

Job Characteristics Manual



PROGRAM/PROJECT MANAGEMENT SYSTEM



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Chapter 1 OVERVIEW OF THE MANUAL

Section A – Introduction

The purpose of this manual is to document the characteristics associated with a job in the Michigan Department of Transportation's (MDOT) Program/Project Management System (P/PMS). The manual provides detailed information about each of the characteristics associated with the job including definitions, examples, and associated data values.

P/PMS has been developed by MDOT to enhance the Department's ability to schedule and monitor the progress and resource usage of the preconstruction work effort. The preconstruction process includes many work tasks. Improve/Expand jobs begin with the Early Study Phase and end with the construction contract award. For Preserve jobs the tasks begin after the "Call for Projects" and end with the construction contract award.

The basic unit of work effort in the system is the job. Jobs are divided into tasks, which are the basic scheduling units in the system. Several jobs may be grouped together into a larger unit for a broader perspective; this unit is the project. The tasks associated with a job are assigned a duration, resource requirements and constraints that link tasks. This structure makes up the Critical Path Method network: The series of activities which determines the earliest completion of the job/project.

The job characteristics in this manual were identified with the cooperation of over 100 MDOT staff and managers as part of the development of the P/PMS networks and standards. The job characteristics are used in combination with the P/PMS network generator. The network generator provides a way to quickly and consistently create a critical path method network that can be tailored to a specific job. The network generator consists of a set of computer programs that build a network based on the job's specific characteristics. P/PMS now has the capability to automatically generate generic networks provided the characteristics have been filled in the P/PMS Characteristics area of the Job Concept Statement in MPINS.

This manual is intended as a reference for MDOT managers and staff to use when they are establishing or refining the characteristics associated with a job. It is anticipated that it will be updated as system enhancements are made or when Department codes are revised.

Section B – Manual Organization

Before

You Begin The P/PMS Job Characteristics Manual is divided into the following Chapters and Appendices.

Portion	Title	Description
Chapter 1	Overview of the Manual	Introduces the reader to this P/PMS manual and describes the content of subsequent chapters.
Chapter 2	Data Collection	Describes the steps leading up to the entry of job related data. Examples of the screens and a listing are provided as part of this chapter.
Chapter 3	Data Descriptions	Presents information about each job data element to be included in the P/PMS job information system. Examples of elements and available codes are provided.
Appendix B	Work Type Codes	Provides a listing of all the valid Work Type Codes.

Chapter 2 DATA COLLECTION

Section A - Introduction

Purpose This chapter addresses the procedures for capturing, processing and loading job data into the P/PMS database.

Before You Begin This is a necessary first step before running job scheduling and monitoring features. See also the MDOT Scoping Manual- esp. Ch. 9 (Timeline and Step 9) and Ch. 10 – Part I (programming a Project) for other necessary information.

Procedure The following is a basic series of steps that must be taken to get job data loaded into P/PMS:

Step	Action	
1	Requestor/requesting group identifies need for job.	
2	Requestor/requesting group asks for Job Number to be established in MPINS.	
3	Lead Unit/Concept Author is chosen.	
4	Concept Author fills out Project Scoping Checklist (Concept Data) in MPINS	
5	If...	Then...
	A. Concept Author wishes to have P/PMS date picked up automatically to create generic P/PMS network	Concept Author also fills out P/PMS Characteristics data (this manual). Go to <i>Step 6</i> .
	B. Concept Author will not provide P/PMS data	Go to <i>Step 6</i> .
6	Concept Author submits Concept Statement and forwards information to the Template System Manager. (Change Request #00 is automatically created in MPINS)	
7	System Manager records Job Number.	
8	System Manager processes Change Request.	
9	System Manager returns form to Concept Author.	
10	System Manager assigns Project Manager.	
11	System Manager activates job.	
12	If...	Then...
	A. Concept Author entered P/PMS data.	P/PMS program loads characteristics data from MAP.
	B. Concept Author did not enter P/PMS data.	P/PMS only loads basic info from MAP. Characteristics will need to be entered into P/PMS.

Section B – Data Collection/Retrieval

The job characteristics must be provided to MPINS and/or the P/PMS system in order to generate a network and preliminary schedule. The P/PMS Tab in the MPINS Concept Statement (Characteristics Data Screen) and the Job Characteristics Data Entry Screens in P/PMS are the mechanisms provided to enter characteristic data. These characteristics can be viewed from the P/PMS data entry screens or a listing that can be generated in P/PMS.

In this case, we will assume that the characteristics from MPINS are either incomplete or missing, and will enter characteristics ourselves.

Part 1 – MPINS Concept Statement – P/PMS Tab

The P/PMS Tab in the MPINS Concept Statement provides two sections, each section dealing with different types of data. These sections are labeled I and II.

Three types of fields are provided for input:

Numerical input is required to indicate the number of occurrences of an item (# of Navigable Waterways, # of Signal Locations), or to specify a numbered category (Traffic ADT).

Fields that accept only a specific set of descriptive inputs list those inputs in a drop-down menu pick list, for the user to check the one item that applies (Environmental Type, Road Type).

Finally, there are fields that indicate the presence or absence of a characteristic in the job, such as FHWA Involvement or EPE Corridor Mapping. In these fields, the user will answer by picking Yes or No from the drop-down menu.

Part 2 – P/PMS Job Characteristics Data Entry Screen

Samples of the P/PMS Job Characteristics Data Entry Screens are provided in Figures II-1 through II-3 (pages 2-5 through 2-7). There are three screens required for data entry and viewing.

Field types on Screens 1 and 2 match the fields from the Concept Statement both in format and content. There are fields requiring numerical input, limited descriptive inputs, or Yes/No input. You may navigate between the screens using the slider bar on the right-hand side of the screens, and between the fields by using the Tab key, Enter key, arrow keys, or clicking on them with the mouse cursor.

Screen 3 fields may only be entered through P/PMS.

Section B – Data Collection/Retrieval, continued

An added feature provided with the screens is field validation. At the time of entry, checks are made to verify the data entered, and an error message is displayed if data does not meet validation criteria. In addition, for fields that accept a limited set of inputs, pop-up lists may be requested by the user. To request a pop-up, the user may enter any invalid input. A question mark or commas are convenient characters to use for this purpose.

The Job Characteristics Data Entry Screens provide the information needed to generate networks in P/PMS. They establish the basis for task selection and timing. They must be filled out correctly and completely before a network can be generated for a job.

Part 3 - P/PMS Job Data Listing

To review the characteristics that have been entered for a job, the user may look at the Job Characteristics Data Entry Screens, or, for hard copy output, run the P/PMS Job Data Listing under Listings, Characteristics. A sample copy is provided in Figure II-4 (Page 2-8).

Figure II.1

P/PMS Job Characteristics Data Entry Screen 1

The screenshot shows a software window titled "CAT II Data Entry" with a menu bar containing "File", "Edit", "Goto", "Find", and "Help". The main content area is divided into sections:

- MICHIGAN DEPARTMENT OF TRANSPORTATION - P/PMS**
Job Characteristics
- GENERAL JOB INFORMATION**
Control Section: 01051 Job Number: 116137 Version: 2 Route: US-23
Location Description: at LSRC (G01), Alcona Co
Region: NORTH TSC: ALPENA
- JOB CHARACTERISTICS - Section I**
This information is required to generate an initial Network
Construction Length: 0.0 mi Work Type: 124 - RAILROAD XING IMPROVEMENTS & SAFETY DEVICES
Traffic ADT .. 2 - BETWEEN 2,000 AND 5,000
Small Structures: 0 Medium Structures: 0 Large Structures: 0 Other Structures: 0
Road Class TL Development Class RU
Environment Type .. CE Topographic Survey Type .. NS

At the bottom of the window, it displays "RECORDSET: \$ke23992 Find: 1 of 1 Rec: 1". A status bar at the very bottom contains "Exit" and "Clear" buttons.

Figure II.2

P/PMS Job Characteristics Data Entry Screen 2

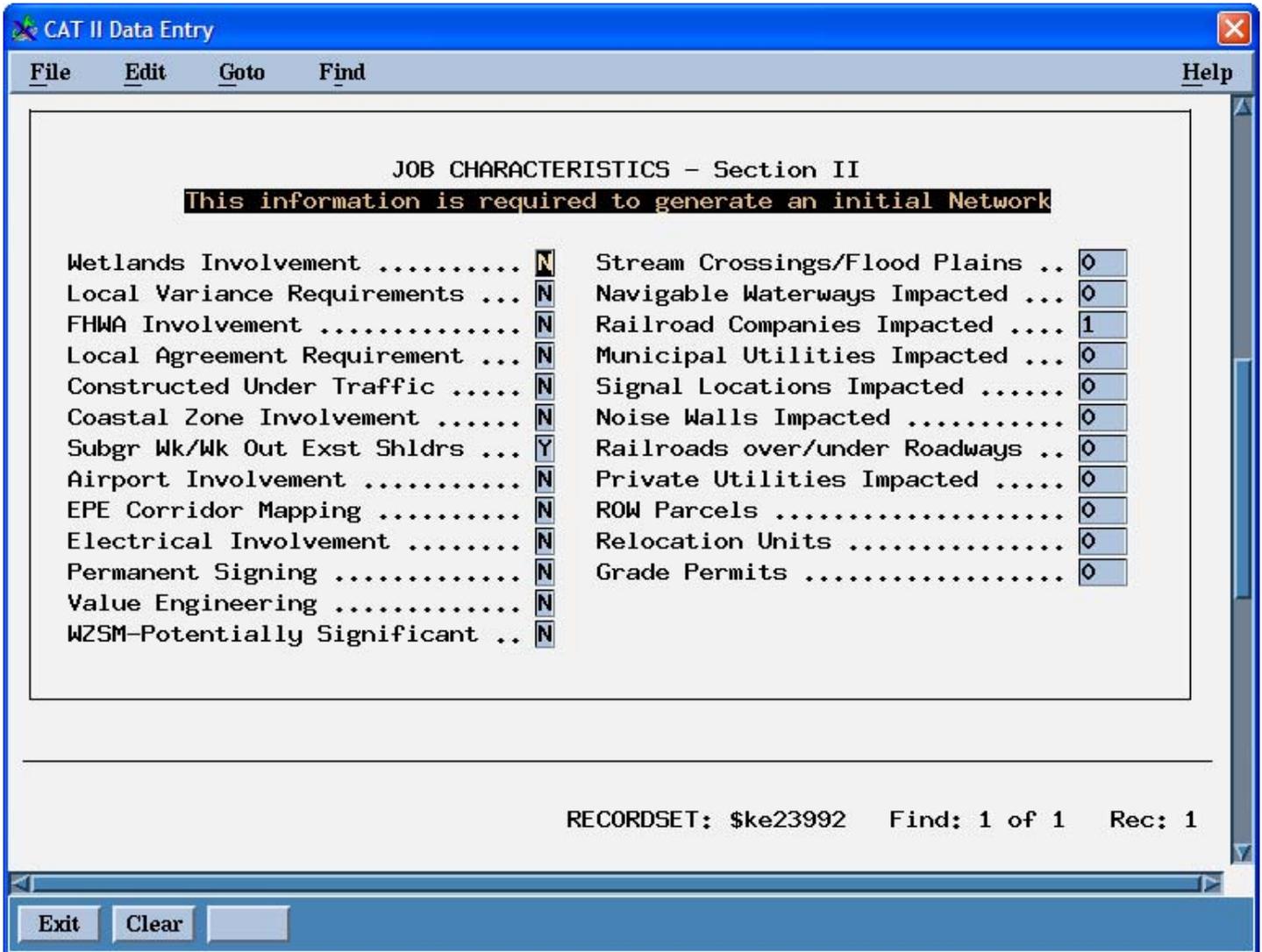
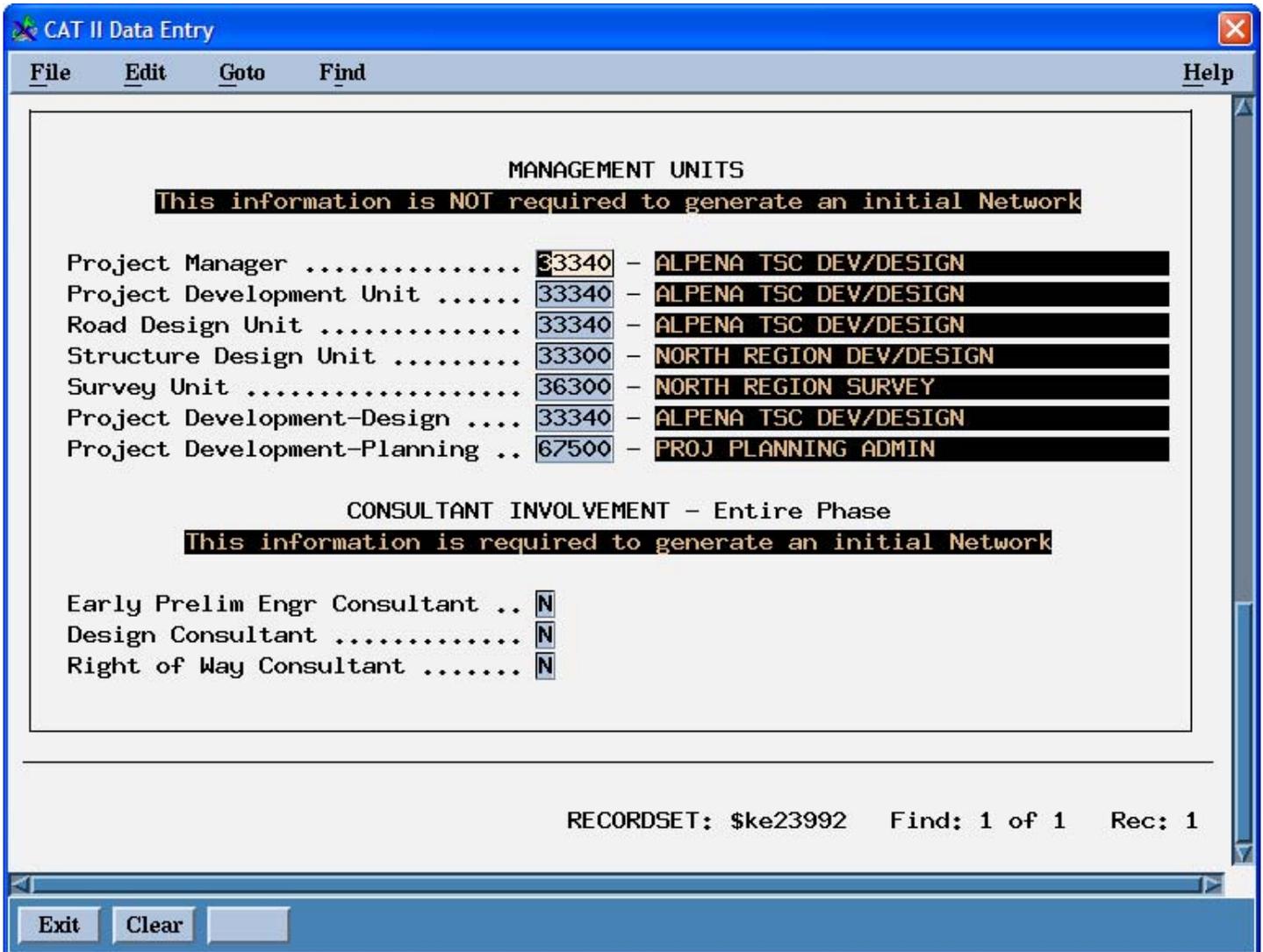


Figure II.3

P/PMS Job Characteristics Data Entry Screen 3



Chapter 3 DATA DESCRIPTIONS

Section A – Introduction

This chapter describes the individual data elements required to complete the P/PMS Job Characteristics Data Screens. The principles involved and individual element descriptions may also be applied to the P/PMS Tab (Job Characteristics) in the MPINS Concept Statement. The elements are presented in the same sequence as in MPINS and P/PMS.

In addition to information about the form's data fields, the material below includes information about the data formats and validations on P/PMS data entry. The job should comply with the format requirements in order to facilitate data entry.

Important Note:

In P/PMS, Job Characteristics Section I and II, any characteristics requiring numbers must be filled with an integer, or 0. Blanks are not interpreted as zeros in P/PMS.

Section B – General Job Information

Purpose The characteristics included in this section are used to identify the job.

Before You Begin Follow these steps to get to the job/version for which you want to enter characteristics.

Step	Action
1	Enter P/PMS. If you do not know how to do this, please see the Reference Guide for Project Managers, pages 2-1 to 2-3.
2	Go to the Job/Project Area by selecting File, Go to Job/Project Area.
3	Open the job (or version) you would like to enter the characteristics for with File, Open, and the select Job or Version. For new jobs, refer to the Reference Guide for Project Managers, pages 2-5 to 2-11 before proceeding.

Procedure Remember that you may navigate between the fields by using the Tab key, Enter key, arrow keys, or clicking on them with the mouse cursor, and between the screens using the slider bar on the right-hand side of the screens. "The General Job Information items originate from MPINS, and are unchangeable except through MPINS. You will find these items highlighted in black and unavailable for editing." All general job information appears on the first data entry screen

Section B – General Job Information, continued

Item	Description								
Control Section	The Control Section refers to the primary control section covered by the job, taken from the MDOT Official Source Control Section Atlas. The Control Section is pulled into P/PMS from MPINS/MAP. The Control Section cannot be changed in P/PMS. Only the primary control section for the job will be available in P/PMS.								
Job Number	<p>The Job Number is the data item that uniquely identifies a job. This number is assigned in MDOT’s Project Information System (MIPNS) when the job is first established. P.PMS will validate that the job number exists and is valid, and then pull the appropriate job data, provided the job is:</p> <ul style="list-style-type: none"> • Active • Will be let by MDOT or is a study • Classified as a trunk line job <p>The job number cannot be changed. Only the first five characters of the job number will be displayed in P/PMS. Job phases are included in the network for the entire job.</p>								
Version	Version identifies which of nine possible version of the job is currently open in P/PMS. Version number 1 appears of this is the first or master copy of the job. The version cannot be changed on this screen.								
Route	The Route is the Interstate, US, or State Route number for the main road covered by the job. The job’s route is pulled into P/PMS form MPINS/MAP. The route cannot be changed in P/PMS.								
Location Description	This is a brief description of where the job is located, in more detail than the Region and Route. It is closer to the physical location of the job, and is set through MPINS.								
Region	<p>Michigan is divided into seven geographic Regions, one in the upper peninsula, one in the northern lower peninsula, and five more downstate. A map showing the location of each Region appears in Appendix B.</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 20px;">Region 1: Superior</td> <td>Region 2: North</td> </tr> <tr> <td style="padding-right: 20px;">Region 3: Grand</td> <td>Region 4: Bay</td> </tr> <tr> <td style="padding-right: 20px;">Region 5: Southwest</td> <td>Region 6: University</td> </tr> <tr> <td style="padding-right: 20px;">Region 7: Metro</td> <td></td> </tr> </table> <p>The job’s Region is also pulled into P/PMS. The Region cannot be changed in P/PMS.</p>	Region 1: Superior	Region 2: North	Region 3: Grand	Region 4: Bay	Region 5: Southwest	Region 6: University	Region 7: Metro	
Region 1: Superior	Region 2: North								
Region 3: Grand	Region 4: Bay								
Region 5: Southwest	Region 6: University								
Region 7: Metro									
Transportation Service Center	Michigan is divided into seven geographic Regions which then are broken down into twenty six TSC’s. At a job's concept, the county location of the job typically determines which TSC is chosen by the Concept Author to administrate design and construction.								

Section C - Job Characteristics Section I

Purpose This section provides information about the characteristics that have the broadest effect in determining time and resource needs for a job.

Before You Begin The following items and descriptions are found on Job Characteristics Screen 1, as seen in Figure II.1 (page 2-5).

Procedure

Item	Description
Construction Length	<p>The Construction Length is the linear length of the job under construction, from point of beginning to point of ending. It includes the lengths of all structures and excludes intersection approaches and road frontages. It is distinct from lane miles in that the number of lanes does not affect the value of this item.</p> <p>Enter construction length in miles/kilometers. An entry in this field is required to generate an Improve/Expand job's Early Study Network.</p>
Work Type	<p>The Work Type is a three-digit number that characterizes the major category of work encompassed by the job. The Work Type codes used by the department and required for this entry are found in Appendix B. The job's Work Type is also pulled into P/PMS form MPINS/MAP. The job's Work Type can only be changed in a version (what-if) of the job in P/PMS.</p>
Traffic ADT	<p>The Traffic ADT is the average daily traffic for the job's major control section. The number will typically range from a few thousand to over 50,000. It can be obtained by specific traffic counts, or as an estimate from the latest Sufficiency Rating Handbook.</p> <p>Five categories of ranges are define:</p> <ol style="list-style-type: none"> 1. 0 – 2,000 2. 2,001 – 5,000 3. 5,001 – 20,000 4. 20,001 – 50,000 5. More than 50,000 <p>An integer category number is required. An entry in this field is required to generate an Improve/Expand job's Early Study Network.</p>
Structures	<p>The item "structures" typically refers to bridges requiring construction or maintenance, but it also includes other structures such as retaining walls, large culverts, and pump houses. The types of structures under consideration are arranged based on to-be-constructed deck area (length times width of the area covered by the work). <u>Only count structures affected by the job.</u> There are four categories:</p> <ul style="list-style-type: none"> • Small Structures • Medium Structures • Large Structures • Other Structures <p>The descriptions for each of these four categories follow on the next page.</p>

Section C - Job Characteristics Section I, continued

Section C - Job Characteristics Section I, continued

Procedure
(continued)

Item	Description	
Structures (continued)	Category	Description
	Number of <u>Small</u> Structures	The number of structures with a deck area of less than 1000 square feet (93 square meters) and having a span of at least 20 feet (6 meters). If the field does not apply to the job, enter a zero. An entry in this field is required to generate an Early Study network for an Improve/Expand job.
	Number of <u>Medium</u> Structures	The number of structures having a deck area of greater than 1000 square feet (93 meters) but less than 15,000 square feet (1389 square meters). If the field does not apply to the job, enter a zero. An entry in this field is required to generate an Early Study network for an Improve/Expand job.
	Number of <u>Large</u> Structures	The number of structures having more than 15,000 square feet (1389 square meters) of deck area. If the field does not apply to the job, enter a zero. An entry in this field is required to generate an Early Study network for an Improve/Expand job.
Number of <u>Other</u> Structures	The number of structures having a span of under 20 feet (6 meters). It includes retaining walls, pump houses, and culverts, as well as special drainage structures like special headwall details, storm water outlets, energy dissipation structures, special collar details, and tunnel storm sewers. If the field does not apply to the job, enter a zero. An entry in this field is required to generate an Early Study network for an Improve/Expand job.	

Section C - Job Characteristics Section I, continued

Procedure
(continued)

Item	Description										
Road Class	<p>The road class designates the type, number, and configuration of lanes. Four specific Road Classes are defined:</p> <table border="1" data-bbox="441 478 1425 1144"> <thead> <tr> <th data-bbox="441 478 690 514">Category</th> <th data-bbox="690 478 1425 514">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="441 514 690 703">Controlled Access or Freeway</td> <td data-bbox="690 514 1425 703">(CA) Roads in this category consist of two or more paved lanes with shoulders in each direction and are separated by a median. Access to these facilities is limited to specifically designated entry and exit ramps or freeway interchanges.</td> </tr> <tr> <td data-bbox="441 703 690 808">Divided Multi-Lane/Non-Freeway</td> <td data-bbox="690 703 1425 808">(DM) This category covers roads that have two or more lanes in each direction separated by a median.</td> </tr> <tr> <td data-bbox="441 808 690 997">Multi-Lane</td> <td data-bbox="690 808 1425 997">(ML) Roads in this category typically consist of two or more paved lanes in each direction with outside shoulders or curbs, possibly separated by left turn lanes. One-way streets with two or more lanes are included in this category.</td> </tr> <tr> <td data-bbox="441 997 690 1144">Two-Lane</td> <td data-bbox="690 997 1425 1144">(TL) Roads in this category typically consist of one paved lane with a shoulder or curb in each direction and short sections of three and four lanes for passing and intersection turning lanes.</td> </tr> </tbody> </table> <p>Select the category that best describes the major Road Type covered by the job. An entry in this field is required to generate a network for an Improve/Expand job's Early Study Network.</p>	Category	Description	Controlled Access or Freeway	(CA) Roads in this category consist of two or more paved lanes with shoulders in each direction and are separated by a median. Access to these facilities is limited to specifically designated entry and exit ramps or freeway interchanges.	Divided Multi-Lane/Non-Freeway	(DM) This category covers roads that have two or more lanes in each direction separated by a median.	Multi-Lane	(ML) Roads in this category typically consist of two or more paved lanes in each direction with outside shoulders or curbs, possibly separated by left turn lanes. One-way streets with two or more lanes are included in this category.	Two-Lane	(TL) Roads in this category typically consist of one paved lane with a shoulder or curb in each direction and short sections of three and four lanes for passing and intersection turning lanes.
Category	Description										
Controlled Access or Freeway	(CA) Roads in this category consist of two or more paved lanes with shoulders in each direction and are separated by a median. Access to these facilities is limited to specifically designated entry and exit ramps or freeway interchanges.										
Divided Multi-Lane/Non-Freeway	(DM) This category covers roads that have two or more lanes in each direction separated by a median.										
Multi-Lane	(ML) Roads in this category typically consist of two or more paved lanes in each direction with outside shoulders or curbs, possibly separated by left turn lanes. One-way streets with two or more lanes are included in this category.										
Two-Lane	(TL) Roads in this category typically consist of one paved lane with a shoulder or curb in each direction and short sections of three and four lanes for passing and intersection turning lanes.										
Environmental Type	<p>This designates the general level of possible environmental impact of the job. Three types are defined:</p> <table border="1" data-bbox="441 1365 1425 1843"> <thead> <tr> <th data-bbox="441 1365 690 1400">Category</th> <th data-bbox="690 1365 1425 1400">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="441 1400 690 1589">Environmental Impact Statement</td> <td data-bbox="690 1400 1425 1589">(EI) This category applies to work that will have significant impact on the environment. An Environmental Impact Statement will likely need to be completed.</td> </tr> <tr> <td data-bbox="441 1589 690 1736">Environmental Assessment</td> <td data-bbox="690 1589 1425 1736">(EA) This category applies to work that is not a categorical exclusion, but may not require the preparation of an EIS. Typically, impacts are not significant, but an assessment is required.</td> </tr> <tr> <td data-bbox="441 1736 690 1843">Categorical Exclusion</td> <td data-bbox="690 1736 1425 1843">(CE) This category applies to work that does not have significant environmental impact or involve substantial planning, time or resources.</td> </tr> </tbody> </table> <p>Select the type that best describes the Environmental Type required by the job. An entry in this field is required to generate a network for an Improve/Expand job's Early Study Network.</p>	Category	Description	Environmental Impact Statement	(EI) This category applies to work that will have significant impact on the environment. An Environmental Impact Statement will likely need to be completed.	Environmental Assessment	(EA) This category applies to work that is not a categorical exclusion, but may not require the preparation of an EIS. Typically, impacts are not significant, but an assessment is required.	Categorical Exclusion	(CE) This category applies to work that does not have significant environmental impact or involve substantial planning, time or resources.		
Category	Description										
Environmental Impact Statement	(EI) This category applies to work that will have significant impact on the environment. An Environmental Impact Statement will likely need to be completed.										
Environmental Assessment	(EA) This category applies to work that is not a categorical exclusion, but may not require the preparation of an EIS. Typically, impacts are not significant, but an assessment is required.										
Categorical Exclusion	(CE) This category applies to work that does not have significant environmental impact or involve substantial planning, time or resources.										

Section C - Job Characteristics Section I, continued

Procedure
(continued)

Item	Description		
<p>Development Class</p>	<p>This describes the type of land use adjacent to the roadway. There are three specific types:</p>		
	<table border="1"> <thead> <tr> <th data-bbox="440 485 691 520">Category</th> <th data-bbox="691 485 1425 520">Description</th> </tr> </thead> </table>	Category	Description
	Category	Description	
	<p>Rural</p>	<p>(RU) Land is typically under agricultural use. Access is available to all property and often exists in the form of roads located on section boundaries. The rural area population is located on individual farms and in small towns.</p>	
	<p>Urban Residential</p>	<p>(UR) Land is typically highly developed, owned in small parcels, has a high level of access, and is used primarily for residences.</p>	
<p>Urban Commercial/Industrial</p>	<p>(UC) Land is typically highly developed, owned in small to large parcels, has a high level of access, and is used primarily for commerce or industry.</p>		
<p>Type of Topographic Survey</p>	<p>Select the type that most closely describes the area covered by the job. An entry in this field is required to generate and Improve/Expand job's Early Study Network.</p>		
	<p>This field indicates what type of topographic survey will be required in the Design phase of the job. The types are defined:</p>		
	<table border="1"> <thead> <tr> <th data-bbox="440 1226 691 1262">Category</th> <th data-bbox="691 1226 1425 1262">Description</th> </tr> </thead> </table>	Category	Description
	Category	Description	
<p>Field Survey</p>	<p>(FS) Only a land based survey will be conducted</p>		
<p>Combination Survey</p>	<p>(CS) Both land and aerial surveys will be conducted. Aerial surveys require some land surveying for triangulation.</p>		
<p>None</p>	<p>(NS) No survey will be performed/</p>		

Section D - Job Characteristics Section II

Purpose This section provides information about the characteristics that, while still significant, generate somewhat less impact on the resource requirements and duration of a job.

Part 1– Indicate the Presence/Absence of a Characteristic on the Job – Left Hand Column

Before

You Begin The following items and descriptions are found on Job Characteristics Screen 2, as seen in Figure II.2 (page 2-6). These items and descriptions are in the left-hand column of the screen, and are used to indicate the presence/absence of a characteristic by a “Y” or “N”.

Procedure

Item	Description
Wetlands Involvement	Indicates the presence of wetlands on the area covered in the job. Wetlands are defined to be areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and which under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil. Wetlands generally include swamps, marshes, bogs, wet meadows and similar areas.
Local Variance Requirements	Indicates conditions are present that will require that local, municipal or county authorities grant local land use variances. Examples of such variances include mining permit for wetlands work, tree replacement and zoning variances.
FHWA Involvement	Indicates whether the Federal Highway Administration will be participating in the job. Such involvement usually consists of approval and authorization to receive and spend Federal funds, based of compliance with certain rules and standards, and occurs on all interstate jobs and jobs on the National Highway System with a cost of over \$1,000,000.
Local Agreement Requirement	Indicates whether it will be necessary to obtain agreements with local governmental and/or private agencies. These agreements cover such items as cost participation, parking restrictions, drainage obligations, maintenance obligations, etc., for work being performed as part of the job or to facilitate the construction of the job.
Constructed Under Traffic	Indicates whether work for the job must be carried out under active traffic conditions due to the lack of feasible detour options.
Costal Zone Involvement	Indicates whether the physical limits of the job include areas which are adjacent to the Great Lakes or connecting waterways as defined by MDEQ. This is to be considered whenever there is any construction within the Costal Zone, especially if there is work outside the existing shoulders or curbs.

Section D - Job Characteristics Section II, continued

Part 1 – Indicate the Presence/Absence of a Characteristic , continued

Procedure
(continued)

Item	Description
Subgrade Work or Work Outside Exist, Shlds. Or Curbs	<p>Indicates that that job will include Subgrade work, or will involve work that will disturb the soils outside of the shoulder or curb and sidewalk. All Improve/Expand jobs will have work outside of the existing shoulder or curb. Some Preserve Jobs/Projects and Highway Preservation Program jobs will have work outside existing shoulders or curbs. These can include:</p> <ul style="list-style-type: none"> • Upgrading guard rails • installing new fencing, and • modification of drainage structures. <p>This includes the work on right of way belonging to the State of Michigan.</p>
Airport Involvement	<p>Indicates whether the job will impact lands owned by or adjacent to any FAA approved airport.</p>
EPE Corridor Mapping	<p>Indicates whether the need exists for EPE Corridor mapping on the job. EPE Corridor Mapping is typically required for very wide (3 miles (5 kilometers) or more) and long corridor studies. The mapping for these types of jobs is compiled from higher altitude photography. These maps typically have a scale of 1:200 and a 1.75 foot (0.5m) contour interval. This work effort is accomplished in the Early Preliminary Engineering Phase of the job.</p>
Electrical Involvement	<p>Indicates whether it will be necessary to provide resources to install new or maintain existing electrical facilities.</p>
Permanent Signing	<p>Indicates whether it will be necessary to remove and reinstall existing signs, or upgrade to new permanent signage.</p>
Value Engineering	<p>Indicates whether Value Engineering will need to be performed on a single designated job or on a group/corridor of jobs. Typically required when total cost nears or exceeds \$25 million dollars.</p>
Work Zone Safety and Mobility	<p>In conjunction with MPINS and the MAP Database, P/PMS has now implemented this new characteristic that appears in the MPINS Concept Statement (P/PMS Tab) and in the characteristics in P/PMS. This characteristic helps to control the duration and labor hours of the three Maintaining Traffic Tasks in Design (3390 - Maint. Traf. Concepts, 3540 - Prelim. Maint. Traf. Plan, and 3830 - Final Maint. Traf. Plan).</p> <p>Through the Regions/TSCs using the Work Zone Safety and Mobility Manual during the scoping process, potentially significant impacts to mobility may be identified. In these cases, marking the characteristic as 'Y' will add to the duration and labor hours of those tasks that are normally calculated. If the characteristic is marked 'N', then the durations and labor hours will be calculated as normal in P/PMS.</p>

Section D - Job Characteristics Section II

Part 2 – Indicate Number if Characteristic Represented on Job – Right hand Column

Before

You Begin The following items and descriptions are found on Job Characteristics Screen 2, as seen in Figure II.2 (page 2-6). These items and descriptions are in the right-hand column of the screen, and are used to indicate *how many* occurrences of that characteristic are present on the job. An integer is required. If the field does not apply to the job, enter a zero.

Procedure

Item	Description
Stream Crossings or Flood Plains Impacted	Indicates the number of stream crossing/flood plains that will be impacted by the job. This may include the installation, construction and/or modification of a bridge over a watercourse, a culvert in a stream, or a bridge or culvert that has a drainage area greater than two square miles. Also to be considered is any construction activity within the 100-year flood plain of any river, lake or stream.
Navigable Waterways Impacted	Indicates the number of occurrences where the job may permanently affect navigation or work is to be done in a navigable channel, defined to be “waters...used...as a means to transport interstate or foreign commerce up to the head of navigation.”
Railroad Companies Impacted	Indicates the number of railroad companies involved when arrangements must be made to coordinate tasks because the job will affect railroad property. Such involvement might include the relocation of railroad lines, construction of railroad crossings, adjustments in the railroad grades, etc. <u>Involvement of a railroad company exclusively for the acquisition of right of way is not included.</u>
Municipal Utility Companies Impacted	Indicates the number of governmental utility agencies that will be involved when construction will require the relocation of their facilities. Involvement can include the identification of utility lines, relocation of lines, adjustments in the utility agreement, etc. <u>Involvement of a utility company solely for the acquisition of right of way is not included.</u>
Signal Locations	Indicates the number of <u>permanent or temporary</u> traffic signal controllers that must be installed, moved, maintained, or upgraded for this job.
Noise Walls	Indicates the number of locations where a noise wall will be installed. Count each segment with a length of 1000 feet (305 meters) or less. If a wall is over 1000 feet (305 meters), count is as two or more segments.
Railroads over/under Roadways	Indicates the number of locations where a railroad crosses a roadway, and involves a structure, whether over or under the roadway/railroad. In cases of at-grade crossings, enter a zero.

Section D - Job Characteristics Section II

Part 2 – Indicate Number if Characteristic Represented on Job – continued

Procedure

Item	Description
Private Utility Companies Impacted	Indicates the number of private utility agencies that will be involved when construction will require the relocation of their facilities. Involvement can include the identification of utility lines, relocation of lines, adjustments in the utility agreement, etc. <u>Involvement if a utility company solely for the acquisition of right of way is not included.</u>
Right of Way Parcels	Indicates the number of right of way parcels that will be acquired for the job. This does not include in-fee or grading permits and easements. Parcels which were acquired prior to initiating the job are also not included.
Relocation Units	Estimates the number of units that must be relocated due to this job. A family or a business is considered one unit.
Grade Permits	Indicates the number of grading permits or easements required for the job. These are not included as ROW parcels.

Section E - Job Characteristics Section III- Management Units

Purpose This section identifies the Management Units that will be responsible for specific work efforts associated with a job, and is found on Data Entry Screen 3 of the characteristics, as shown on Page 2-7. If a portion of the job is being done by consultant, indicate the related in-house unit that will be reviewing the consultant's work.

To obtain a list of allowable codes, typing a "/" or "?" or other unacceptable code will generate a pop-up menu of codes and Unit Leaders from which you can pick the correct code. An overview/summary of allowable codes is included with each unit section.

Part 1– Departmental Management Units

Procedure

A. Project Manager

The Project Manager has the responsibility of guiding and monitoring the job from the time it is authorized through letting. It is the job of the Project Manager to monitor job development, maintain a production schedule consistent with job letting and completion dates, and to produce an end product which is cost effective, within budget, on time, and meets job goals.

Allowable codes:

- All Region Design Units and TSC Design Units
- All Main Office (Lansing) Project Development Units
- All Main Office (Lansing) Bridge Design Units
- All Main Office (Lansing) Consultant Coordination Design Units
- All Region/TSC Traffic & Safety Units

- 33000 - Design - Administration/Management
- 38700 - Design - Bridge - Spl Structs
- 39500 - Design - Electrical
- 39600 - Design - Municipal Utilities Des
- 39700 - Design - Hydraulics Des
- 47400 - T & S - Signal Design
- 47500 - T & S - Operations - Signs & Delin - Reflec Sys Design
- 47600 – Pavement Marking
- 48550 – Grand Region ITS Operations
- 67000 – Project Tracking & Public Involvement
- 67800 – Traffic Analysis & Access MGT
- 67900 – Project Studies & Justification

Section E - Job Characteristics Section III- Management Units

Part 1– Departmental Management Units, continued

Procedure
(continued)

B. Project Development Unit

The Project Development Unit is the main unit responsible for the scoping and scope verification of the job, and may be represented by the Concept Author. The Project Development Unit is also responsible for exploring possible job alternatives, and monitoring and evaluating alternatives and scope changes during the job's development and design as well. This is especially true for jobs that are not Categorical Exclusions.

Allowable codes:

- All Region Design Units and TSC Design Units
- All Region/TSC Construction Units
- All region/TSC Administration Units
- All Main Office (Lansing) Project Development Units

C. Road Design Unit

The Road Design Unit refers to the unit assigned the responsibility for the roadway design work associated with the job.

For a job whose scope is primarily related to structures, this field designates the group that will have major responsibility for roadway design, especially as it relates to the structure approaches. This situation is increasingly being performed by the Structure Units themselves.

Allowable codes:

- All Region Design Units and TSC Design Units
- All Main Office (Lansing) Project Development Units
- All Main Office (Lansing) Structure Design Units
- All Region/TSC Traffic & Safety Units
- 33000 - Design - Administration/Management
- 39600 - Design - Utilities Des
- 39700 - Design - Hydraulics Des
- 47400 - T & S - Signal Design
- 47500 - T & S - Operations - Signs & Delin - Reflec Sys Design
- 47600 – Pavement Marking
- 48550 – Grand Region ITS Operations
- 67700 – Project Tracking & Public Involvement
- 67800 – Traffic Analysis & Access MGT
- 67900 – Project Studies & Justification

Section E - Job Characteristics Section III- Management Units

Part 1– Departmental Management Units, continued

Procedure
(continued)

D. Structure Design Unit

The Structure Design Unit designates the unit having major responsibility for the design of structures on the job.

If there are no structures involved in the job itself, this could be the unit designing any nearby structure jobs/projects, or the unit that most likely/typically works with the designer on roadway jobs. A structure unit can also be involved in tasks up to and including Scope Verification.

Allowable codes:

- 33000 - Design - Administration/Management
- 38500 - Design - Proj Co - Consult - Consult Bridge Des
- 38700 - Design - Bridge - Spl Structs
- 38900 - Design - Bridge - Bridge 1
- 39000 - Design - Bridge - Bridge 2
- 39100 - Design - Bridge - Bridge 3
- 39300 - Design - Bridge - Bridge 5

E. Survey Unit

This designates the principal unit having the responsibility for survey work on the job.

Allowable codes:

- 33100 - Region Design - Superior Region
- 33300 - Region Design - North Region
- 35800 - Design - Survey – Statewide
- 36000 – Design – Survey – GPS Crew
- 36300 – Design – Survey – North Region
- 36500 - Design - Survey - Grand Region
- 36600 - Design - Survey - Bay Region
- 36700 – Design – Survey – Southwest Region
- 36800 - Design - Survey - University Region
- 36900 – Region Design – Metro Region

Section E - Job Characteristics Section III- Management Units

Part 1– Departmental Management Units, continued

Procedure
(continued)

F. Project Development - Planning

This is the unit within the Planning Division which monitors and evaluates the recommended alternative provided by the Project Development Unit. This unit only applies to major actions such as Environmental Assessments and Environmental Impact Statements, and is not required for Categorical Exclusions.

Allowable codes:

- 62D00 – All Region/TSC Administration Units
- 67500 - Trans Planning - Proj Planning - Admin
- 67700 - Trans Planning - Proj Plng - Project Track & Public Involvement
- 67800 - Trans Planning - Proj Plng – Traffic Analysis & Access Mgt.
- 67900 – Trans Planning – Proj Plng – Project Studies and Justification

Section E - Job Characteristics Section III- Management Units

Purpose This category indicates the presence of an outside group hired to assist with the job. Three types of consultants are identified.

Part 2– Consultants

Procedure

Type	Description
Early Preliminary Engineering Consultant	This type of consultant is used to carry out the initial environmental and locations study for a job. <u>Indicate the contract type for the consultant.</u>
Preliminary Engineering Consultant	This type of consultant will carry out the detailed design and final development during the Preliminary Engineering phase of a job. <u>Indicate the contract type for the consultant.</u>
Right of Way Turnkey Consultant	This type of consultant is brought in to assist the right of way phase of the job, and will generally have responsibility for purchasing property, providing relocations assistance and removing right of way improvements. <u>Indicate whether or not (Y/N) a Right of Way Consultant will be hired.</u>

Consultant contracts for the EPE and PE phases may be in one of three contact categories:

Category	Description
As Needed	(A) In an AS-Needed situation, the consultant operates on an open-ended basis, with few or no specific tasks outlined.
Individual Contract	(I) A consultant on an individual contract has a very specific range of tasks to accomplish.
None	(N) No consultant or consultant contract is being utilized for this job.

Appendix A

Work Type Codes

Appendix A – Work Type Codes

Purpose The Work Type classification defines the predominant category of work being done on the job. Four major areas of work type are defined, encompassing 24 sub-categories.

Expand (New roads) Jobs in this category may consist of building a new facility where none currently exists, relocating a current facility, or adding a road currently under local jurisdiction to the state trunk line system. Expand Work Types are designated by the following codes:

STUDIES

- 193 Studies
- 194 Planning and Research

NEW ROUTES

- 308 Wetland mitigation on new route
- 310 New route
- 311 New structure on new route

ROADSIDE FACILITIES - NEW ROUTES

- 312 Sound barrier "Type II" (voluntary)
- 313 Rest area on new or relocated route
- 314 Welcome center on new route
- 315 Weigh station on new route
- 316 Sound barrier "Type I" (required on new facility)
- 317 Landscaping new facility

RELOCATION

- 320 Relocation on existing route
- 321 New structure on relocated route

ROADSIDE FACILITIES - RELOCATION

- 330 Sound barrier "Type II" (voluntary)
- 331 Rest area on new or relocated route
- 332 Welcome center on relocated route
- 333 Weigh station on relocated route
- 334 Sound barrier "Type I" (required on new facility)
- 335 Landscaping new facility

STRUCTURES/INTERCHANGES

- 340 New interchange on existing route
- 341 New structure on existing route

Appendix A – Work Type Codes, continued

Improve Jobs in this category increase the capacity of a road or facility, and may require
(Repair and the acquisition of additional right of way. The threshold for an Improve
Rebuild) job is a road widening of one lane's width for longer than a half mile or for total cost of greater than \$500,000. Improve Work Types are listed below:

CAPACITY IMPROVEMENT

- 210 Addition of one or more lanes of over 0.5 miles (0.75km) in length
- 212 Reconstruct and add lane(s) over 0.5 miles (0.75km) long
- 213 Interchange redesign and upgrading

BRIDGE REPLACEMENT

- 221 Bridge replacement

BRIDGE IMPROVE (formerly Bridge Replacement, and Bridge Widening)

- 230 Widen - add lanes
- 231 Widen, replace deck, and add lanes
- 232 Widen, replace superstructure, and add lanes
- 233 Replace bridge, add lanes
- 234 Miscellaneous replace

ROADSIDE FACILITIES - IMPROVE

- 240 Landscaping - new
- 241 Building expansion - rest area, welcome center, weigh station
- 242 Non-motorized path (apart from roadbed)
- 243 Parking area expansion
- 244 Noise barrier "Type I" on existing route (required)
- 245 Fence upgrading
- 246 New carpool lots or expansion of existing
- 247 New rest area on existing route
- 248 New weigh station on existing route
- 249 Sound Barrier "Type II" (Voluntary) on existing route

Appendix A – Work Type Codes, continued

Preserve Jobs in this category are undertaken for correcting deficiencies along an existing (R and R) road and usually do not require right-of-way acquisition.

Work Types under this definition include:

	<u>TRAFFIC OPERATION & SAFETY</u>	139	Miscellaneous rehabilitation	169	Concrete pavement rubberizing & bit resurf
100	Raised pavement marking	417	Overlay – shallow	170	Major rehabilitation
101	Relocate road obstacles	418	Overlay – thin		<u>RECONSTRUCTION</u>
102	Rumble strips – shoulder	422	Painting Complete	160	Recon. Existing, no widening, includes interchanges
103	Add turn lanes for traffic signal operation	424	Overlay - deep	161	Recon. for sight distance
104	Add turn lanes for traffic vol.	437	Superstructure correction (repair)	162	Interchange recon. only
105	Revise vertical/horizontal alignment for crash reduction		<u>RESURFACE</u>	163	Concrete reconstruction
110	Non-fwy sign replacement	140	Bit resurfacing	164	Bituminous reconstruction
111	Pavement marking	141	Bit resurfacing & bit shldrs	250	Multiple Course HMA overlay on Composite pavement
112	Traffic signals	142	Resurfacing - mill and/or pulverize	251	Multiple Course HMA overlay on Concrete pavement
113	Overhead sign structures	143	Bit resurfacing & minor wid	252	Multiple Course HMA overlay on Flexible pavement
114	Fwy sign replacement	144	Thin conc overlay (<7"(18cm)) - ultra thin		<u>MINOR WIDENING</u>
120	Intersection revisions	145	Thin conc overlay (>7"(18cm))- white topping	171	Left turn lane
121	Construct roadway lighting	146	Bit resurfacing & drainage improvements	172	Right turn flare
122	Construct median barrier	147	Bit resurface and curb & gutter	173	Additional lanes up to 0.5 miles (0.75km)
123	Guard rails and attenuator	148	Reconstruct non-freeway	174	Passing relief lanes less than 1.5 miles (2.5km)
124	RR xing improvements and safety devices	149	Hot Mix Asphalt Resurfacing- One Course		<u>ROADSIDE FACILITIES</u>
125	Ped. screening on structures		<u>RESTORE AND REHABILITATION</u>	182	Sanitary modernization (sewerage)
126	Remove roadside obstacles	150	Recycling existing concrete pavement	183	Rest area or welcome center
127	Culvert extensions	151	Bituminous shoulders	184	Fence repair/replacement in kind
128	Slope flattening	152	Drainage correction, culvert replacement	185	Miscellaneous roadside
129	Add turn lanes for crash reduction	153	Pumphouse reconst./replacement	186	Resurface parking area
	<u>BRIDGE REPLACEMENT</u>	154	Superelevation corrections	187	Weigh station modernization
130	Deck Replacement	155	Cracking and surfacing over old pav't	188	Landscaping replacement
137	Superstructure replacement	156	Unbonded concrete overlay	189	Streetscaping
452	Culvert Replacements	157	Pavement patching	190	Non-motorized path
	<u>BRIDGE REHABILITATION</u>	158	Longitudinal and transverse joint repairs	191	Carpool lots – upgrade
115	Superstructure repair	159	Minor rehabilitation	198	Wetland Mitigation
116	Substructure repair	165	Concrete pavement inlay		<u>MISCELLANEOUS</u>
117	Substructure replacement	166	Concrete pavement repair and diamond grinding	192	Drainage assessments
135	Widening (same # of lanes)	167	Crush & shape & resurface	199	General miscellaneous
136	Pins and hangers	168	Cold-in-place recycle & resurface		

Appendix A – Work Type Codes, continued

Highway Preservation Program
maintenance and (Repair and Rebuild)
the following work types:

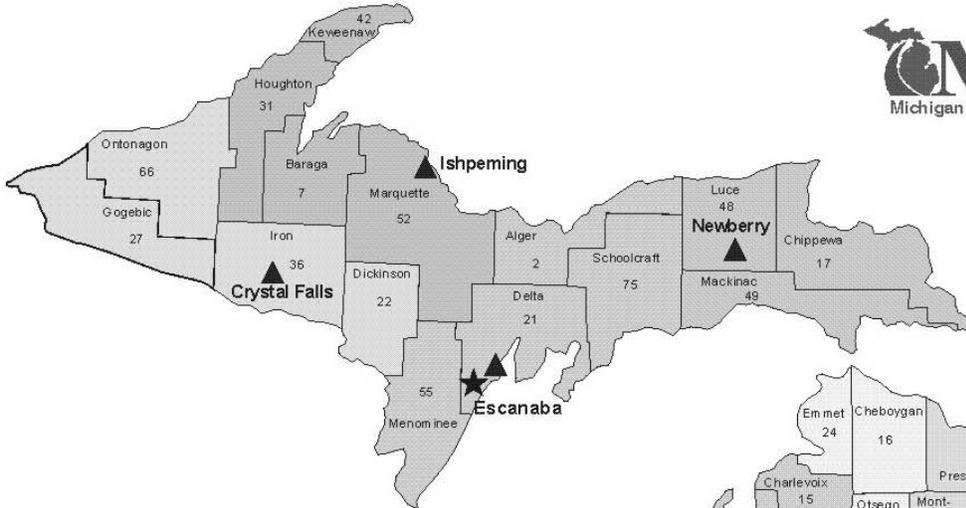
Jobs in this category principally involve
upkeep functions. They include

RESURFACE (Flexible and composite pavements)		BRIDGE REHABILITATION		BRIDGE MISCELLANEOUS	
400	Multiple course chip seal	419	Deck patching	470	Miscellaneous rehab/replace
401	Cape seal	420	Scour protection	471	New Technologies
402	Fog seal	421	Misc. bridge CPM	473	Studies
405	Overband crack fill	423	Pin and hanger replacement	474	Bridge Removal
407	Ultra-thin bituminous overlay (< .75"(20mm)	430	Joint replacement	475	Special Needs
408	Cold-milling and bituminous overlay (< 1.5"(40mm)	431	Deck waterproofing	476	Miscellaneous Bridge CSM
409	Hot in-place bit. recycling	432	HMA Cap (No Membrane)		
410	Single course microsurfacing	433	Painting - Zone		
411	Multiple course microsurfacing	434	HMA Cap w/waterproofing membrane		
414	Paver placed surface seal	463	Paint-Spot		
440	Single course chip seal	464	Joint Repair		
441	Single course chip seal	465	Concrete Sealing		
442	Skip patching	466	Crack Sealing	499	Blanket PE (scoping and/or design)
443	Bit. overlay (> 1.5"(40mm)	467	Minor Concrete Patching		
444	Profile milling	468	Approach Pavt Relief Joints		
451	Bituminous shoulder work	469	Slope Paving Repair		
454	Shoulder slurry seal				
455	Shoulder chip seal				
456	Bituminous crack treatment				
459	New treatment technology				
	(Concrete Pavements)				
403	Diamond grinding				
404	Partial depth concrete pavement repair				
406	Concrete crack sealing				
412	Concrete joint and surface spall repair				
413	Dowel bar retrofit				
415	Concrete pavement restoration				
416	New treatment technology				
450	Full depth concrete pavement repair				
453	Underdrain outlet repair and cleaning				
457	Concrete joints resealing				

Appendix B

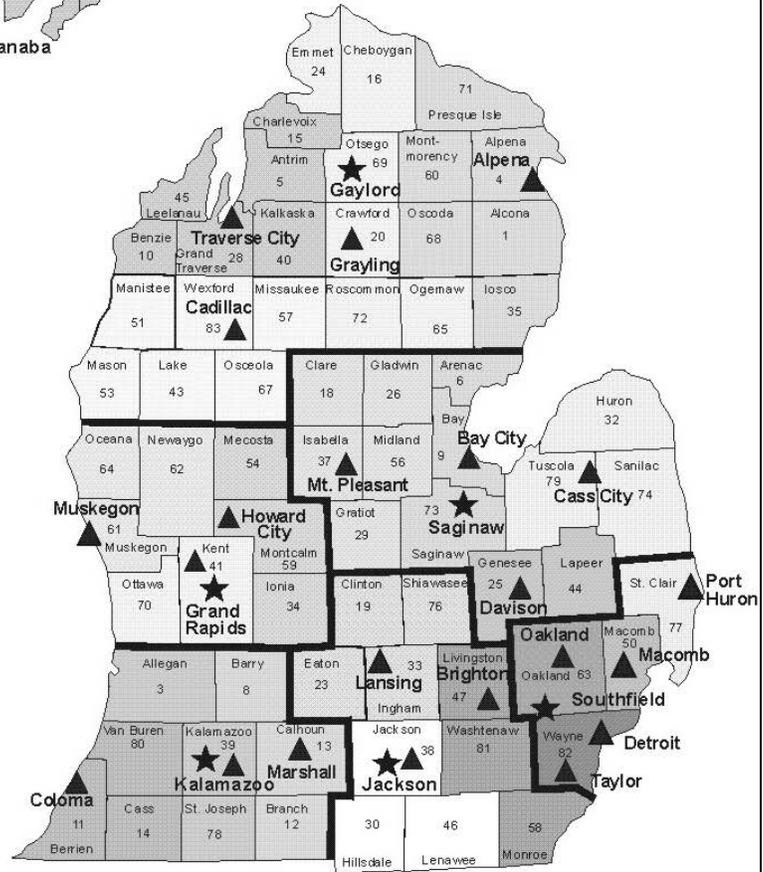
Statewide Region Map

MDOT Regions and Transportation Service Centers



COUNTIES

REGION	REGION
1. ALCONA NOR	43. LAKE NOR
2. ALGER SUP	44. LAPEER BAY
3. ALLEGAN SWR	45. LEELANAU NOR
4. ALPENA NOR	46. LENEWEE UNIV
5. ANTRIM NOR	47. LIVINGSTON UNIV
6. ARENAC BAY	48. LUCE SUP
7. BARAGA SUP	49. MACKINAC SUP
8. BARRY SWR	50. MACOMB METRO
9. BAY BAY	51. MANISTEE NOR
10. BENZIE NOR	52. MARQUETTE SUP
11. BERRIEN SWR	53. MASON NOR
12. BRANCH SWR	54. MECOSTA GR
13. CALHOUN SWR	55. MENOMINEE SUP
14. CASS SWR	56. MIDLAND BAY
15. CHARLEVOIX NOR	57. MISSAUKEE NOR
16. CHEBOYGAN NOR	58. MONROE UNIV
17. CHIPPEWA SUP	59. MONTCALM GR
18. CLARE BAY	60. MONTMORENCY NOR
19. CLINTON UNIV	61. MUSKEGON GR
20. CRAWFORD NOR	62. NEWAYGO GR
21. DELTA SUP	63. OAKLAND METRO
22. DICKINSON SUP	64. OCEANA GR
23. EATON UNIV	65. OGEMAW NOR
24. EMMET NOR	66. ONTONAGON SUP
25. GENESEE BAY	67. OCEOLA NOR
26. GLADWIN BAY	68. OSCODA NOR
27. GOGEBIC SUP	69. OTSEGO NOR
28. GD. TRAVERSE NOR	70. OTTAWA GR
29. GRATIOT BAY	71. PRESQUE ISLE NOR
30. HILLSDALE UNIV	72. ROSCOMMON NOR
31. HOUGHTON SUP	73. SAGINAW BAY
32. HURON BAY	74. SANILAC BAY
33. INGHAM UNIV	75. SCHOOLCRAFT SUP
34. IONIA GR	76. SHIAWASSEE UNIV
35. IOSCO NOR	77. ST. CLAIR METRO
36. IRON SUP	78. ST. JOSEPH SWR
37. ISABELLA BAY	79. TUSCOLA BAY
38. JACKSON UNIV	80. VAN BUREN SWR
39. KALAMAZOO SWR	81. WASHTENAW UNIV
40. KALKASKA NOR	82. WAYNE METRO
41. KENT GR	83. WEXFORD NOR
42. KEWEENAW SUP	



Superior	Southwest	Metro
North	University	Region Office
Grand	Bay	TSC

(variations in color indicate TSC boundaries)

Prepared By: Mapping & Graphics
 graphics/maps/TSCRegion/TSCMap4.cdr
 Date Revised: Nov, 2010

Appendix C

Abbreviations, Acronyms and Glossary

(updated 10/15/08)

AASHTO	American Association of State Highway Transportation Officials
ADT	Average Daily Traffic
C&T	Construction and Technology
CE	Categorical Exclusion
CRF	Contract Request Form
CPM	Critical Path Method
DCDS	Data Collection and Distribution System
DEIS	Draft Environmental Impact Statement
DHV	Design Hour Volumes
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPE	Early Preliminary Engineering
ESS	Environmental Status System
FEIS	Final Environment Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
ISA	Initial Site Assessment
LOS	Level of Service
MAP	Michigan Architectural Project
MDNR	Michigan Department of Natural Resources
MFOS	Michigan Financial Obligation System
MPINS	MAP Project Information System
MPO	Metropolitan Planning Organization
MDOT	Michigan Department of Transportation
OBS	Organizational Breakdown Structure
OEC	Omissions/Errors Check Meeting
P/PMS	Program/Project Management System
PDR	Property Disposition Report
PE	Preliminary Engineering
PPS	Preliminary Project Statement
PS&E	Plans, Specifications, and Estimates
PSI	Preliminary Site Investigation
RAP	Remedial Action Plan
RED	Real Estate Division
REMIS	Real Estate Management Information System
RFP	Request for Proposal
RI	Remedial Investigation
ROD	Record of Decision
ROW	Right of Way
SEE	Social, Economic, and Environmental

T&S	Traffic and Safety
TAR	Traffic Analysis Report
URTS	Utility Relocation Tracking System
WBS	Work Breakdown Structure

2604 FORM - A Program Revision Change Request form in MPINS used to obtain authorization for such changes to a job such as adding or deleting phases, splitting a job, job costs, major work type, location, financial cost divisions, and major milestone dates. This form is usually submitted before creating a version of a job.

ABANDONED JOB – A job which has been discontinued and removed from the MDOT Master Program and is not expected to be restarted.

ACTIVE JOB – A job in the MDOT Master Program that is actively being worked on. Access to key job data is limited to read-only since changes could impact the highway program.

ACTUAL FINISH DATE (AF) - The actual point in time that work is finished on a task. (Note: in some cases, the task is considered “finished” when work is “substantially complete”).

ACTUAL START DATE (AS) - The actual point in time that work started on a task.

ANNUAL CALL-FOR-PROJECTS – The annual call-for-projects is the mechanism by which Project Concept Statements are forwarded annually to the Screening Committee for job selection and assignment to construction years. The Screening Committee reviews each Region's jobs and priorities and how they relate to the statewide strategy with the respective Region Engineer. This is done before the selected jobs are placed in the MDOT Master Program.

APPROVED FINISH DATE – The planned point in time that work should finish on a task in order for the job to meet its targeted plan completion date.

APPROVED START DATE - The planned point in time that work should start on a task in order for the job to meet its targeted plan completion date.

APPROVED JOB – A job officially included in the MDOT Master Program, but no work has been performed yet. When a job's status is first set to Active, the latest start and completion dates for on-time delivery are saved and used as the approved start and finish dates for comparison purposes. These first approved dates are also set as the original dates.

APPROVED DATES – The planned start and finish dates for the tasks within a job.

ARCHIVED JOB – A job that has been completed, suspended, or abandoned and is removed from the P/PMS Statewide Master Program.

AWARDED JOB – A job that has been awarded in MPINS and will be removed from the P/PMS Statewide Master Program and archived.

BENCHMARK – A standard by which something can be measured or judged.

CHARACTERISTICS - Items in the scope of a job that make it unique, including work type, region, road class, FHWA involvement, subgrade work or work outside existing shoulders, and many more. Specifically, these items of scope determine what tasks are in P/PMS job networks, their durations, and resources.

COMPLETED JOB – A job in the MDOT Master Program that has one or more phases designated as completed in MPINS. All work on the job is physically completed.

CONCEPT JOB – A job being considered for inclusion into the MDOT Master Program.

CONSTRAINTS – Defines the sequence of tasks and determines how they relate to each other in a network. Four possible types of constraints exist in a Precedence Diagram; start-to-start, start-to-finish, finish-to-start, and finish-to-finish.

CONSTRUCTION COST – The obligated A-phase amount retrieved from the MAP database and shown on the MPINS Job Info Screen.

CRITICAL PATH - The series of tasks determining the duration of the job. The critical path is usually defined as those activities with float less than or equal to a specified value, often zero. It is the longest path through the job. The critical path will generally change from time to time as tasks are completed ahead of or behind schedule.

CRITICAL PATH METHOD (CPM) – A method of analyzing networks to determine early and late start and finish dates, durations, float and critical path.

CRITICAL RESOURCE – A resource that is overloaded with more work than they can accomplish in the given time frame.

CRITICAL TASK – A task that must finish on time for the entire project to finish on time. If a critical task is delayed, the project completion date is also delayed. A critical task has zero float. A series of critical tasks make up the project's critical path.

DURATION - Number of work days (not including holidays/other non-working days) required to complete a task.

EARNED VALUE - The Budgeted Cost of Work Performed for an activity or group of activities.

EXCEPTION REPORT - Report giving information about thresholds exceeded, eg., tasks ahead or behind schedule by more than a designated amount of time.

FLOAT - The amount of time, in days, that a task may be delayed from its approved dates without delaying the job finish date. Float is a mathematical calculation and can change as the project progresses and changes are made to the job. Also called slack time, total float, and path float.

GANTT CHART – Horizontal bar charts depicting progress in relation to time of projects, tasks, schedules, etc.

GENERIC JOB - A job containing all of the tasks, milestones, and constraints necessary to constitute a network, but missing the necessary Management Units to finish assigning all resources to tasks.

HISTOGRAM – a bar chart representing a frequency distribution; heights of the bars represent observed frequencies.

HISTORICAL – Based on data from past jobs/projects entered into P/PMS Statewide master Program.

IMPROVE/EXPAND JOB – "Improve" jobs increase the capacity of a road or facility and may require additional right of way. The threshold for an "Improve" job is a road widening of one lane's width or longer than a half mile, or greater than \$500,000. An "Expand" job builds a new facility where none currently exists, relocates a current facility, or adds a road currently under local jurisdiction to the trunk line system.

INACTIVE JOB - A status assigned to a job that was once funded and in the MDOT Master Program, but is no longer in either category. Inactive jobs have a P/PMS Job Status of "4".

JOB – A series of tasks grouped into phases that lead to the accomplishment of an objective(s).

JOB DETAILS – In P/PMS, Job Details are loaded from MAP and include:

- Control Section and Job Number
- Route
- Location Description
- Project Manager
- Construction Cost
- MPINS Status

JOB STATUS – Current standing of a job within the Master Program. Possible values are:

- ABANDONED
- ACTIVE
- APPROVED
- COMPLETED
- CONCEPT
- RESEARCH
- SUSPENDED

See the entry for each individual status code in this appendix for further explanation.

JOB TYPE- A job classification in P/PMS that utilizes four categories: Preserve, Improve, Expand, and Highway Preservation (Maintenance). Of these, the Preserve and Expand categories are further broken down into three sub-categories each. All are used to select a network template and to calculate duration and labor hours required on a job.

LABOR HOURS - The amount of actual "hands-on" time a resource spends performing a task or group of tasks.

LETTING DATE - The date that a job is put up for bid by contractors.

MANAGEMENT UNIT – An established group of employees responsible for completing a unique set of job tasks.

MAP - Michigan Architectural Project. The MDOT corporate database.

MILESTONE - A significant event in the job, usually the completion of a major deliverable. These are designated by a task number that ends in "M" and have duration of zero.

MPINS - Michigan Project Information System. The user interface to the MAP database.

NETWORK – A work flow plan consisting of all tasks and constraints that must be completed to reach job objectives showing their planned sequence of accomplishment and logical relationships.

NETWORK ANALYSIS - The process of identifying early and late start and finish dates for the uncompleted portions of job tasks.

NETWORK GENERATOR – The computerized subsystem within P/PMS that generates job schedules. As input, it uses certain information from the scoping checklist, as well as a standard template of task's and constraints. By applying a precisely designed algorithm, it is able to compute durations and resource requirements for all tasks within a network.

NEW JOB - A valid job whose basic data has been loaded from MAP and needs a P/PMS network created. Valid jobs include:

- Concepts valid P/PMS work types, region codes greater than 0, and which will be let by MDOT during or after the current fiscal year.
- Approved or active trunk line jobs, valid P/PMS work types, region codes greater than 0, and which will be let by MDOT during or after the current fiscal year (or Study jobs).

ORGANIZATIONAL BREAKDOWN STRUCTURE (OBS) – A hierarchical organizational matrix, which defines the relationships of all MDOT resources involved in a P/PMS job. This data is used primarily for summarizing labor data and producing customized reports.

ORGANIZATIONAL UNIT - Any organizational function within the Department which is responsible for completing work included in a P/PMS job, e.g., district, section, squad, or unit. Corresponds to an organizational code

PLAN COMPLETION DATE - The date at which all plans are complete, and the job is turned in to Specifications and Estimates for packaging to be advertised and let.

P/PMS - The Program/Project Management System. The MDOT Project Management software.

PREDECESSOR - The tasks that affect the beginning of a given task/milestone.

PRESERVE JOB – A job that is geared toward correcting deficiencies along an existing road and usually does not require right of way acquisition. Resurfacing, recycling, and safety jobs are examples of preservation work types. Replacement "in-kind" is considered preservation. The addition of passing lanes is also considered preservation because they improve traffic flow and safety, but do not increase the overall capacity of the road.

PRODUCTION SCHEDULE - The proposed plan of the Michigan Department of Transportation for developing and constructing highway improvement jobs for a specific multi-year period of time, e.g.,

five-year program. It is the schedule of the Master Program. The Annual Program and the Bi-Monthly Work Schedule are subsets of it.

PROGRAM – A group of jobs oriented toward a common objective, usually to be carried out in a specified time frame.

PROGRAMMED JOB - A status describing a job that has been approved by the Screening Committee (Preserve Job) or the Steering Committee (Improve/Expand Job) and a detailed network has been developed for the job, which has been approved and added to the P/PMS Statewide Master Program. These jobs require updating and monitoring for progress. The job is in the current MDOT Master Program, but has not yet been funded.

PROGRAM REVISION CHANGE REQUEST FORM – formally known as a 2604 FORM. A Program Revision Change Request form in MPINS used to obtain authorization for such changes to a job such as adding or deleting phases, splitting a job, job costs, major work type, location, financial cost divisions, and major milestone dates. This form is usually submitted after creating a corresponding P/PMS version of that job.

PROJECT – Two or more jobs to be designed, let, and constructed together.

PROJECT MANAGEMENT - The application of knowledge, skills, tools, and techniques to job tasks in order to meet or exceed stakeholder needs and expectations from a job.

PROJECT MANAGER – The Project Manager plays a leadership role in project development and is responsible for coordinating the tasks of participants on the project team and for keeping the job on schedule and within budget. The Project Manager works cooperatively with team members to set priorities with each person contributing to project development by obtaining an estimate of the time and dollars needed for each major project development function (design, right of way, traffic control plans, traffic estimation and environmental clearance). Project Managers coordinate job tasks to assure that the job remains consistent with the job concept statement and is within the estimated cost reflected in the long-range program. It is also the Project Manager's responsibility to make sure that all team members are informed of changes that will influence their participation in the job.

PROJECT STATUS - Current standing of a job within the Master Program. Possible values are:

- Proposed
- Programmed
- Active
- Inactive
- Completed/Archived

See the entry for each individual status code in this appendix for further explanation.

REFINED JOB - A job that has a version waiting to be included in the P/PMS Statewide Master Program. The version must have satisfactory dates and/or coincide with an approved 2604 (for changes in major dates, work type, etc.) before it can be “programmed” in P/PMS.

RESEARCH JOB – A Job currently under study only.

RESPONSIBLE UNIT - the resource responsible for reporting the actual start and actual finish for a P/PMS task. This is often the resource with the most work to perform on a task.

RESOURCE – A unit that performs at least some of the work on the task or tasks they're involved with.

RESOURCE LEVELING – The adjustment of job schedules to balance the job workload based on the available labor hours for each resource assigned.

ROLL -UP – The summarizing or "rolling-up" of job-related data along OBS or WBS lines.

SCENARIO – An alternative to the P/PMS Statewide Master Program which demonstrates the affect on the schedule of running a different mix of jobs (Program "what-if").

SCHEDULE - The set of expected start and finish dates for the tasks within a job based on resource requirements and availability.

SCHEDULE DATES – The current start and finish dates for the tasks within a job.

SCHEDULED FINISH DATE – The current point in time that work will be finished on a task.

SCHEDULED START DATE - The current point in time that work will be started on a task.

SCHEDULER – The computerized subsystem within P/PMS which generates the Master Program Schedule. It takes in the schedule's output from the Network Generator, other data from the Payroll and Real Estate sub-systems and balances resource load requirements against resource availability and desired priorities to produce the Master Schedule.

SCHEDULING SPECIALIST - The “right-hand” of a project manager, whose duty with regards to P/PMS is to perform the ground work necessary to create and update the P/PMS network for a job.

STATEWIDE MASTER PROGRAM – The proposed plan of the Michigan Department of Transportation for developing and constructing highway improvement jobs for a specific multi-year period of time (e.g., five-year program).

SUCCESSOR – The tasks/milestones that are dependant on the finish of a given task

SUSPENDED JOB – A job which was at one time included in the MDOT Master Program, but has been temporarily removed. It is anticipated that the job will be returned to "Approved" or “Active” status sometime in the future.

TARGET DATE - An imposed date which constrains or otherwise modifies the network analysis. Target dates are set approved dates from which the network approved dates are calculated. These include the Target Start (Task 0000), Target Plan Completion (380M), Target Letting (392M) and Target Finish (Task 9999).

TASK – A specific work responsibility performed by one or more resources. Tasks include both resource labor hour and duration commitments. A task is usually composed of several work steps.

UNGENERATED JOB - A job that has been opened in P/PMS, but does not yet have a network generated.

UNREFINED JOB - A job containing all of the tasks, milestones, constraints, and resources necessary to constitute a network, but that needs to be checked, updated, and verified to ensure the network correctly reflects all work to be done.

VERSION - A copy of a job network which is used to make changes to the tasks, constraints or resources.

WORK GROUP - A classification of jobs including Landscaping, Rest Areas, Roadway, Safety, Structures, and Traffic that is used to select a network template and to generate durations and resources required on a job.

WORK BREAKDOWN STRUCTURE (WBS) – A hierarchical job matrix which defines relationships of Tasks, Phases, etc., within a P/PMS job. This data is used primarily for summarizing task data and producing customized reports.

WORK STEPS – One or more specific actions which are performed to complete a task.