



Illinois Department of Transportation

Memorandum

To:	Studies & Plans Squads	PPM 10-05
From:	Dave Bayler	Revised: Tim Brandenburg
Subject:	Checklists	
Date:	August 18, 1994	Revision Date: April 23, 2003

PLAN PREPARATION MEMORANDUM 10-05

BACKGROUND

This memorandum supercedes Plan Preparation Memorandum 97.246P, Checklists, and 90.223P, its attachments and supplements Section 63-6 and Section 12-3 of the BDE Manual in providing Plan Preparation Checklists and Checklists for Phase I Reports, respectively.

Read the Plan Review Committee Report and note the recommendations. The District is committed to following these recommendations.

The major impact to Studies and Plans is that extra time is required between finishing the plans and PS&E submittal date. Two weeks for the Estimator, two weeks for other bureaus to review, and two weeks for Project Engineer review means that we will now need to have plans done six (6) weeks before the PS&E date.

Work toward this goal with all lettings. I am hopeful that all squads could meet this schedule. Discuss exceptions with your Project Engineer.

I realize that this shortens your preparation time on an already tight schedule. However, the changes, addendums, and other re-work will be lessened due to more thorough review.

Regarding communication with the Resident, please don't be offended by criticism of the plans. The greater portion of the plans, i.e., that portion with no problems, will probably not be on the Resident's mind. What consumes his/her time are the problems and that's what you'll hear about. Ask what worked well. Try to arrange a visit during construction of larger jobs if possible.

Quality plans submitted in a timely manner is everyone's goal. Hopefully, these recommendations will assist District Five's attainment of that goal.

PROCEDURE

Following are Plan Preparation Checklists which should be utilized in conjunction with Chapter 12 & Chapter 63 of the BDE Manual to improve quality and consistency of project reports and plans. The various checklists should be completed by the respective bureaus during Other Bureau Review and placed in the project Section File for future reference.

PLAN REVIEW COMMITTEE

FINAL REPORT

JUNE 06, 1994

REVISED JULY 08, 1994

COMMITTEE MEMBERS

**DEAN A. BARBER
WILLIAM J. PINE
BRIAN K. TRYGG**

PURPOSE OF INVESTIGATION – The plan review committee was assembled by Ray Stanfield on January 24, 1994. The committee members were asked to look into our current procedures for field checks and plan reviews.

STATUS OF INVESTIGATION – The plan review committee presented it's final report on July 07, 1994 to the following individuals:

Lynn Forbes – District Engineer
Ray Stanfield – Project Implementation Engineer
Phil Tegeler – Program Development Engineer
Jerry Cearlock – Construction Engineer
Dave Bayler – Studies & Plans Engineer

This revised report contains the recommendations agreed to during that presentation. It is intended that these items be incorporated into our current plan preparation and plan review processes.

FIELD CHECKS – “Plan in hand field checks” are often done when the plans are 90% to 100% complete and are nearing the required submittal date. This leaves the designers little time to incorporate changes suggested during the review.

The committee suggests that a field check be held during the study phase of the project. For projects not requiring a project report the committee recommends that a field review be held at the beginning of the design phase. A good time for the first field check would be soon after the early involvement meeting. A second field check should be held only for “major” projects. This field review should be held when the plans are approximately 50% complete.

Added to Report by Studies and Plans

“Major” projects are defined as”

1. Urban Sections
Except:
 - A. Straight Resurfacing
 - B. Traffic Signal Jobs
 - C. Individual Intersection Improvements, Etc.

2. Interstate Projects
Except:
 - A. Patching
 - B. Bridges
 - C. Shoulder Seal, Etc.

Note: The FHWA wants to attend interstate plan-in-hand field checks.

3. New Alignments

4. Freeway Type Projects
(Rural two-lane to four-lane)
5. Large or Complicated Bridges
6. Controversial or Politically Sensitive Projects
7. Others as Designated. Consult Project Engineer

The committee recommends that the designer assemble the following items for the initial field reviews:

- Existing typical cross-sections
- Suggestions for the proposed typical cross-sections
- Summary of existing problems and scope of project

PLAN REVIEWS – Plan reviews are often done near the date that the plans are submitted to Springfield and the designers do not have the time to properly incorporate the reviewer's requests into the plans.

The committee recommends that plans be sent out for review after they are 100% complete and have been reviewed by the project engineer. The committee also recommends that plans be completed and sent out for review two weeks prior to the date they are due to the District estimator. This would allow a reasonable amount of time for review and revision.

The committee realizes that this is merely stating the obvious and that the designers face many obstacles in the process of trying to complete a set of plans. However, if the district makes the commitment in terms of man-hours to meet this schedule, the committee recommends the other bureaus be required to complete their reviews in one week. The designers would then have one week to incorporate suggestions into the plans. The other bureaus should be instructed to honor that commitment by not bringing further changes forward during that last week.

The committee recommends that groups of individuals responsible for reviewing plans develop checklists to use while they are performing their reviews. We believe the checklists will prove to be an invaluable tool in performing consistent and thorough plan reviews. The field engineers in construction have developed a checklist for their use. The materials section is developing a checklist. The project engineers in program development have a checklist to use and we recommend that they update that checklist. Operations is developing their checklists.

The checklists will be compiled and furnished to design so that the designers may use them in their own review of their plans.

RELATED TOPICS

STAY INVOLVED – The earlier the designers become aware of questions or concerns about a particular project the easier it is for them to address those problems in the plans. We suggest that we as individuals concentrate on staying involved in the early stages of projects. We encourage the bureau chiefs to discuss the multi-year program with the programming engineer. We encourage the construction engineer and the materials engineer to attend coordination meetings, project monitoring meetings, and other functions as much as possible. We encourage the construction and operations field engineers and the mixtures control engineer to stay in contact with designers about specific problems during the design phase.

FEEDBACK – Some of the younger designers have noted that they don't feel like they receive ample feedback from the field about their plans. We have evaluation forms for the plans from the resident engineer but these do not appear to fully illustrate what worked well and not so well on a set of plans.

The committee recommends that residents and designers be encouraged to stay in more frequent contact about the status of projects and how the plans are working. Residents need to keep designers informed of what types of changes are being made on projects so that future plans can be improved. Designers need to visit the jobsites to see how the projects are developing.

There is no better way to improve the quality of our plans than through open constructive communication between field and office personnel.

SUMMARY

FIELD CHECKS

- During project report or beginning of design work if no project report
- Second field check at 50% plan completion for major projects

PLAN REVIEWS

- Plans 100% complete and reviewed by project engineer
- Plans out two weeks before due to estimator
- Comments required back in one week
- Leave designers alone during last week
- Utilize checklists for plan reviews

STAY INVOLVED

- Individuals must concentrate on staying involved in the early stages of projects

FEEDBACK

- Maintain open, constructive communication between designers and residents

PLAN PREP INITIATION CHECKLIST

PROGRAM DEVELOPMENT

1. What is the scope of the job? SMART, 3R, Reconstruction? This will govern how many other questions are viewed.
2. What Agreements, Letters of Understanding are required? (Allow 3 months for Agreements).
 - Local Participation?
 - Jurisdictional Transfer
 - Extraordinary maintenance?
 - Work on Locals sideroad or right of way?
3. What Railroad Agreements are required? (Allow 1 year or more!)
 - Are we causing them to do work? (Spend \$)
 - Are we wiring into their signal system?
 - We need railroad insurance if we are working on their property.
4. What Utility Agreements are required? What Utility relocations are required?
 - Have you checked all permits?
 - Have you checked microfilm plans?
 - Early coordination with Utilities Sections is the best policy!
5. What are the job commitments? (Put a copy in R.E. file). (Let Project Engineer know any commitments that you make).
- *6. Have all of the drainage structures been addressed? Are there any potential hang-ups in getting structural plans? Have all necessary hydraulics been run for across road culverts or extension of 40% or more?
- *7. Do you need a soils report? As for it early!
- *8. Do you need a pavement analysis/selection? Ask for it early.
- *9. What are the right of way needs? (Have to allow Land Acquisition sufficient time to buy).
10. Environmental concerns are triggered when a project requires additional right-of-way. Notification should be made to Environmental Coordinator early in the project stage, since some clearances can take up to a year or more.

11. Can you build guardrail on the existing embankments (supposed to be 2' behind the posts)? If not, let all concerned know so that a formal decision can be made.
- *12. Does any of the work encroach into a flood plain? Are permits needed?
13. Are there any special time constraints for construction? What do they mean to your plan prep schedule?
14. Are you, the designer, proposing work that is beyond the scope of work determined earlier which has set the funding in the program? Is that added work necessary?
15. Is survey required? requested? complete? (Have to allow time for survey).
16. Has a Planning Field Check been held for the Study? If not, other Bureaus may have unresolved concerns and should be contacted as needed.
17. Water lines, sewer lines will require EPA permits. This will require 6-8 weeks approval time.
18. Well filling now requires early submittal of information to geologist in Bridges and Structures.
19. Are you removing any buildings? If so, coordinate with Land Acquisition and Project Engineer, so we can assure that Asbestos Abatement procedures are done as early as possible.
20. When must the plans, special provisions, summary of quantities be done to allow the plans to be reviewed by the Project Engineer, plans to be reviewed by other bureaus prior to the Estimator receiving the plans. Plans must be done six weeks before PS&E.
21. Check to see if an intersection design study has been prepared for any of the intersections within the project limits. If so, plan details shall conform to the approved IDS.
22. Any unusual geometric conditions that are not correctable with normal design procedures should be brought to the attention of the Geometric Engineer.

***These items should have been done during study phase. Double check to assure their completion.**

**PLAN REVIEW CHECKLIST
CONSTRUCTION
REVISED 12/02/96**

RESIDENT ENGINEER

_____ Is there time to let the R.E. review the plans also?

TRAFFIC CONTROL PLAN

_____ Are all of the major work items covered in the traffic control plan?

_____ Does the traffic control plan adequately describe the work required?

_____ Are the appropriate standards included?

_____ Are there pay items for all the necessary standard?

TIME LIMIT

_____ Is the time limit justifiable?

_____ Is the time limit defined properly?

_____ Are all of the major items of work listed in completion date plus working day descriptions?
(Not generalizations – Specific items named.)

SPECIAL PROVISIONS

_____ Are there special provisions for all of the necessary pay items? (Are all of the pay items covered by a basis of payment type of description somewhere in the contract documents?)

_____ Is the work included in the contract unit prices well defined?

TYPICAL CROSS-SECTIONS

_____ Do the existing typicals adequately describe the existing roadway?

_____ Do the proposed typicals adequately describe the proposed roadway?

_____ Are the necessary pay limits shown?

_____ Is the cross-section constructable as shown?

GENERAL NOTES

_____ Do the appropriate general notes appear to be included?

_____ Are there conflicts or repeated requirements in the general notes and special provisions?

SUMMARY OF QUANTITIES

_____ Are all of the necessary pay items included?

_____ Are the appropriate units of measurement being used?

SCHEDULE OF QUANTITIES

_____ Are the locations of the work items described somewhere in the contract documents? (Schedules, plan notes, details, etc.)

PLAN SHEETS

- ___ Are the plan sheets clear and legible?
- ___ Is there a sufficient amount of detail to layout and construct the project?
- ___ Are the existing utilities shown?
(Including state maintained utilities)
- ___ Are there any obvious conflicts?
- ___ Are the necessary staging details shown with dimensions?
- ___ Are the staging details constructable?
(Is there room for sheet piling, forms, traffic control items, staggering lifts and course, etc.)

DETAILS AND STANDARDS

- ___ Are the appropriate details and standards included?
- ___ Do the details include sufficient information to layout and construct the work items?

CROSS-SECTIONS AND PROFILES

- ___ Are an adequate amount of cross sections included in the plans?
(Appropriate intervals, plus at A.R. culverts, etc.)
- ___ Do the cross sections contain a sufficient amount of detail?
- ___ Do any items change width, thickness, or slope a great deal from cross section to cross section?
- ___ Is there sufficient R.O.W. to construct the work?
- ___ Are proposed profiles required for the centerline of roadway, sideroads, or ditches?

OVERALL

- _____ Do the plans and special provisions adequately describe the work required to construct the project?
(Including traffic control and staging requirements.)
- _____ Does the amount, clarity, and quality of information in the plans allow them to be a useful tool in the layout and construction of the project?
- _____ Are the plans and special provisions going to be a useful tool in administering the contract?

CURRENT ITEMS NEEDING ADDITIONAL ATTENTION

- _____ Are joint locations shown for concrete work on typicals or plan sheets?
Show tie bars where required. List joints as optional longitudinal construction joints or sawed longitudinal joints.
- _____ Utility conflicts with underground work.
- _____ Is variable depth level binder identified when required?
- _____ Staging details. (Removal limits, necessary dimensions, constructability, etc.)
- _____ Are metric dimensions shown as usable values? Are soft vs. hard conversions used at appropriate times?
- _____ Are there pay items for all of the work items?

PLAN REVIEW CHECKLIST – MATERIALS

Mixtures Control Section

I. Project Information:

METRIC / ENGLISH ?

Route _____

Section _____

County _____ Contract _____

Designer _____

Present ADT _____

% PV _____ %SU _____ %MU _____

QC/QA BIT &/or PCC? _____ State or Local Project ?

Type of Improvement _____

Proposed Letting Date _____

II Special Provisions:

(Standard Spec. vers. _____)

What Recurring Special Provisions are checked? (vers. _____)

Should any be added? _____

Should any be deleted? _____

Does the Description of Work sound correct? _____

List the ***MATERIALS RELATED*** Special provisions included.

Special Provision

Required/Current?

PLAN REVIEW CHECKLIST – MATERIALS

Soils Section

I. Project Information:

Route _____

Section _____

County _____

Contract _____

Designer _____

Type of Improvement _____

State of Local Project _____

II. Questions regarding the Plans and Special Provisions:

1. Are the Soils report recommendation included in the plans?
2. Is benching specified for embankment widening and sidehill embankment construction?
3. Is the special provision for Embankment Construction moisture control included when applicable?
4. Is the correct backfill material specified for each applicable item (e.g. culverts, abutments, trench, edge drains, etc.)?
5. Are the correct types of subbase and/or base materials specified?
6. Is the width of the subbase and/or base correct for the specified pavement structure?

7. Are the boring logs included in the structure plans?
8. Is the proper drainage designed at bridge abutments, box culvert and wingwall weepholes, retaining walls and undercut and backfill locations in the subgrade?
9. Does the length and type of pile selected agree with the soil conditions given in the boring logs?
10. Are adequate soil strengths recorded on the boring logs for the box culvert, wingwall footings and spread footings shown on the plans?
11. Is bituminous curb included for embankment with \Rightarrow 2:1 foreslopes, along with guardrail? Are there catchbasins in the shoulders?

CHECKLIST
For Plan Preparation
Field Checks
(By Bureau of Operations)

- I. Drainage
 - A. Ditch cleaning requirements (if any). VERY IMPORTANT!
 - B. Check P.E. and F.E. culverts for replacement.
 - C. Check for drainage tile repairs.
 - 1. Use exploration trench adjacent to any new box culverts, large tile replacements, or bridges.
 - 2. Place inspection wells at R.O.W. line.
 - D. Pavement locations at sags – is water ponding on roadway?
 - E. Catch basin repairs adjustments, etc.
 - F. Manhole repairs, adjustments, etc. If possible, locate outside of wheel lanes.
 - G. Drainage problems adjacent to property where mowed.
 - H. All broken, non-functioning paved ditch should be completely broken up and supplemented with riprap.
 - I. Channel cleaning and riprap placement at box culverts and bridges.
 - J. When bituminous or concrete curb is used adjacent to guardrail on fills, ensure a proper outlet and adequate erosion control measures are used.
 - K. Erosion problems adjacent to slopewalls.
 - L. Check the condition of bridges and culvert within roadway sections and address needs.
- II. Shoulders
 - A. Specify where shoulder material comes from and how and where it is to be placed.
 - B. Consider paved shoulders on low side of superelevated curves.
 - C. Eliminate guardrail, where feasible.
 - D. Place bituminous shoulder wide enough at bridges in order to drive posts through shoulder.
 - E. Delineator replacement, where necessary.
- III. Patching
 - A. Partial depth vs. full depth
 - B. Asphalt vs. concrete

IV. Medians and Curbs

- A. Remove non-mountable medians where possible.
- B. Ensure curb ends are tapered down.

V. Sideroads

- A. Check widths and radii
- B. If sideroad return is replaced with a high type surface (asphalt or concrete), ensure proper thickness for anticipated traffic.

VI. Geometrics

- A. Check storage lane lengths and pavement tapers
- B. Intersection radii
- C. Striping, check:
 - 1. Flush medians
 - 2. Crosswalks
 - 3. Lane separation
 - 4. Letters and symbols
 - 5. No passing zones
- D. Locations for raised reflective pavement markers

VII. Traffic Signals

- A. Check timing and phasing.
- B. Check special provisions, standards and plans

VIII. Traffic Control

- A. Check special provisions, standards and plans
- B. Lane width restrictions on stage construction

IX. Right-of-way

- A. Any problems related to insufficient ROW.
 - 1. Steep slopes that cannot be mowed.
 - 2. Erosion problems.
 - 3. Guardrail problems.

This check sheet must be completed and submitted with the preliminary plans

CONSULTANT PRELIMINARY PLAN CHECK SHEET

____ Route _____ Marked Route _____ D-94- _____ - _____

Section _____ Contract No. _____

County _____ Catalog No. _____ - _____

Date Due ___ / ___ / ___ Date Received ___ / ___ / ___

Cover Sheet

Is a tentative index of sheets shown? Y N N/A

Are highway standards to be used listed?
(Do not indicate revision number) Y N N/A

Are the following shown:

ADT and percent truck traffic? Y N N/A

Graphic scales provided? Y N N/A

Design designation? Y N N/A

Highway classification? Y N N/A

Catalog number? Y N N/A

Contract number? Y N N/A

Survey book numbers?
(assigned by District Chief of Surveys) Y N N/A

Description of improvement? Y N N/A

General Notes

This sheet will be inserted by the District.

Typical Sections

Are typical sections complete?	Y	N	N/A
Are typical sections provided for entire mainline and all side roads, cross roads, ramps, frontage roads and access roads?	Y	N	N/A
Is a standard numeric legend used to identify typical sections?	Y	N	N/A
Are rumble strip shoulders shown?	Y	N	N/A
Are pipe underdrains shown?	Y	N	N/A
Is sub-base granular material shown under between stabilized shoulder and lime modification? (sub-base granular material, type C should be incidental to shoulder)	Y	N	N/A

Summary of Quantities, Quantities Not Otherwise Shown and Tabulation of Quantities

These sheets are not required for preliminary plans. The consultant may want to provide examples of these sheets to ensure the District agrees with the format.

Reference Ties & Bench Marks

Are reference ties and bench marks shown?	Y	N	N/A
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General Plan

Is a line diagram provided to provide an overview of the project	Y	N	N/A
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Traffic Control and Staging Plans

Are traffic control and staging plans complete?	Y	N	N/A
Do staging plans provide for temporary drainage?	Y	N	N/A
Do staging plans provide for temporary guardrail and/or attenuators?	Y	N	N/A

ROW Strip Maps

On complex jobs, the consultant may want to insert ROW strip maps to avoid cluttering plan & profile sheets.

Plan & Profile Sheets

Are plan & profile sheets clear & uncluttered?	Y	N	N/A
Is the complete topo shown within proposed ROW?	Y	N	N/A
Are the existing and proposed ROW including easements and temporary use permits shown?	Y	N	N/A
Are station offsets provided for proposed ROW?	Y	N	N/A
Are township, range and section numbers shown?	Y	N	N/A
Are property lines and property owners names shown?	Y	N	N/A
Are profiles shown for special ditches?	Y	N	N/A
Are direction of flow arrows shown for all ditches and culverts?	Y	N	N/A
Do storm sewer profiles show utilities?	Y	N	N/A
Are all utilities shown on plan sheets?	Y	N	N/A
Is proposed guardrail shown?	Y	N	N/A
Is horizontal curve data including superelevation attained and removed provided for each curve?	Y	N	N/A
Is existing & proposed vertical alignment shown at locations where vertical alignment is being changed?	Y	N	N/A
Has tree removal been identified?	Y	N	N/A
Has landscaping been identified? (The consultant should make it clear what their intentions are concerning planting trees, seeding, mulching, etc.)	Y	N	N/A
Are permanent pavement marking and raised pavement marker locations shown?	Y	N	N/A

Intersections/Interchange Details

Are intersections and interchange plans in accordance with the approved IDS?	Y	N	N/A
Are station offsets provided for control points? (e.g. beginning and end of radius returns)	Y	N	N/A
Is enough geometric information provided for construction layout?	Y	N	N/A

Traffic Signal, Highway Lighting and Signing Plans

Are these plans complete enough to determine utility conflicts and constructability?	Y	N	N/A
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Details

Are details provided for the following:

Entrances?	Y	N	N/A
Sidewalks?	Y	N	N/A
Butt Joints?	Y	N	N/A
Cold Milling?	Y	N	N/A
Rough Grooved Surface sign?	Y	N	N/A
Drainage – Culvert extensions, special inlets, temporary drainage, etc.	Y	N	N/A
Permanent and Temporary Erosion Control (Riprap & Revetment Mat)?	Y	N	N/A
Islands?	Y	N	N/A
Permanent Pavement Markings?	Y	N	N/A
Survey Markers & Ties?	Y	N	N/A
Slipforming Parapets?	Y	N	N/A

Structure Plans

Is a copy of the TS&L plans for each structure including retaining walls attached? Y N N/A

Special Culvert Designs

Is a copy of the cast in place box culverts plans, special end sections plans and multiple cell culverts provided? Y N N/A

Cross Sections

Is the note concerning verifying utility location on each cross section sheet? Y N N/A

Are utilities shown on cross sections? Y N N/A

Are pavement elevations, ditch flowline elevations and culvert flowline elevations shown? Y N N/A

Are direction of flow arrows provided between each cross section? Y N N/A

Is there a cross section at all side roads, entrances and culverts? Y N N/A

Are the proposed grades of sideroads and entrances shown? Y N N/A

Are proposed and existing ROW including easements and temporary use permits shown? Y N N/A

Is guardrail shown? Y N N/A

Are topsoil placement and excavation shown? Y N N/A

Is unsuitable material removal shown? Y N N/A

Is benching shown when required? Y N N/A

General

Are unique special provisions provided for all work not covered by standard specifications	Y	N	N/A
Is a comprehensive list of pay items provided?	Y	N	N/A
Are plan sheets tentatively numbered?	Y	N	N/A
Are plan sheets clear when reduced to quarter size?	Y	N	N/A
Have Soils Report recommendations been incorporated into plans?	Y	N	N/A
Are plans in accordance with ADA requirements?	Y	N	N/A
Are plans in accordance with approved project report?	Y	N	N/A
Are two copies of the preliminary plans enclosed?	Y	N	N/A

ALL QUESTIONS WHICH WERE ANSWERED "NO" SHOULD BE EXPLAINED IN COVER LETTER.

Submitted by: _____