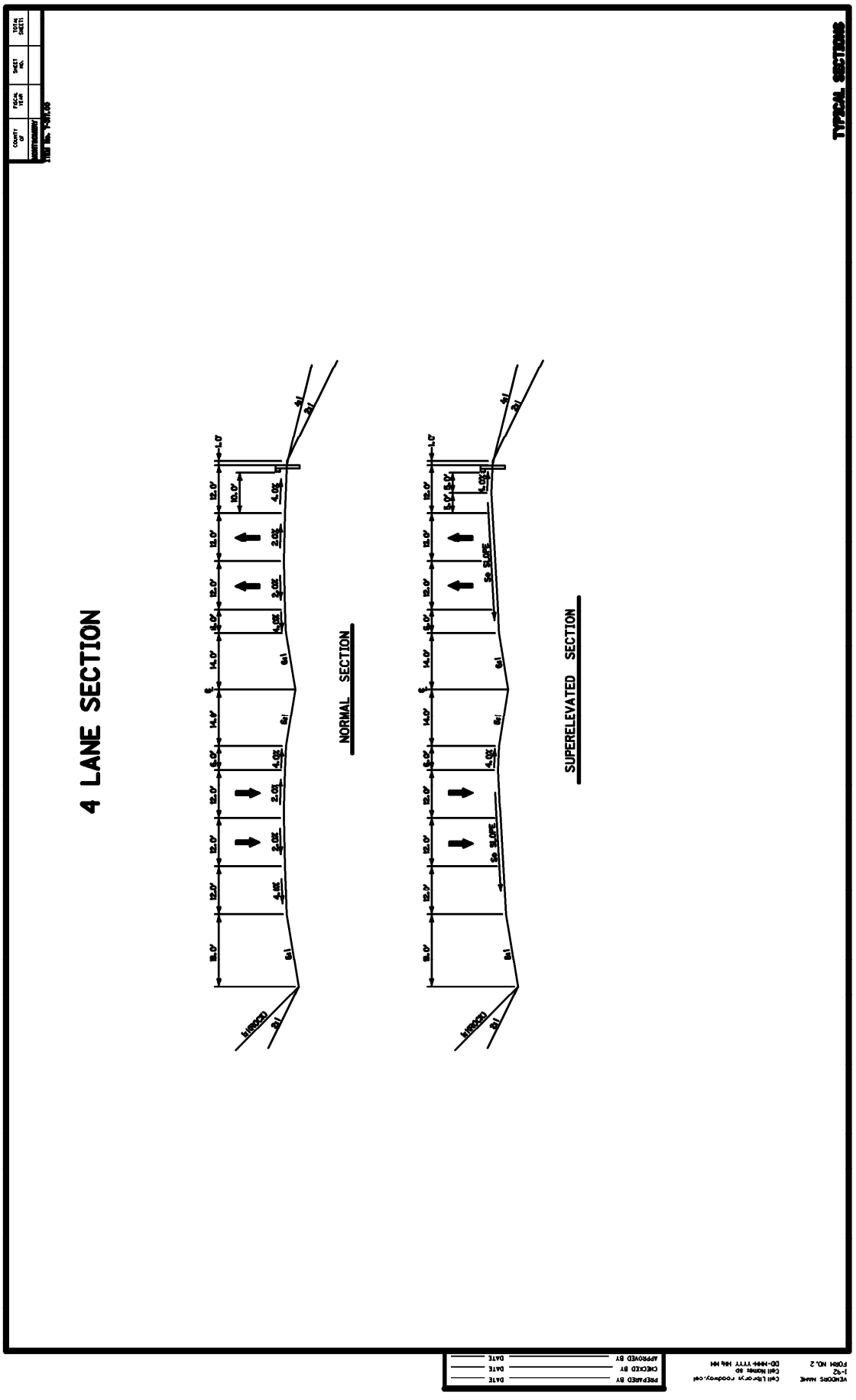
Approximate Station	Estimated Culvert Size
Sta. 24+40	12' x 6' R.C.B.C.
Sta. 34+60	36" Pipe
Sta. 123+45	36" Pipe
Sta. 139+70	42" Pipe
Sta. 167+00	66" Pipe
Sta. 204+80	42" Pipe

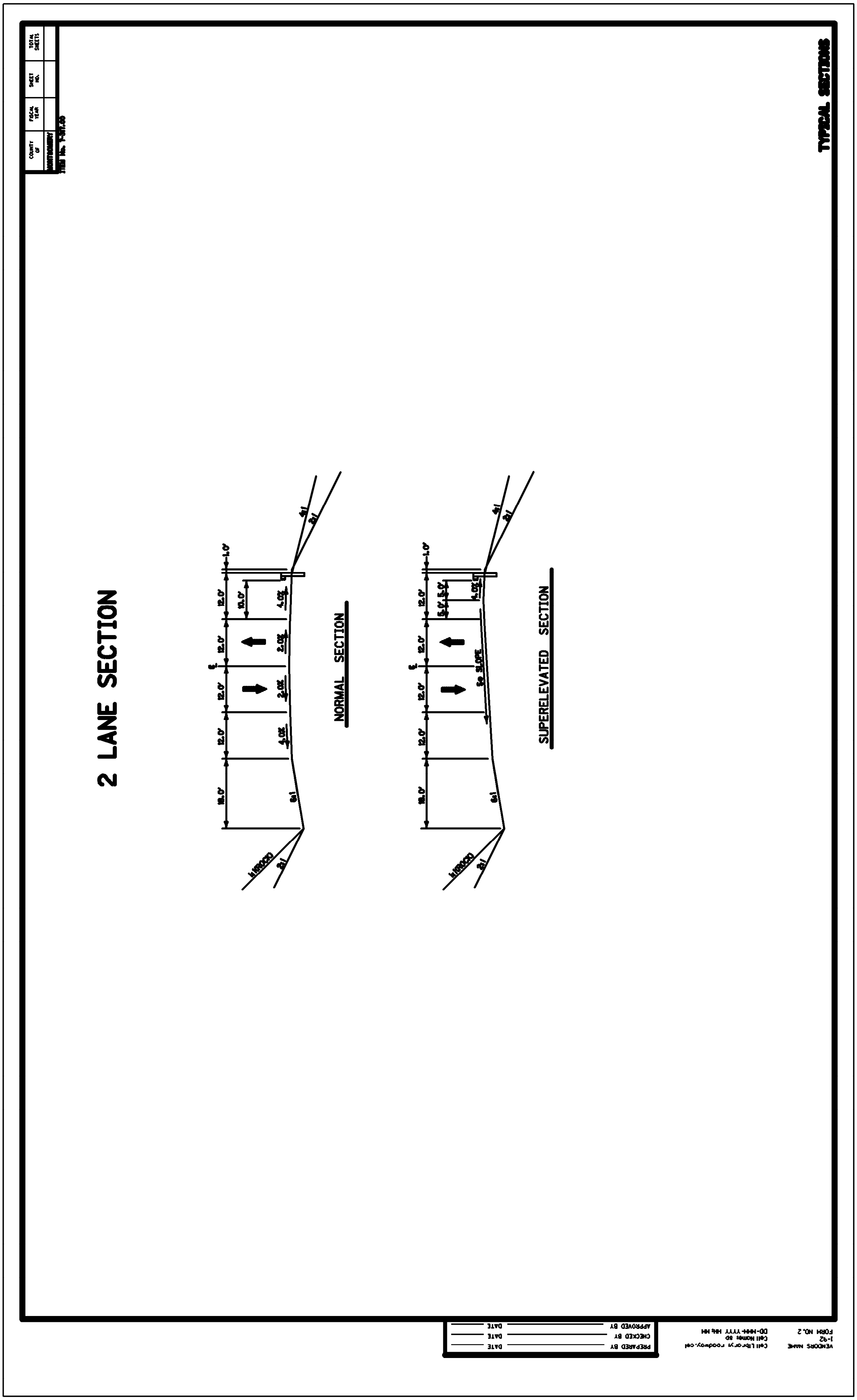
All locations are expected to impact less than 200 feet of the stream and no wetland impact is anticipated.

Consideration for Bicycle and Pedestrian Facilities

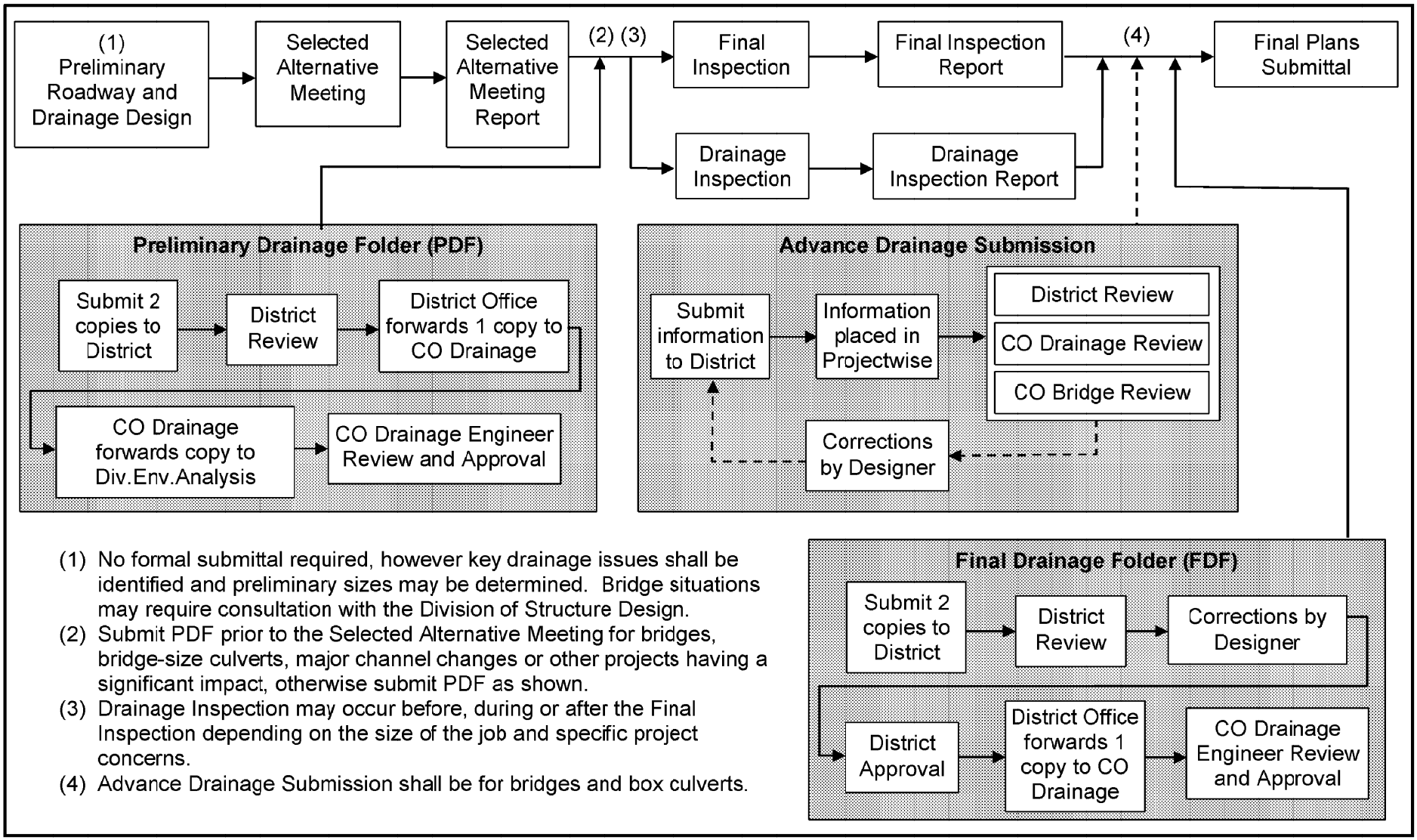
There has not been any indication of pedestrian and/or bicycle traffic along this corridor of Ky. 11. The 12' shoulders (10' paved) have safety and operational advantages in providing a place for bicyclists and pedestrians to operate along this corridor.


TYPICAL SECTIONS
5 LANE SECTION
NORMAL SECTION
SUPERELEVATED SECTION


TYPICAL SECTIONS
4 LANE SECTION
NORMAL SECTION
SUPERELEVATED SECTION


TYPICAL SECTIONS
2 LANE SECTION
NORMAL SECTION
SUPERELEVATED SECTION
12.0'
12.0'
12.0'
12.0'
10.0'
1.0'
4.0%
2.0%
2.0%
4.0%
SLOPE

DRAINAGE REVIEW PROCESS



(1) No formal submittal required, however key drainage issues shall be identified and preliminary sizes may be determined. Bridge situations may require consultation with the Division of Structure Design.
(2) Submit PDF prior to the Selected Alternative Meeting for bridges, bridge-size culverts, major channel changes or other projects having a significant impact, otherwise submit PDF as shown.
(3) Drainage Inspection may occur before, during or after the Final Inspection depending on the size of the job and specific project concerns.
(4) Advance Drainage Submission shall be for bridges and box culverts.

TC 61-200
Rev. 5-88
Sheet 1 of 4

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
Division of Design
ENVIRONMENTAL IMPACT STATEMENT REVIEW

Project Engineer _____
Description of Project _____

_____
Date _____

Fed. No. _____
UPN _____

PRELIMINARY ALIGNMENT & GRADE INSPECTION CHECKLIST

A. Date of Location (Corridor) approval _____

___ DEIS approval date _____
___ FEIS approval date _____
___ Combination EIS/Publicly Used Land (4f) Statement _____
___ FONSI approval date _____

(Check one of the above and fill in date)

B. Environmental Considerations (Air, Noise and Water Quality, Natural Resources and Aesthetic Quality Considerations)

1. Has the impact on air, noise and water quality been adequately considered in the approved Environmental Document? YES ___ NO ___

   If No, discuss _____

2. Are there any significant adverse effects to the botanical, zoological and/or geological resources that were not reported in the approved Environmental Document? YES ___ NO ___

   If Yes, discuss _____

3. Has the impact on aesthetic quality been adequately considered in the approved Environmental Document? YES ___ NO ___

   If No. discuss _____

4. Are there any new developments (hospitals, schools, reservoirs, apartment complexes, etc.) which would be affected by the project's anticipated ecological effects? YES ___ NO ___

   If Yes, discuss _____

5. Are there any necessary design features that could affect the area's ecological environment (especially, air, noise and/or water quality) to a substantially different degree than reported in the approved Environmental Document? YES ___ NO ___

   If Yes, discuss _____

TC 61-200
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PRELIMINARY ALIGNMENT & GRADE INSPECTION CHECKLIST Sheet 2 of 4

6. Were all substantial lengths of channel change documented in the approved environmental document? YES ___ NO ___ NA ___

   If No, discuss _____

7. Are temporary detours (not considered in the approved Environmental Document) necessary which would cause objectionable ecological impacts?
   YES ___ NO ___

   If No, discuss _____

8. Will the project have any major detrimental ecological effects on water recreation, reservoirs, wildlife areas, and/or parks not specifically mentioned in the approved Environmental Document? YES ___ NO ___

   If Yes, discuss _____

9. Have all noise abatement measures that have been deferred from earlier project phase now been reanalyzed and resolved? YES ___ NO ___ N/A ___

   If No, discuss _____

C. Economic Considerations (Effects to land use, employment, and tax and property values)

1. Did the approved Environmental Document consider the effects on employment and tax and property values? YES ___ NO ___

   Are these documented effects substantially unchanged? YES ___ NO ___

   If No, discuss _____

2. Has a land use change occurred in the vicinity of the project since approval of the Environmental Document? YES ___ NO ___

   Has a comprehensive development plan been adopted or revised since approval of the Environmental Document? YES ___ NO ___

   If Yes, discuss _____

3. Are new or existing industries and/or large commercial establishments being effected other than reported by the approved Environmental Document ? YES ___ NO ___

   If Yes, discuss _____

4. Is the approved Environmental Document discussion of anticipated displacements of business and/or farms and the proposed solution substantially correct?
   YES ___ NO ___

   If No, discuss _____

TC 61-200
Rev. 5-88

PRELIMINARY ALIGNMENT & GRADE INSPECTION CHECKLIST Sheet 3 of 4

D. Social Considerations (Displacement of People and Families, etc.)

1. Is the approved Environmental Document discussion of anticipated displacements of persons and/or families and the proposed solution substantially correct?
   YES ___ NO ___

   If No, discuss _____

2. Is impact of project on local institutions, community cohesion, and community services substantially as reported in the approved Environmental Document?
   YES ___ NO ___

   If No, discuss _____

3. Is there a Section 4(f) Land involvement not reported in the approved Environmental Document? YES ___ NO ___

   If Yes, discuss _____

4. Are there any involvement with historic, archaeologic or cultural resources not previously documented? YES ___ NO ___

   If Yes, discuss _____

5. Are neighborhoods being effected substantially as indicated in the Environmental Document? YES ___ NO ___

   Is access to these areas being provided as indicated in the Environmental Document?
   YES ___ NO ___

   If No, comment _____
   _____

6. Are there any disadvantaged groups being affected, but not considered in the approved Environmental Document? YES ___ NO ___

   If Yes, discuss _____

E. Miscellaneous

1. Does the highway proposal involve any plans of Federal, State, or local agencies that were not reported in the approved Environmental Document?
   YES ___ NO ___

   If Yes, discuss _____

2. Did the approved Environmental Document consider an existing comprehensive transportation plan, and is the plan substantially unchanged? YES ___ NO ___

   If No, discuss _____

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Rev. 5-88

PRELIMINARY ALIGNMENT & GRADE INSPECTION CHECKLIST Sheet 4 of 4

3. Has design criteria substantially changed from that reported in the Environmental Document? YES ___ NO ___

   Will such changes cause significant changes in social-economic environmental impact? YES ___ NO ___

   If Yes, discuss _____

4. Have all alternatives received sufficient consideration to enable one to objectively evaluate their comparative feasibility? YES ___ NO ___

   If No, discuss _____

5. Are any of the archaeological sites discovered and recommended for any further work or for preservation (on the archaeological reconnaissance survey in the approved Environmental Document impacted by the project? YES ___ NO ___

   If Yes, provide the Division of Environmental Analysis with a copy of the inspection report and plans showing the approved alignment.

F. Approved Environmental Document

1. Is the approved Environmental Document considered adequate at this stage? YES ___ NO ___

   If No, discuss _____

2. If answer to No. 1 above is no, recommend one of the following:

   _____ New or Supplemental Environmental Impact Statement (EIS)
   _____ New Combination EIS/Section 4(f)
   _____ New or Supplemental Section 4(f) Statement
   _____ New of Supplemental EA/FONSI

   Comment _____

3. Should the recommended new or supplemental Environmental Document be processed at this time? YES ___ NO ___

   Discuss _____

TC 61-201
Rev. 5-88
Sheet 1 of 6

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
Division of Design
ENVIRONMENTAL IMPACT STATEMENT REVIEW

Project Engineer _____
Project Number _____

Date _____

FINAL INSPECTION CHECKLIST

A. Date of Location (Corridor) Approval _____

1. Was EIS, Combination EIS/Section (4f) Statement or FONSI rewritten or supplemented following Preliminary Inspection? YES ___ NO ___
If YES, type of revision, approval date _____
If NO, check one of the following and fill in date:

___ FEIS approval date _____
___ Combination EIS/Publicly Used Land (4f) Statement _____
___ FONSI approval date _____

B. Environmental Considerations (Air, Noise and Water Quality, Natural Resources and Aesthetic Quality Considerations)

1. Has the impact on air, noise and water quality been adequately considered in the approved Environmental Document? YES ___ NO ___
If NO, discuss _____

2. Are the ambient air quality standards for motor vehicle pollutant concentrations exceeded by this project? YES ___ NO ___
If YES, discuss _____

3. Are allowable noise level standards exceeded by this project?
YES ___ NO ___
If YES, discuss _____

4. Are there any significant adverse effects to the botanical, zoological and/or geological resources that were not reported in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

5. Has the impact on aesthetic quality been adequately considered in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

FINAL INSPECTION CHECKLIST

6. Are there any necessary design features that could affect the area's ecological environment (especially air, noise and/or water quality) to a substantially different degree than reported in the approved Environmental Document?
YES ___ NO ___
If YES, discuss _____

7. Are there any proposed developments (hospitals, schools, churches, etc.) which would be adversely affected by highway generated environmental effects?
YES ___ NO ___
If YES, discuss _____

8. Are there any proposed developments (hospitals, schools, churches, etc.) which would be adversely affected by highway generated environmental effects?
YES ___ NO ___
If YES, discuss _____

9. Are temporary detours necessary which would cause objectionable ecological impacts that were not considered in the approved Environmental Document?
YES ___ NO ___
If YES, discuss _____

10. Will the project have any major environmental effects on recreation, reservoirs wildlife areas and/or parks not specifically mentioned in the Environmental Document? YES ___ NO ___
If YES, discuss _____

11. Does the project as designed alter the pattern of behavior of a protected animal, fish or fowl, or interfere with an important breeding, nesting and/or feeding grounds substantially different from that noted in the approved Environmental Document?
YES ___ NO ___
If YES, discuss _____

12. If the approved Environmental Document stated that assistance from wildlife, forest, water, and/or recreations "experts" would be necessary during the design phase, was this done? YES ___ NO ___ N/A ___
If NO, explain _____

13. Will minerals or other valuable resources be affected to a greater extent than noted in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

14. Does the project encroach on a flood plain or "wetlands" which was not considered in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

15. Were all substantial lengths of channel changes documented in the approved Environmental Document? YES ___ NO ___ N/A ___
If NO, discuss _____

16. Are there any conflicts with the existing or proposed storm or sanitary drainage system of a neighborhood or community that were not resolved or discussed in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

C. Economic Considerations (Effects to land use, employment, and tax and property values)

1. Did the approved Environmental Document adequately consider the effects of the project on employment and tax and property values? YES ___ NO ___
If NO, discuss _____

2. Has a land use change occurred in the vicinity of the project since approval of the Environmental Document? YES ___ NO ___
If YES, discuss _____

3. Are new or existing industries and/or large commercial establishments being effected other than reported by the approved Environmental Document?
YES ___ NO ___ If YES, discuss _____

4. Is the approved Environmental Document discussion of anticipated displacements of businesses and/or farms and the proposed solution substantially correct and/or current? YES ___ NO ___
If NO, discuss _____

D. Social Considerations (Displacement of People and Families, etc.)

1. Is the approved Environmental Document discussion of anticipated displacements of persons and/or families and the proposed solution substantially correct?
YES ___ NO ___
If NO, discuss _____

2. Is impact of project on local institutions, community cohesion, and community services substantially as reported in the approved Environmental Document?
YES ___ NO ___
If NO, discuss _____

3. Is there a Section 4(f) Land involvement not reported in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

4. Are there any involvement's with historic, archaeologic or anthropologic sites not previously documented? YES ___ NO ___
If YES, discuss _____

5. Are neighborhoods being effected substantially as indicated in the Environmental Document? YES ___ NO ___
If NO, comment _____

6. Did the approved Environmental Document mention any neighborhood enhancement features that could be included in the design? YES ___ NO ___
Has this been done? YES ___ NO ___
If NO, discuss _____

7. Are there any disadvantaged groups or persons being affected, but not considered considered in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

8. Is the effect of the project on local institutions (schools, churches, etc.) and public services (police and fire protection, etc.) substantially as reported in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

9. Does the project affect the health and safety of the public substantially as noted in the approved Environmental Document? YES ___ NO ___
If NO, discuss _____

E. Miscellaneous

1. Does the highway proposal involve any plans of Federal, State or local agencies were not reported in the approved Environmental Document?
YES ___ NO ___ If YES, discuss _____

2. Did the approved Environmental Document consider an existing comprehensive transportation plan, and is the plan substantially unchanged?
YES ___ NO ___ If NO, discuss _____

3. Has design criteria or alignment substantially changed from that reported in the Environmental Document? YES ___ NO ___ Will such changes cause significant changes in social-economic-environmental impact?
YES ___ NO ___ If YES, discuss _____

4. Have there been any serious organized objections to the project?
YES ___ NO ___ If YES, discuss _____

5. Are construction costs greatly increased from preliminary estimates?
YES ___ NO ___ If YES, discuss _____

6. Have there been any new or revised State and/or Federal social, economic, environmental regulations or procedures issued since the Environmental Document was approved that would require reconsideration of the project?
YES ___ NO ___ If YES, discuss _____

7. Have the length and termini of the project changed substantially from that defined in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

8. Have predicted traffic volumes or patterns changed substantially from that document in the Environmental Document? YES ___ NO ___
If YES, discuss _____

9. Have the need and support for the project been lessened from that which was reported in the approved Environmental Document? YES ___ NO ___
If YES, discuss _____

10. Have all alternatives received sufficient consideration to enable one to objectively evaluate their comparative feasibility? YES ___ NO ___
If NO, discuss _____

F. Approved Environmental Document

1. Is the approved Environmental Document considered adequate at this stage?
YES ___ NO ___ If NO, discuss _____

2. If answer to No. 1 is NO, recommend one of the following:

_____ New or Supplemental Environmental Impact Statement (EIS)
_____ New Combination EIS/Section 4(f) Statement
_____ Supplemental Combination EIS/Section 4(f) Statement
_____ New or Supplemental Section 4 (f) Statement
_____ New or Supplemental EA/FONSI

Comment _____

3. Should the recommended new or supplemental Environmental Document be processed at this time? YES ___ NO ___ If YES, discuss _____

G. ENVIRONMENTAL COMMITMENT SUMMARY

Summarize all design and construction commitments for mitigation and/or elimination of adverse social economic, and environmental impacts (erosion control, noise abatement, water pollution, last resort housing, multiple-use joint development, etc.

TRANSPORTATION CABINET
TC 61-202
Division of Design
Rev. 8-05
CATEGORICAL EXCLUSION PROJECTS
Environmental Impacts Checklist
Conceptual Design Inspections & Final Plans Submittal

CE Approval Date:			Conceptual Design:	
Item No.:			Right of Way Plans:	
Route No.:			Final Inspection:	
County:			Construction Plans:	
Project Limits:				
1. PROJECT DESCRIPTION:				
(a) Existing Conditions:				
(b) Proposed Improvements:				
2. INTER-GOVERNMENTAL REVIEW COMMENTS:				
3. CONTROVERSY:	Yes:	No:	Explain when "Yes" is marked	
4. PROJECT SCOPE/ PLAN CHANGES:	Yes:	No:	Explain when "Yes" is marked	

5. IMPACT EVALUATION	Yes	No	N/A	COMMENTS - Clarify when "Yes" is marked
A. SOCIAL IMPACTS				
1. Land Use Change				
2. Neighborhood Change				
3. Relocations				
4. Ethnic, Minority, Etc.				
5. Controversy				
B. CULTURAL IMPACTS				
1. Churches, Schools, Etc.				
2. 4(f) Lands				
3. Historic Site/District				
4. Archaeological Site				
C. NATURAL ENVIRONMENT				
1. Wetland Involvement				
2. Floodplain Involvement				
3. Endangered Species/Habitat				
4. Prime/Unique Farmland				
5. Natural Landmarks				
6. Wild & Scenic River				
7. Water Quality Impacts				
8. Signif. Spawning Stream				
9. Migratory Fowl Breeding Area				
10. Air Quality Impacts				
11. Noise Impacts				
D. CONSTRUCTION IMPACTS				
1. Permits Required				
2. Stream Channel				
3. Public Water Intake				
4. Aquatic Species Restricted				
5. Navigational Restrictions				
6. High Flow Restrictions				
7. Fills				
(a) Nontoxic				
(b) Maintenance Provisions				
(c) Temporaries Removed				
8. UST/HZW Impacts				

6. ENVIRONMENTAL MITIGATION/CONDITIONS:	Yes:	No:	List all proposed environmental mitigation measures and conditions to be incorporated into the project when "Yes" is marked
7. RECOMMENDATIONS:			

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	05-0028.20	R1

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

PLANS OF
PROPOSED PROJECT
JEFFERSON COUNTY
WESTPORT ROAD (KY 1447)
STPM 8707 (23)

THESE PLANS ARE FOR GRADE, DRAIN & SURFACING

THE CONTROL OF ACCESS ON THIS PROJECT SHALL BE BY PERMIT

1000 500 0 1000 2000 3000
SCALE IN FEET

LAYOUT MAP

THIS PROJECT IS OFF THE NH SYSTEM

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
R1	LAYOUT SHEET
R2-R21	TYPICAL SECTIONS-SUMMARY OF QUANTITIES
R3-R3a	COORDINATE CONTROL SHEET
R4-R22	PLAN AND PROFILE SHEETS
	UTILITY REFERENCE SHEETS
R23-R24	RIGHT OF WAY SUMMARY SHEETS
R25-R26	RIGHT OF WAY STRIP MAP SHEETS
R27-R27n	DETAIL SHEETS
R28-R45	TRAFFIC CONTROL SHEETS
R46-R50	EROSION CONTROL SHEETS
	MITIGATION PLAN SHEETS
R51	SOIL PROFILE SHEETS
R52-R67	PIPE DRAINAGE SHEETS
	STRUCTURE PLANS
T1-T12	TRAFFIC PLANS
U1-U28	UTILITY RELOCATION PLANS
X1-X43	CROSS SECTION SHEETS

SHEETS NOT INCLUDED IN TOTAL SHEETS

R2a-R2j R3a R27a-R27n R35a-R35e

STANDARD DRAWINGS

NUMBER

RDB-003-07	RDI-001-07	RFC-001-07	TPM-100
RDB-007-02	RDI-002-02	RFO-005-05	TPM-105
RDB-008-03	RDI-003-02	RGS-001-06	TPM-110
RDB-012-08	RDI-004-02	RGS-002-04	TPM-115
RDB-013-05	RDI-011-01	RGX-001-04	TPM-145
RDB-014-05	RDI-016-01	RGX-005-04	TTS-105
RDB-015-03	RDI-020-08	RGX-200	TTS-115
RDB-016-02	RDI-025-04	RPM-010-06	TTD-105
RDB-017-02	RDI-035-01	RPM-100-09	TTD-110
RDB-020-04	RDI-100-03	RPM-110-04	TTD-100
RDB-110-07	RDI-120-03	RPM-130-03	RDH-110-02
RDB-150-01	RDM-001-06	RPM-150-05	RDH-210-03
RDB-160-01	RDM-010-05	RPM-152-05	RDH-220-02
RDB-270-07	RDM-011-04	RPM-160-02	RDH-310-04
RDB-271-04	RDM-012-02	RPM-170-05	RDH-350-03
RDB-272-06	RDM-013-03	RPM-172-05	RDH-420-02
RDB-273-05	RDM-100-02	RPX-100-02	RDH-520-06
RDB-400-04	RDX-065-03		RDH-522-02
RDB-410-05	RDX-160-05		RDH-524-03
RDB-420-04	RDX-205		
RDB-430-04	RDX-210-02		
RDD-040-04			

TOTAL STANDARD DRAWINGS = 79

DESIGN CRITERIA

CLASS OF HIGHWAY URBAN ARTERIAL
TYPE OF TERRAIN ROLLING
DESIGN SPEED 45 MPH
REQUIRED NPSD 325 FEET
REQUIRED PSD N/A
LEVEL OF SERVICE C
ADT PRESENT (1996) 19,500
ADT FUTURE (2020) 49,000
DHV 4200
D % 4
T % 6

GEOGRAPHIC COORDINATES

LATITUDE 38 DEGREES 16 MINUTES NORTH
LONGITUDE 85 DEGREES 37.5 MINUTES WEST

DESIGNED

% RESTRICTED SD 0%
LEVEL OF SERVICE C
MAX. DISTANCE W/O PASSING N/A

LENGTH 3835.00 LIN. FT. 0.726 MILES
ADDED/DEDUCTED FOR EQUALITIES ___ LIN. FT. NOT INCLUDED
RAILROAD CROSSINGS NO. ___ LIN. FT.
BRIDGES ___ LIN. FT.

LENGTH ___ LIN. FT. ___ MILES
ADDED/DEDUCTED FOR EQUALITIES ___ LIN. FT. NOT INCLUDED
RAILROAD CROSSINGS NO. ___ LIN. FT.
BRIDGES ___ LIN. FT.

LENGTH ___ LIN. FT. ___ MILES
ADDED/DEDUCTED FOR EQUALITIES ___ LIN. FT. NOT INCLUDED
RAILROAD CROSSINGS NO. ___ LIN. FT.
BRIDGES ___ LIN. FT.

LENGTH ___ LIN. FT. ___ MILES
ADDED/DEDUCTED FOR EQUALITIES ___ LIN. FT. NOT INCLUDED
RAILROAD CROSSINGS NO. ___ LIN. FT.
BRIDGES ___ LIN. FT.

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF
JEFFERSON
WESTPORT ROAD (KY 1447)

ITEM NO. 05-0028.20
PROJECT NUMBER: FD52 056 1447 002-003 C
STPM 8707 (23)
LETTING DATE:

RECOMMENDED BY: ___ PROJECT MANAGER DATE: ___
PLAN APPROVED BY: ___ STATE HIGHWAY ENGINEER DATE: ___

RECORD PLANS	NO. SETS	DATE
CONSTRUCTION PLANS		

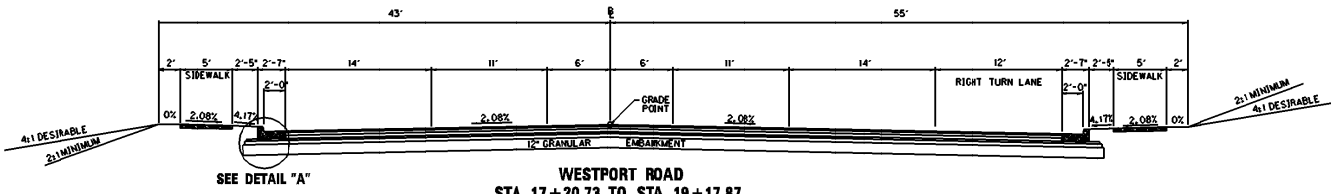
REVIEWED BY ___
DIVISION OF CONSTRUCTION

USER:
DATE:
FILE NAME:
E-SHEET NAME:

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	05-0028.10	R2

TYPICAL SECTIONS

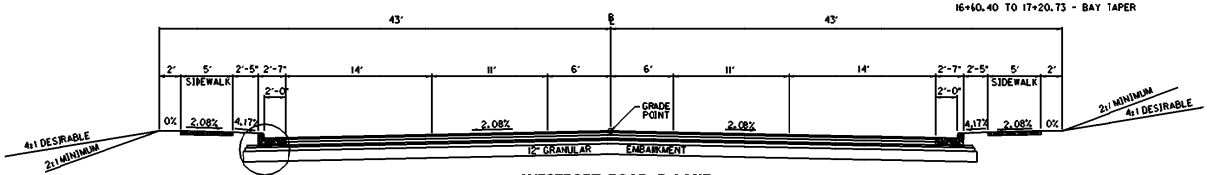
MAINLINE



SEE DETAIL "A"

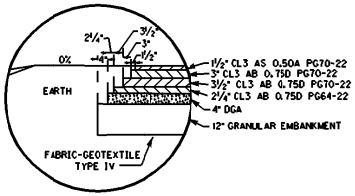
WESTPORT ROAD
STA 17+20.73 TO STA 19+17.87

NOTE:
RT. TURN LANE DATA:
16+60.40 TO 17+20.73 - BAY TAPER

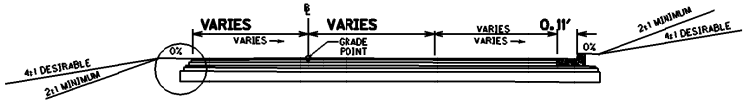


SEE DETAIL "A"

WESTPORT ROAD 5-LANE
STA 11+70.00 TO STA 16+60.40

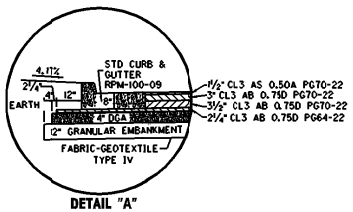


SEE DETAIL "B"



SEE DETAIL "B"

WESTPORT ROAD TRANSITION FROM EXISTING 2-LANE TO 5-LANE
STA 9+00 TO STA 11+70.00



DETAIL "A"

NEW CONSTRUCTION: GRADE, DRAIN AND FLEXIBLE PAVEMENT
~ USING ~

MAINLINE

APPROX. 12¾" BASE	4" COMPACTED DGA BASE 2¼" COMPACTED DEPTH CL3 ASPHALT BASE 0.75D PG64-22 3½" COMPACTED DEPTH CL3 ASPHALT BASE 0.75D PG70-22 3" COMPACTED DEPTH CL3 ASPHALT BASE 0.75D PG70-22
TACK COAT	ASPHALT TACK COAT BETWEEN EACH COURSE (INCIDENTAL) (AS DIRECTED BY THE ENGINEER)
APPROX. 1½" SURFACE	1½" COMPACTED DEPTH CL3 ASPHALT SURFACE 0.50A (PG70-22)

SHOULDERS

STANDARD CURB AND GUTTER

ROADBED PREPARATION

ONE FOOT (12") OF GRANULAR EMBANKMENT, NON-ERODIBLE, SHALL BE USED FOR ROADBED STABILIZATION. THE ROCK SHALL BE WRAPPED IN GEOTEXTILE FABRIC TYPE IV, AND EXTEND UNDER THE CURB AND GUTTER AREA. WEEP HOLES SHALL BE PLACED IN THE DRAINAGE BOXES TO ALLOW DRAINAGE OF ROCK LAYER.

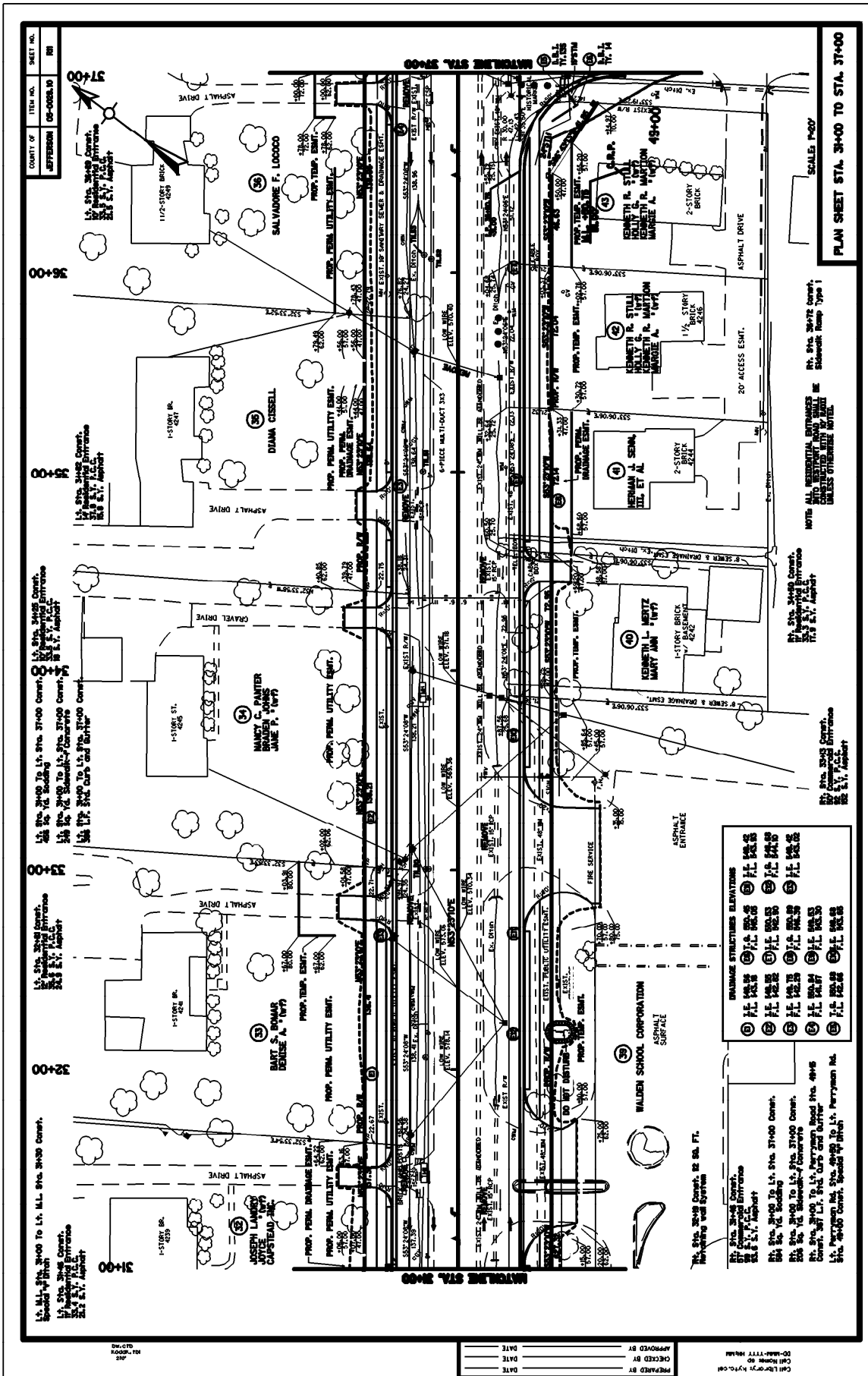
TYPICAL SECTION SHEET
WESTPORT ROAD

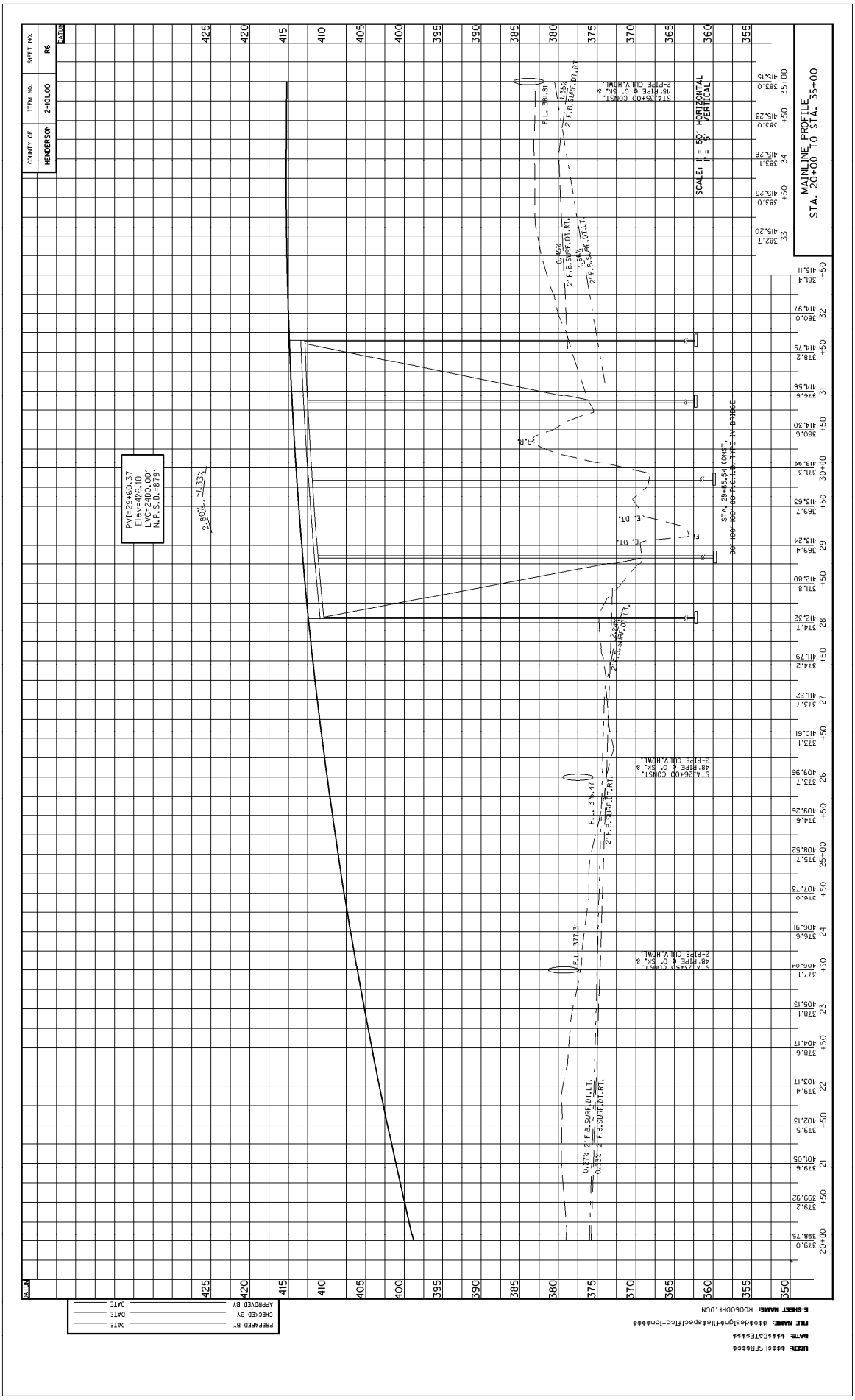
PREPARED BY DATE
CHECKED BY DATE
APPROVED BY DATE

Cell Library: kytc.cel
Cell Name: RD
DGN Name: TYP_MAIN

8-08-2005

EXHIBIT 200-22


PLAN SHEET STA. 34+00 TO STA. 37+00
SCALE: 1"=20'
COUNTY OF JEFFERSON
ITEM NO. 05-0002.10
SHEET NO. 101
MATCHLINE STA. 37+00
MATCHLINE STA. 34+00
37+00
36+00
35+00
34+00
33+00
32+00
31+00
SALVADORE F. LOCOCO
DIANA CISSELL
NANCY C. PAINTER
BRADEN J. HINES
JANE P. HINES
BART S. BOMAR
DENISE A.
JOSEPH LANDRY
JOYCE CAPSTEAD
KENNETH R. STILL
HOLLY C.
KENNETH R. MARTION
MARGIE A.
HERMAN J. SENN, III ET AL
KENNETH L. MERTZ
MARY ANN
WALDEN SCHOOL CORPORATION
ASPHALT SURFACE
ASPHALT DRIVE
GRAVEL DRIVE
20' ACCESS ESMT.
PROP. PERM. UTILITY ESMT.
PROP. TEMP. ESMT.
DRAINAGE STRUCTURES ELEVATIONS
NOTE: ALL PEDESTRIAN ENTRANCES AND RESTAURANT ROAD SHALL BE CONSTRUCTED WITH 6" MIN. UNLESS OTHERWISE NOTED.
DO NOT DISTURB
FIRE SERVICE
ASPHALT ENTRANCE
Rt. Sta. 34+48 Const. 22 Sq. Ft. Retaining wall System
Rt. Sta. 34+48 Const. Commercial Entrance
Rt. Sta. 34+00 To Lt. Sta. 37+00 Const. 584 Sq. Yd. Sodding
Rt. Sta. 34+00 To Lt. Sta. 37+00 Const. 256 Sq. Yd. Sidewalk-Conserve
Rt. Sta. 34+00 To Lt. Sta. Perryman Road Sta. 48+45 Const. 367 Lf. 6"x12" Curb and Gutter
Lt. Perryman Rd. Sta. 48+00 To Lt. Perryman Rd. Sta. 48+60 Const. Special V-Ditch



SOME GRIDLINES REMOVED FOR EXHIBIT PURPOSES

EXAMPLE EROSION CONTROL PLAN SHEET

EXHIBIT 200-25
(Page 1 of 2)

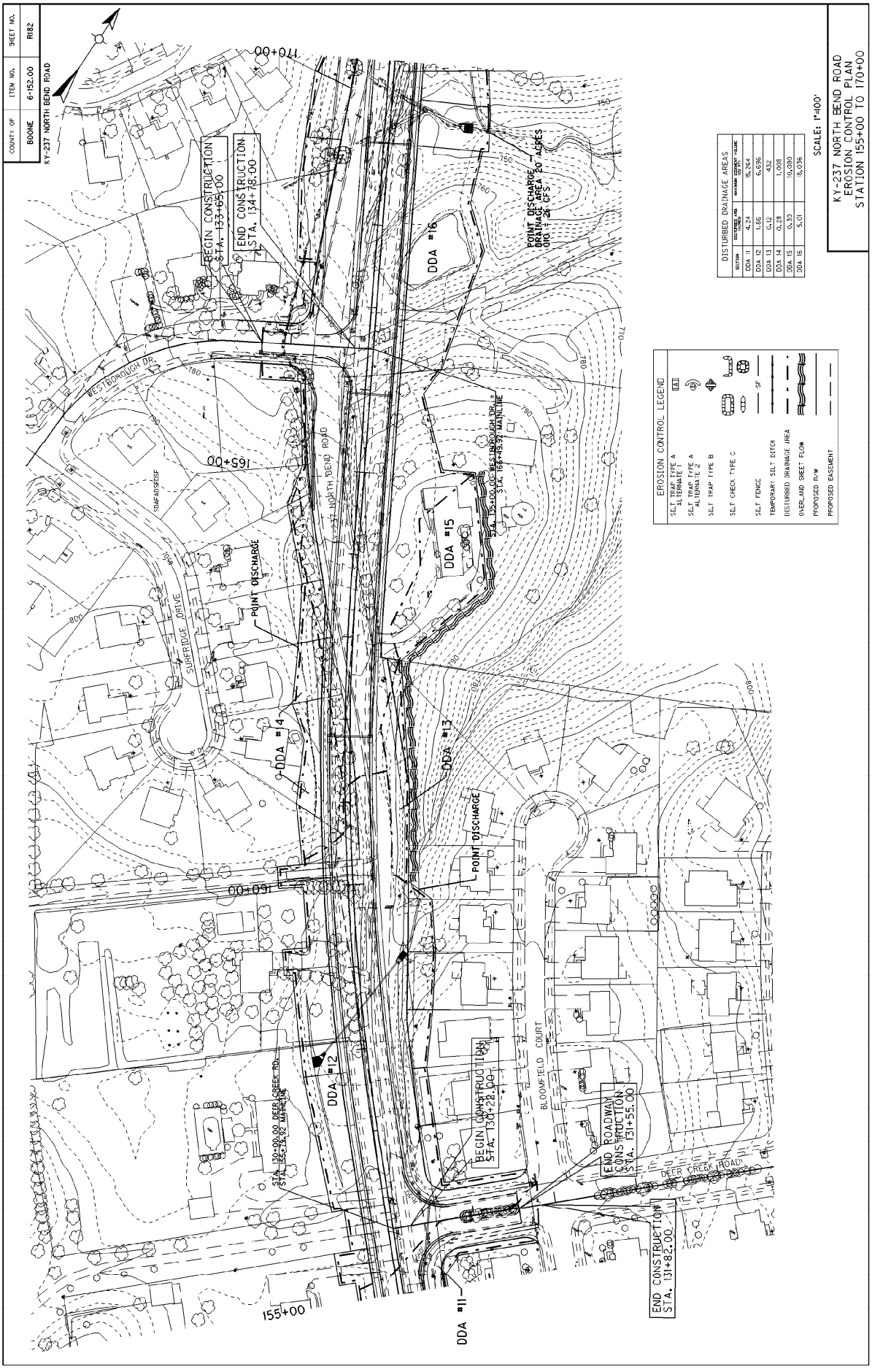


EXHIBIT NOT TO SCALE

8-08-2005

EXAMPLE EROSION CONTROL PLAN SHEET

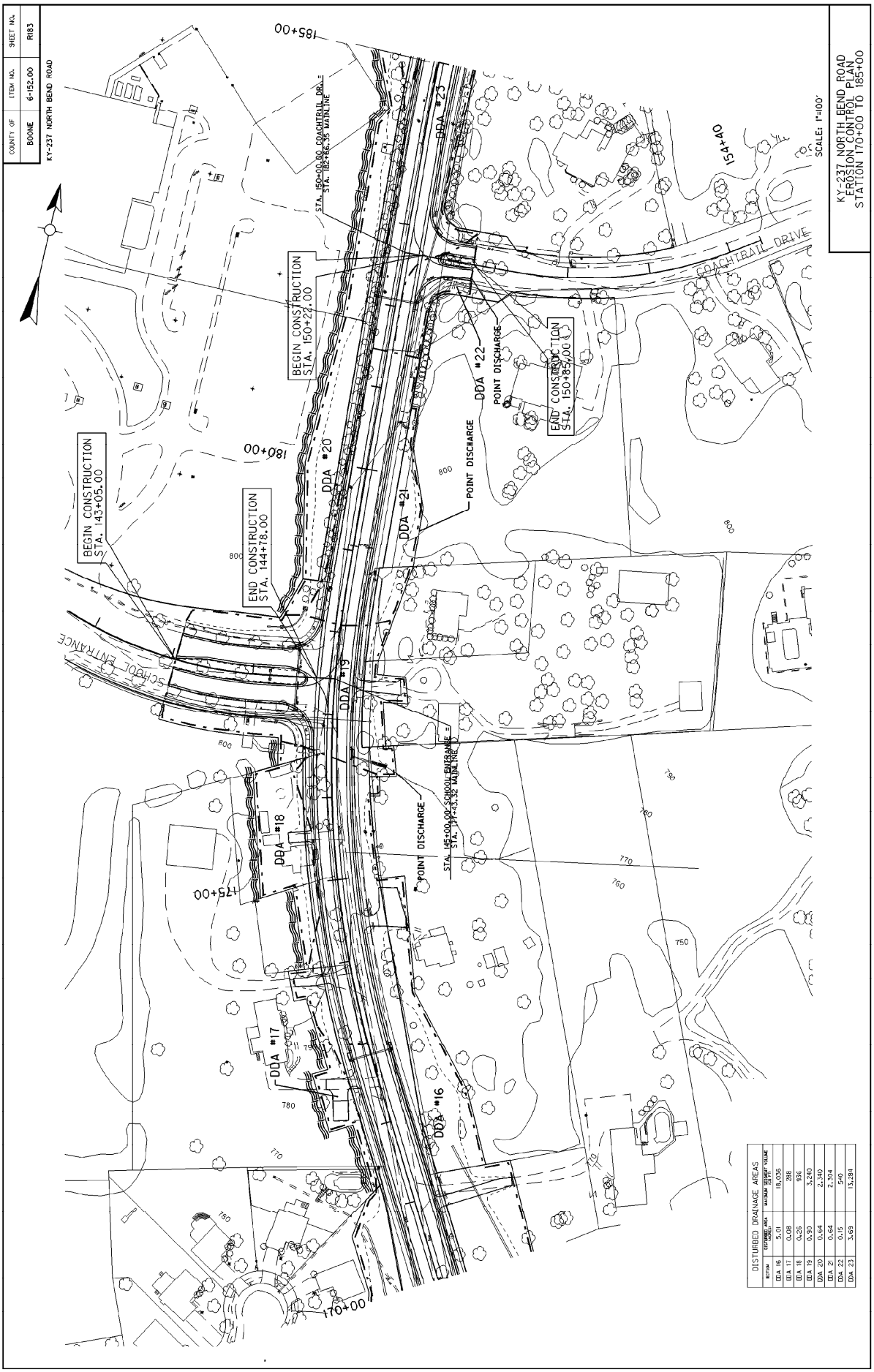


EXHIBIT NOT TO SCALE

8-08-2005

COUNTY OF	ITEM NO.	SHEET NO.
FRANKLIN	1034.00	R7

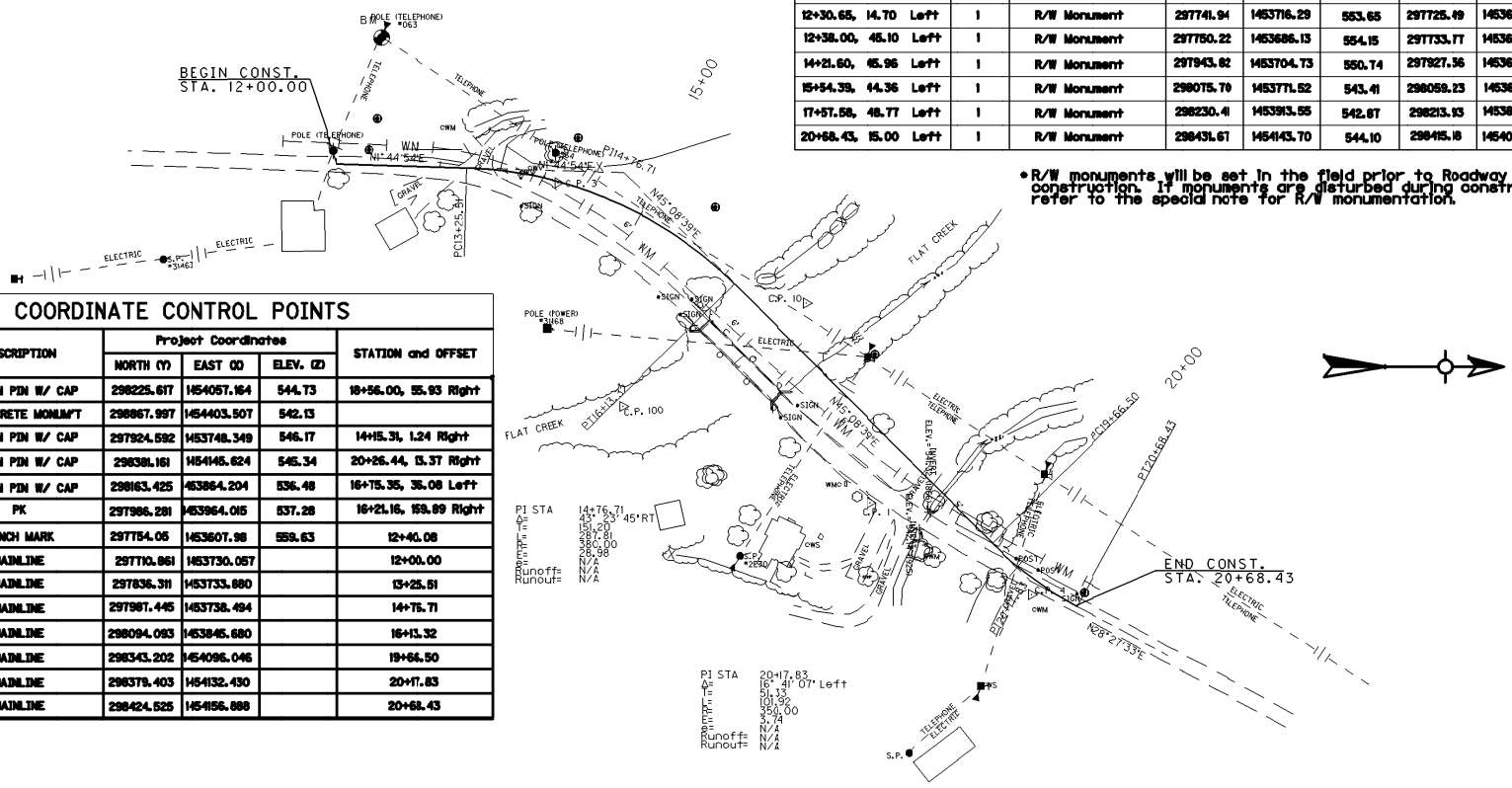
ORIGIN OF LEVELS

Elevations were derived from GPS methods and are adjusted to the NAVD88 Datum. Geoid model used was Geoid99. A benah mark is a metal spike located on the telephone pole #063 at Sta 12+40.08, L123.63, with a vertical control mark at Elev = 559.63.

RIGHT OF WAY MONUMENT POINTS *

STATION and OFFSET	TYPE	DESCRIPTION	Project Coordinates			State Plane Coordinates	
			NORTH (Y)	EAST (X)	ELEV. (Z)	NORTH (Y)	EAST (X)
12+30.65, 14.70 Left	1	R/W Monument	297741.94	1453716.29	553.65	297725.49	1453635.98
12+38.00, 45.10 Left	1	R/W Monument	297750.22	1453686.13	554.15	297733.77	1453605.82
14+21.60, 45.96 Left	1	R/W Monument	297943.82	1453704.73	550.74	297927.36	1453624.42
15+54.39, 44.36 Left	1	R/W Monument	298075.70	1453771.52	543.41	298059.23	1453691.20
17+57.58, 48.77 Left	1	R/W Monument	298230.41	1453913.55	542.87	298213.93	1453833.23
20+68.43, 15.00 Left	1	R/W Monument	298431.67	1454143.70	544.10	298415.18	1454063.36

* R/W monuments will be set in the field prior to Roadway construction. If monuments are disturbed during construction, refer to the special note for R/W monumentation.



COORDINATE CONTROL POINTS

POINT	DESCRIPTION	Project Coordinates			STATION and OFFSET
		NORTH (Y)	EAST (X)	ELEV. (Z)	
CP 1	IRON PIN W/ CAP	298225.617	1454057.164	544.73	18+56.00, 55.93 Right
CP 2	CONCRETE MONUM'T	298867.997	1454403.507	542.13	
CP 3	IRON PIN W/ CAP	297924.592	1453748.349	546.17	14+15.31, 1.24 Right
CP 4	IRON PIN W/ CAP	298381.161	1454145.624	545.34	20+26.44, 13.37 Right
CP 10	IRON PIN W/ CAP	298163.425	453864.204	536.48	16+75.35, 35.08 Left
CP 100	PK	297986.281	453964.015	537.28	16+21.16, 159.89 Right
BM	BENCH MARK	297754.05	1453607.98	559.63	12+40.08
POB	MAINLINE	297710.861	1453730.057		12+00.00
PC	MAINLINE	297836.311	1453733.680		13+25.51
PI	MAINLINE	297987.445	1453738.494		14+75.71
PT	MAINLINE	298094.093	1453845.680		16+13.32
PC	MAINLINE	298343.202	1454096.046		19+66.50
PI	MAINLINE	298379.403	1454132.430		20+17.83
POE	MAINLINE	298424.525	1454156.888		20+68.43

PROJECT COORDINATES

Coordinates for horizontal control were obtained from GPS methods and adjusted to the NAD83/1994 State Plane Coordinate System, Kentucky North.

A project datum factor of 1.0000552497 was computed from the central most point to convert the State Plane Coordinates to Project Coordinates. Coordinates shown are on Project Datum and to obtain State Plane Coordinates, divide the Project Coordinates by the project datum factor.

Coordinates are in US survey feet. Coordinates shown are project datum coordinates.

SCALE: 1"=50'

COORDINATE CONTROL

PREPARED BY ____ DATE ____
CHECKED BY ____ DATE ____
APPROVED BY ____ DATE ____

USER: ########
DATE: ########
FILE NAME: ########
E-SHEET NAME:

8-08-2005

EXHIBIT 200-26

KENTUCKY TRANSPORTATION CABINET
Department of Design
Division of Highway Design

TC 61-10E
Rev. 01/03
Page 1 of 4

FINAL PLAN SUBMITTAL AND PROJECT CERTIFICATION FOR FEDERALLY FUNDED PROJECTS

County _____ Item No. _____

Federal No. _____ State No. _____

Road Name _____

From Station _____ To Station _____

Project Description: (From programming document, if applicable)

		DATE
Program Document (PR-1) Approval		
Survey Order Number		
Preliminary Line and Grade Inspection		
Final Inspection		
Drainage Inspection		
Geometric Design Approval		
Surface Design Approval		
Traffic Control Plan Approval		
Environmental Action Type		
Airport Clearance Permit (within 2 miles)		
Traffic Control Agreement (within city limits)		

GEOMETRIC CRITERIA

Class of Highway _____

Speed: A. Posted _____ B. Design _____

If B is less than A, has design speed selection been documented and approved:

A. On local roads and collectors from Central Office _____

B. On arterials from FHWA _____

Type of Access Control _____

Spacing (if partial control of access) _____

	CRITERIA	ACTUAL
Pavement Width		
Shoulder Width (or berm)		
Ditch Width and Slope		
Maximum Grade		
Minimum Radius e_{max} = _____		
Bridge Clear Width		
Stopping Sight Distance		

Note(s)

If actual is contrary to design criteria, has design exception been received from FHWA? _____

Actual agrees with Geometric Design Sheet _____

HEARING REQUIREMENTS

Public Hearing Requirements: (check one)

A. Non-controversal, little right of way taken ☐

B. Opportunity offered, no requests ☐

C. Hearing held _____ ☐
Date

	YES	NO	N/A
Letter of Authorization for Hearing or Opportunity received from Central Office	☐	☐	☐
Did the public hearing address all of the following:	☐	☐	☐
All alternates and their effects			
Right of Way relocation and assistance			
Time schedule			
Environmental action			
Was the public hearing advertised at least 15 days prior to the hearing?	☐	☐	☐
Was a 30 day review time allowed for the public availability of the EA/FONSI	☐	☐	☐
Was a 45 day review time allowed for the public availability of the draft EIS?	☐	☐	☐
Did the Hearing Notice or the Opportunity for Hearing Notice advise the public of the environmental action?	☐	☐	☐

COMMENTS:

PLAN DEVELOPMENT

At a minimum, all of the following are to be invited to inspections. Check those actually in attendance.

	PL&G	FINAL
C.O. Location	☐	☐
C.O. Environmental	☐	☐
District Design	☐	☐
District Right of Way	☐	☐
District Utilities	☐	☐
District Construction	☐	☐
District Traffic	☐	☐
District Maintenance	☐	☐
Consultant (if applicable)	☐	☐

	YES	NO	N/A
Project Team Meetings documented in inspection report	☐	☐	☐
Traffic control discussed in inspection reports	☐	☐	☐
Are appropriate environmental checklists attached to the reports?	☐	☐	☐
Are PL&G, final and drainage inspection comments incorporated into the plans?	☐	☐	☐
Are soil profile recommendations incorporated?	☐	☐	☐
Are plans in accordance with surface design?	☐	☐	☐
Type of access control specified on the plans	☐	☐	☐
Access control spacing meets requirements	☐	☐	☐
Right of Way adequate for construction and maintenance	☐	☐	☐
Non-participating items identified	☐	☐	☐
Railroad protection satisfactory	☐	☐	☐
Erosion control items shown	☐	☐	☐
Sidewalk handicap ramp shown	☐	☐	☐
Environmental mitigation measures included in plans where applicable	☐	☐	☐
Accident data reviewed before implementing 3R projects	☐	☐	☐

Certified By:

_____ _____

TEBM for Pre-Construction — Date

Reviewed By:

_____ _____

Project Management Coordinator — Date

KENTUCKY TRANSPORTATION CABINET
Department of Highways
Division of Design

TC 61-11E
Rev 10/01

FINAL PLAN SUBMITTAL for STATE FUNDED PROJECTS

County _____ Item No. _____

Federal No. _____ State No. _____

Road Name _____

From Station _____ To Station _____

Project Description:

Geometric Design Approval ☐ _____ Date

Surface Design Approval ☐ _____ Date

Traffic Control Plan ☐ _____ Date

Geometric Criteria

Class of Highway _____

Speed: A. Posted _____ B. Design _____

If B is less than A, has design speed selection been documented and approved by Director, Division of Design? ☐ Yes ☐ No

Type of Access Control _____

Spacing (if Partial Control of Access) _____

	Criteria	Actual
Pavement width		
Shoulder width (or berm)		
Ditch and width slope		
Grade		
Curves		
Bridge width		
Sight distance		

If actual is contrary to design criteria, has design exception been received from Director, Division of Design? ☐ Yes ☐ No

Actual agrees with Geometric Design Sheet ☐ Yes ☐ No

TEBM For Pre-Construction _____ DATE _____

Location Engineer _____ DATE _____

December 2, 2004

"ABC" Engineering Firm
111 So and So Court
Frankfort, Kentucky 40601

Dear Mr./Ms. "Project Manager:"

Subject: Plan Errors and Omissions
"Project Description"
"Project Identification Numbers"

Please find attached a copy of a recent change order or modification to the construction contract for this project. Your office or firm has been identified as the designer for this project. The need for this change order appears to be due to an error or omission in the roadway plans. Please review this information and your project files and provide written explanation of the factors contributing to the identified change order items.

A primary objective of the Division of Highway Design is to provide for continuous improvement of plan sets. The requested information will assist us in evaluating the nature and characteristics of plan errors and omissions. This information, in conjunction with information from value engineering studies, constructability reviews, and post construction reviews, will be presented in a confidential format on the Cabinet's Lessons Learned Data Base as a part of the Cabinet's initiative to make continuous improvements to design procedures, design criteria, plan presentation, and other related issues.

Please provide the requested information within 30 days from the date of this correspondence. Thank you for your earliest attention to this request

Sincerely,

??????????????????

TEBM for Pre-construction

BY:

Project Manager

KENTUCKY TRANSPORTATION CABINET
DIVISION OF DESIGN
Frankfort, Kentucky 40622

Agreement Between Kentucky Transportation Cabinet, Department of Highways and_____, City, Regarding Traffic and Safety Regulations _____Project

WHEREAS the Transportation Cabinet, Department of Highways of the Commonwealth of Kentucky, hereinafter referred to as the "Department," contemplates the construction of _____Road, more specifically described as _____, a street project-urban area-in the City of _____, hereinafter referred to as the "City"; and

WHEREAS the City and the Department wish to assure the preferential, safe and efficient movement of traffic on the completed street and prevent local speed restrictions not in keeping with the through traffic service provided by the highway project: and

WHEREAS the Commissioner on Highways has directed all employees of the Department of Highways with administrative responsibility regarding traffic on public highways to comply with the Manual on Uniform Traffic Control Devices for the regulation of traffic on streets and highways as such may be amended from time to time.

NOW THEREFORE, in consideration of the benefits to be derived by the City and the Commonwealth from the proposed improvement, it is hereby agreed by and between the parties:

SPECIFIC REGULATIONS

1. Traffic *(check one)*

   ☐ One lane of traffic in each direction shall be maintained throughout the project construction.

   ☐ One lane of traffic shall be maintained at all times with appropriate signing and/or flagman as specified in the project Maintenance of Traffic Plan.

   ☐ One-way traffic only shall be permitted between designated points as specified in the Maintenance of Traffic Plan.

   ☐ The project will be closed to through traffic as specified in the Maintenance of Traffic Plan and detoured as shown in the plan.

2. Parking within the limits of the project will be allowed/not be allowed as specified in the Maintenance of traffic Plan.

3. Construction will be allowed between the hours of_____ and _____.

GENERAL REGULATIONS

1. The Department and the City agree that when the project is completed and open to traffic no traffic control devices such as, but not limited to, signals, signs, island and pavement markings or a sign of any sort shall be located within the right of way of the subject project except by the Department or by authority of the Department and that the Department shall have the right to locate, install and maintain all such devices.

2. The City agrees to prescribe by ordinance pursuant to Paragraph 5 fines and other reasonable sanctions for violation of parking regulatory signs and other traffic control devices as may be installed by the Department upon authority of the Department.

3. The City agrees through its own forces, including peace officers and other personnel, to enforce compliance of the traffic control.

4. The City agrees it will enact no ordinances to abrogate the provisions of this agreement until and unless such proposed ordinance has been submitted to the Department and approved by it with concurrence of the Federal Highway Administration.

5. It is understood by the parties hereto that all ordinances necessary to effect the before listed procedures will be enacted prior to the initiation of this project and be effective when the project is completed and open to traffic.

In witness whereof the parties hereto have caused the agreement to be executed the year, month and day below written by the proper officers.

The City:

_____ the _____ day of _____, 19 ____

Mayor of _____ _____

Mayor's Signature

I,_____, City Clerk of the City of _____, Kentucky, do hereby certify that the Mayor of _____, whose signature appears above, was authorized to execute this agreement by action of the City legislative body on the _____ day of _____ , 19 _____, as appears in the official records of the City legislative body of _____.

_____

Commonwealth of Kentucky
Department of Highways

_____ the _____day of _____, 19 _____.

Assistant State Highway Engineer for Preconstruction

TC 61-48
Rev. 2/89

KENTUCKY TRANSPORTATION CABINET
DIVISION OF DESIGN
FRANKFORT, KENTUCKY 40622

AN ORDINANCE RELATING TO A PROPOSED HIGHWAY PROJECT WITHIN THE CITY LIMITS OF _____, KENTUCKY PERTAINING TO A TRAFFIC AGREEMENT BETWEEN THE CITY OF _____ AND THE COMMONWEALTH

WHEREAS, the Kentucky Transportation Cabinet, Department of Highways (hereinafter referred to as "Cabinet") has made a survey and prepared plans on Highway Project, _____, in the City of _____, (hereinafter referred to as "City") and described as follows:

_____

_____

_____

_____

_____

_____

Including therein all of the right, title and interest held by the City in the approaches to all other city streets crossed by said project.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF _____, KENTUCKY,

That the following be ratified and approved by this Board:

Section 1. That the City recognizes that certain traffic regulations will be required by the construction of the project within the city limits and hereby grants to the Mayor authority to enter into a contract (designated as TC 61-39) on behalf of the City with the Cabinet putting into effect the provision of this section.

Section II. Any ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of such conflict.

Section III. This Ordinance shall be introduced and considered by the City Council with relation to pertinent Kentucky Statutes and ordinances of _____ , Kentucky.

_____
MAYOR