

TABLE OF CONTENTS

[INTRODUCTION](#)vii
[ACKNOWLEDGMENTS](#) xi
[ACRONYMS COMMON TO CDOT](#)xiii

SECTION 1 SCOPING, BUDGETING AND PROGRAMMING

[1.01](#) PROJECT DEVELOPMENT MANUAL PURPOSE..... 1-1
[1.02](#) STATEWIDE PLANNING, FUNDING AND BUDGET PROCESS..... 1-5
[1.03](#) PROJECT SCOPE, SCHEDULE AND BUDGET..... 1-29
[1.04](#) CONSULTANT SELECTION AND CONTRACTING PROCESS..... 1-61
[1.05](#) ALTERNATIVE DELIVERY..... 1-67
[1.06](#) ENTITY AGREEMENT (LOCAL AGENCY AND PUBLICLY OWNED AGENCIES)
..... 1-71
[1.07](#) POST - AWARD..... 1-73
[1.08](#) FORM 895 - FORCE ACCOUNT CONSTRUCTION METHOD - FINDING IN THE
PUBLIC INTEREST (FIPI)..... 1-74

SECTION 2 PROJECT DEVELOPMENT PROCESS

[2.01](#) DESIGN SCOPING REVIEW.....2-1
[2.02](#) STAGE CONSTRUCTION (FUTURE CAPACITY CONSIDERATIONS).....2-4
[2.03](#) EXISTING TYPICAL SECTION.....2-5
[2.04](#) PROPOSED TYPICAL SECTION.....2-6
[2.05](#) DESIGN DATA (FORM 463).....2-8
[2.06](#) DESIGN EXCEPTION (VARIANCE) (FORM 464).....2-13

2.07	PROCEDURES FOR ADDRESSING SAFETY REQUIREMENTS ON RESURFACING, RESTORATION, AND REHABILITATION PROJECTS	2-17
2.08	SAFETY REVIEW (INCLUDING CLEAR ZONE DECISIONS)	2-27
2.09	ROADSIDE BARRIER DESIGN AND REVIEW	2-29
2.10	BICYCLE AND PEDESTRIAN FACILITIES	2-32
2.11	HYDRAULIC DESIGN (EROSION CONTROL AND STORMWATER).....	2-35
2.12	CONSIDERATION OF ALTERNATIVE PIPE MATERIALS FOR CULVERTS, STORM SEWERS, AND CROSS DRAINS (UNDERDRAINS AND SIDEDRAINS).....	2-37
2.13	CDOT MAINTENANCE INPUT	2-39
2.14	FIELD SURVEY (FORM 1217)	2-41
2.15	VALUE ENGINEERING (DURING DESIGN PHASE).....	2-43
2.16	DESIGN PROJECT MANAGEMENT AND REGION PLAN STATUS REVIEW	2-50
2.17	FIELD INSPECTION REVIEW	2-54
2.18	CONSTRUCTABILITY REVIEWS.....	2-64
2.19	DESIGN OFFICE REVIEW (STATUS MEETING)	2-71
2.20	DESIGN DECISION LETTER	2-72
2.21	ON-THE-JOB TRAINEE APPROVAL	2-73
2.22	DISADVANTAGED BUSINESS ENTERPRISE GOALS	2-75
2.23	SPECIAL PROVISIONS.....	2-79
2.24	PROPRIETARY ITEMS.....	2-83
2.25	PROJECT INFORMATION TECHNOLOGY NEEDS.....	2-87
2.26	PROJECT CONTROL DATA (FORM 859)	2-88
2.27	ESTIMATE REVIEW BY ENGINEERING ESTIMATES AND MARKET ANALYSIS UNIT	2-90
2.28	FINAL OFFICE REVIEW	2-92
2.29	BID PACKAGE REVIEW (FORM 1299).....	2-95
2.30	PLANS, SPECIFICATIONS AND ESTIMATE APPROVAL (FORM 1180).....	2-97
2.31	PURCHASE REQUISITION FOR CONSTRUCTION CONTRACT	2-100
2.32	PLANS AND REPRODUCTION PROCESSES	2-103
2.33	ADVERTISEMENT.....	2-114
2.34	PS&E REVISIONS UNDER ADVERTISEMENT	2-117
2.35	RE-ADVERTISEMENT.....	2-121
2.36	RETAINING BID SURPLUS FUNDS	2-123

SECTION 3 ENVIRONMENTAL

[3.01](#) INTRODUCTION.....3-1

[3.02](#) 4(f) PROPERTIES.....3-11

[3.03](#) 6(f).....3-13

[3.04](#) AIR QUALITY3-15

[3.05](#) FARMLAND.....3-20

[3.06](#) FLOODPLAINS3-22

[3.07](#) HAZARDOUS MATERIALS3-23

[3.08](#) HISTORIC PROPERTIES CLEARANCES (ARCHAEOLOGY, HISTORY, HISTORIC BRIDGE)3-26

[3.09](#) MIGRATORY BIRDS.....3-29

[3.10](#) NOISE ANALYSIS.....3-31

[3.11](#) NOXIOUS WEEDS.....3-35

[3.12](#) PALEONTOLOGY.....3-36

[3.13](#) SENATE BILL 40 (SB 40)3-37

[3.14](#) ENVIRONMENTAL JUSTICE ANDEQUITY.....3-39

[3.15](#) SOCIAL RESOURCES3-41

[3.16](#) THREATENED AND ENDANGERED SPECIES.....3-42

[3.17](#) WATER QUALITY.....3-44

[3.18](#) WHAT IS PERMANENT WATER QUALITY?.....3-47

[3.19](#) STORMWATER MANAGEMENT PLANS (SWMP's).....3-48

[3.20](#) WETLANDS3-51

SECTION 4 TRAFFIC

[4.01](#) TRAFFIC DATA.....4-1

[4.02](#) REQUEST AND ANALYZE CRASH DATA.....4-2

[4.03](#) TURNING MOVEMENTS REQUEST4-3

[4.04](#) TRAFFIC MOVEMENT DIAGRAM.....4-4

[4.05](#) SIGNAL WARRANTS.....4-4

[4.06](#) INTERSECTION AND INTERCHANGE DESIGN4-5

[4.07](#) TRAFFIC SIGNAL PLAN.....4-8

[4.08](#) LIGHTING PLAN.....4-9

[4.09](#) PERMANENT SIGNING AND PAVEMENT MARKING4-11

[4.10](#) CONSTRUCTION TRANSPORTATION MANAGEMENT PLANS.....4-12

[4.11](#) ENGINEERING JUDGMENT AND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (MUTCD) REQUEST OPTIONS.....4-15

[4.12](#) OPERATIONS EVALUATION (FORMERLY TSM&O).....4-16

[4.13](#) SYSTEMS ENGINEERING ANALYSIS (SEA).....4-20

SECTION 5 STRUCTURES

[5.01](#) MAJOR STRUCTURE – BRIDGE.....5-1

[5.02](#) MAJOR STRUCTURE – CULVERT.....5-4

[5.03](#) MAJOR STRUCTURE – UNUSUAL.....5-6

[5.04](#) PEDESTRIAN OVERPASSES AND UNDERPASSES.....5-8

[5.05](#) ARCHITECTURAL AND AESTHETIC TREATMENTS.....5-10

[5.06](#) FOUNDATION INVESTIGATION AND RECOMMENDATION.....5-11

[5.07](#) STRUCTURE SELECTION REPORT.....5-12

[5.08](#) RETAINING WALLS.....5-13

[5.09](#) NOISE WALLS.....5-15

[5.10](#) ANALYSIS OF STRUCTURES TO BE RESURFACED.....5-16

[5.11](#) DETERMINE EXISTING STRUCTURAL ADEQUACY.....5-17

[5.12](#) CRASHWORTHY BRIDGE RAIL.....5-18

[5.13](#) VERTICAL CLEARANCE OF STRUCTURE.....5-20

[5.14](#) ACCELERATED BRIDGE CONSTRUCTION (ABC).....5-21

SECTION 6 MATERIALS

[6.01](#) PAVEMENT ANALYSIS FOR DISTRESS.....6-1

[6.02](#) PRELIMINARY SOIL SURVEY.....6-2

[6.03](#) GEOTECHNICAL SERVICES.....6-3

[6.04](#) GEOHAZARD SERVICES.....6-6

[6.05](#) LIFE CYCLE COST ANALYSIS.....6-8

[6.06](#) PAVEMENT JUSTIFICATION REPORT.....6-9

SECTION 7 RIGHT OF WAY AND UTILITIES

[7.01](#) RIGHT OF WAY INVOLVEMENT.....7-1

[7.02](#) PERMITS REQUIRED TO WORK ON GOVERNMENT LAND.....7-9

[7.03](#) UTILITY INVOLVEMENT.....7-12

[7.04](#) RAILROAD INVOLVEMENT.....7-17

SECTION 8 ADDITIONAL PROJECT DEVELOPMENT CONSIDERATIONS

[8.01](#) AMERICANS WITH DISABILITIES ACT STANDARDS.....8-1

[8.02](#) DETOUR DESIGN8-3

[8.03](#) AIRPORT AND HELIPORT CLEARANCES8-6

[8.04](#) SAFETY REST AREAS.....8-8

[8.05](#) RAILROAD DESIGN8-10

[8.06](#) TRANSIT ACCOMMODATIONS.....8-13

[8.07](#) IRRIGATION COMPANY AGREEMENT8-15

[8.08](#) CLIMBING AND PASSING LANES.....8-22

[8.09](#) STOCKPASSES, LANDOWNERS' ACCESS, WILDLIFE CROSSINGS AND
MACHINE PASSES8-23

[8.10](#) EXPERIMENTAL ITEMS.....8-25

[8.11](#) DISPOSAL OF EXCESS MATERIAL OFF PROJECT SITE8-26

[8.12](#) MANDATORY SOURCE OF MATERIALS OR MATERIALS FURNISHED BY A
PUBLIC AGENCY8-27