

A

AASHTO STANDARDS

Policy on Use of ----- 82.3

ABANDONMENT

Water Wells ----- 110.2

ABBREVIATIONS, OFFICIAL NAMES

----- 61.1

ABRASION

----- 855.2

ACCELERATION LANE

At Rural Intersections ----- 405.1

ACCESS CONTROL

Definition ----- 62.6
----- 104
Alignment, Existing ----- 104.3
Alignment, New ----- 104.3
Frontage Roads ----- 104.3
Frontage Roads Financed by Others ----- 104.3
General Policy ----- 104.1
Highways, Definition ----- 62.3
Interchanges ----- 504.8
Intersections ----- 405.6
Openings ----- 104.2
Openings, Financial Responsibility ----- 205.5
Openings on Expressways ----- 205.1
Openings in Relation to Median Openings ----- 104.5
Rights, Protection of ----- 104.4

ACCESSIBILITY REQUIREMENTS

Curb Ramps, Guidelines for ----- 105.4
Driveways ----- 205.3
Provisions for Disabled Persons ----- 105.3
Refuge Areas ----- 403.7

ACCIDENT DATA

Intersections ----- 402.2

ACCRETION

Definition ----- 806.2

ACQUISITION

Definition ----- 62.6
Partial ----- 62.6
of Material and Disposal Sites ----- 111.5

ADT/AADT

see AVERAGE DAILY TRAFFIC

AESTHETIC FACTORS

Contour Grading and Slope Rounding ----- 304.4
In Design ----- 109.3
Materials and Color Selection ----- 705
Noise Barrier ----- 1102.6

Planting ----- 902.1
Retaining Walls ----- 210.5

AGGRADATION

Definition ----- 806.2

AGGREGATE BASE

see BASE Engineering Criteria ----- 663

AGGREGATE SUBBASE

Engineering Criteria ----- 663

AGGRESSIVE

Definition ----- 806.2

AGREEMENTS

Drainage, Cooperative ----- 803.2
Materials ----- 111.4

AIR POLLUTION

Control of Burning ----- 110.3
Control of Dust ----- 110.3

AIR RIGHTS

----- 62.6

AIRWAY-HIGHWAY

----- 207
Clearances ----- 207.2
Submittal of Data ----- 207.3

ALIGNMENT

Aesthetic Factors ----- 109.3
Bridges ----- 203.9
Channel ----- 862.2
Consistency (Horizontal) ----- 203.3
Controls (Horizontal) ----- 203.1
Coordination (Horizontal/Vertical) ----- 204.6
Culverts ----- 823.2
Horizontal ----- 203
Vertical (Grade) ----- 204

ALLEY

Definition ----- 62.3

ALLUVIUM

Definition ----- 806.2

ALTERNATIVES FOR CULVERT PIPES

----- 857

ALUMINUM PIPE

----- 852.5

ANGLE OF INTERSECTION

----- 403.3

APPRAISAL

----- 62.6

APPROACH SLABS, STRUCTURE

New Construction Projects -----	208.11(2)
Rehabilitation Projects -----	209.4

APPROVALS

Nonstandard Design Features -----	82.2
Proprietary Items -----	110.10
Special Designs -----	606.2

AREAS OF CONFLICT

Intersections -----	403.2
---------------------	-------

ARTERIAL

Minor, Definition -----	81.4
Principal, Definition -----	81.4

AQUEDUCT

Definition -----	806.2
------------------	-------

AQUIFER

Definition -----	806.2
-----	841.2

ARCH CULVERTS

-----	852.3
-----	852.4
-----	852.5
-----	852.6

ARMOR

-----	873.3
-------	-------

ARTERIAL HIGHWAYS

-----	62.3
-------	------

ARTESIAN WATERS

Definition -----	806.2
------------------	-------

ASPHALT CONCRETE

see FLEXIBLE PAVEMNT

ASPHALT TREATED PERMEABLE BASE

Definition -----	62.7
Design, Asphalt Pavement -----	633.1
Design, Concrete Pavement -----	623.1
Pavement Drainage -----	662.3

AUXILIARY LANES

-----	62.1
Interchange -----	504.5

AVAILABLE HEAD, USE OF

-----	821.1
-----	821.4

AVERAGE DAILY TRAFFIC

-----	62.8
-----	103.1

AVULSION

Definition -----	806.2
------------------	-------

AXIS OF ROTATION

Superelevation -----	202.4
----------------------	-------

AXLE LOADS, EQUIVALENT SINGLE

see EQUIVALENT SINGLE AXLE LOADS

B

BACKFILL, CULVERTS

-----	829.2
-------	-------

BACKWATER

Definition -----	806.2
-----	821.4
-----	864.4

BAFFLE

-----	873.4
-------	-------

BANK

Definition -----	806.2
Guide -----	873.4
Protection, Definition -----	806.2

BANK PROTECTION

-----	870
Armor -----	873.3
Design, Concepts -----	873.1
Design, High Water and Hydraulics -----	873.2
Geomorphology and Site Considerations -----	872.3
Training -----	873.4

BARRIER

Concrete on Walls -----	210.6
Median -----	305.3
Noise -----	1100
Railing -----	208.10

BASE

Definitions -----	62.7
Aggregate -----	662.1
Asphalt Treated -----	662.2
Asphalt Treated Permeable -----	662.3
Cement Treated -----	662.2
Cement Treated Permeable -----	662.3
Description -----	602.1
Engineering Criteria -----	663
Granular, Untreated -----	662.1
Hot Mix Asphalt Concrete -----	662.2
Lean Concrete -----	662.2
Treated Permeable -----	662.3

BASEMENT SOIL

See SUBGRADE

BASIN CHARACTERISTICS

Elevation ----- 812.7
 Land Use ----- 812.4
 Orientation ----- 812.8
 Shape ----- 812.2
 Size ----- 812.1
 Slope ----- 812.3
 Soil & Geology ----- 812.5
 Storage ----- 812.6

BEDLOAD

Definition ----- 806.2
 ----- 851.2

BENCHES

Drains ----- 834.4
 Slope ----- 304.3

BERM

----- 835

BIKEWAY

Class I, Design Criteria ----- 1003
 Class II Width ----- 301.2
 Class III ----- 1003.3
 Class IV ----- 1002.1
 Definitions ----- 62.1
 ----- 1001.4
 Design Considerations ----- 404.2
 Facilities ----- 1002
 Markings ----- 1004
 Overcrossings ----- 208.6
 Planning Criteria ----- 1002
 Railings ----- 208.10
 Refuge Areas ----- 403.7
 Standards ----- 1000
 Traffic Control Devices ----- 1004
 Trails ----- 1003.4
 Undercrossings ----- 208.6

BITUMINOUS

Coatings On Pipes ----- 852.4

BORDER INSPECTION STATIONS

----- 107.3

BORROW

Definition ----- 62.7

BRANCH CONNECTION

----- 62.4
 Freeway-to-freeway ----- 504.4
 Interchange, Entrances and Exits ----- 504.2

BRIDGE REPLACEMENT & REHABILITATION PROGRAM

----- 43.3

BRIDGES

----- 208

Alignment ----- 203.9
 Approach Railing ----- 208.10
 Clearances ----- 309
 Deer Crossing ----- 208.8
 Definition ----- 62.2
 Embankment Slopes ----- 208.5
 Equipment Crossings ----- 208.8
 Falsework Clearance ----- 204.8
 Flood Design ----- 821.3
 Grade Line ----- 204.7
 Overloads ----- 110.1
 Slope Treatment, End ----- 707
 Structure Depth ----- 204.8
 Structure, Open End ----- 208.5
 Types of Structures ----- 62.2
 also see GRADE SEPARATION STRUCTURES

BROKEN-BACK CURVE

see CURVES

BULBOUTS

see CURB, EXTENTIONS

BULKHEADS

Type ----- 873.3
 ----- 883.3

BULKING

Definition ----- 806.2
 Factors ----- 813.8
 ----- 861.2
 ----- 864.3

BUSBAYS

see CURB, EXTENTIONS

BUSBULBS

see CURB, EXTENTIONS

BUSINESS DISTRICT

Definitions ----- 62.6

BYPASS HIGHWAY

----- 62.3

C

CALIFORNIA OPERATIONAL SAFETY AND HEALTH (CAL-OSHA)

Tunnel Safety Orders ----- 110.12

CALIFORNIA R-VALUE

Definition ----- 62.7
 Measurement of ----- 614.3
 Record Keeping ----- 605.1

CALIFORNIA ROAD SYSTEM MAP

----- 81.4

CAMBER		Unlined -----	861.9
Definition -----	806.2	CHANNELIZATION	
-----	829.2	-----	62.4
CANTILEVER WALLS		Design Standards -----	405
-----	210.1	Left-turn -----	405.2
CAPACITY		Principles of -----	403
Drainage Structure -----	806.2	Right-turn -----	405.3
Highway -----	102	CHANNELIZATION, PRINCIPLES OF	
Intersection 402.1Operational Features Affecting Design	402.1	-----	403
-----	402.1	Angle of Intersection -----	403.3
Ramp Intersection -----	406	Areas of Conflict -----	403.2
Safety Roadside Rests -----	903.5	Major Movements -----	403.1
CAPILLARITY		Points of Conflict -----	403.4
Definition -----	806.2	Precautions -----	403.12
CAPILLARY WATER		Prohibited Turns -----	403.8
Definition -----	806.2	Refuge Areas -----	403.7
-----	841.2	Signal Control -----	403.9
CAPITAL PREVENTATIVE MAINTENANCE		Speed-change Areas -----	403.5
-----	603.3	Summary -----	403.11
CATCH BASIN		Traffic Control Devices -----	403.10
Definition -----	806.2	Turning Traffic -----	403.6
Inlets -----	837.2	CHECK DAM	
CATCH POINT		Definition -----	806.2
Clearance to Right of Way Line -----	304.2	CIENEGA	
Side Slope Standards -----	304.1	Definition -----	806.2
CATTLE PASSES		CLEANOUT	
-----	208.8	Definition -----	806.2
CEMENT TREATED PERMEABLE BASE		-----	842.4
also see BASE Definition-----	62.7	CLEAR DISTANCE	
CENTRAL ANGLE		Stopping Sight Distance on Horizontal Curves -	201.6
-----	203.4	CLEAR RECOVERY ZONE	
CENTRIFUGAL FORCE		-----	309.1
Formula -----	202.1	CLEARANCES	
Superelevation -----	202	-----	309
CHAIN LINK		Airway-highway -----	207
Fences -----	701.2	Falsework -----	204.6
Railings, Bridges -----	208.10	Lateral, for Elevated Structures -----	309.4
CHANNEL, ROADSIDE		Minimum -----	309.1
Alignment & Grade -----	862.2	Pedestrian Over Crossings -----	309.2
Changes -----	867	Railroad -----	309.5
Characteristics -----	813	Signs, Vertical -----	309.2
Cross Section -----	863	Slope to Right of Way Line -----	304.2
Design Consideration -----	861	Structures, Horizontal -----	309.1
Flow Classifications -----	866.2	Structures, Vertical -----	309.2
Flow Equations -----	866.3	Tunnel -----	309.3
Linings -----	865	CLIMATE	
Stability -----	864	Pavement Map -----	615
		CLIMBING LANES	
		Transitions -----	206.2
		Sustained Grades -----	204.5

CLOVERLEAF INTERCHANGE			
Local Streets -----	502.2		
Freeway-to-freeway -----	502.3		
COATINGS			
Pipe -----	852.4		
COEFFICIENT OF ROUGHNESS			
Channels -----	866.3		
Conduit -----	851.2		
COEFFICIENT OF RUNOFF			
Definition -----	806.2		
-----	819.2		
COLLECTOR ROAD			
Definition -----	62.3		
-----	81.4		
COLLISIONS			
-----	402.2		
COLORS, SELECTION			
Concrete -----	705.1		
Steel Structures -----	705.2		
COMFORT FACILITIES			
Roadside Rests -----	903		
COMFORTABLE SPEEDS			
see MAXIMUM COMFORTABLE SPEED			
COMMERCIAL DRIVEWAYS			
-----	205		
COMMUNITY NOISE ABATEMENT PROGRAM			
-----	1101.4		
COMPOSITE PAVEMENT			
Definition -----	62.7		
Engineering Properties -----	642.1		
Mechanistic-Emperical Method -----	606.3		
New Construction -----	643		
Pavement Preservation -----	644		
Performance Factors -----	642.2		
Reconstruction -----	643		
Rehabilitation -----	645		
Types -----	641		
COMPOUND CURVES			
-----	203.5		
Superelevation -----	202.6		
CONCENTRATED FLOW			
Definition -----	806.2		
CONCENTRATION			
Drainage, Definition -----	806.2		
CONCRETE			
Base, Lean -----	62.7		
			662.2
			210.2
			705.1
			620
			Portland Cement Pavement (PCCP)
			see RIGID PAVEMENT
			210.2
			Retaining Walls -----
CONDEMNATION			
Definition -----	62.6		
Inverse -----	62.6		
CONDUIT			
Cross Section -----	851.2		
Crossover, Irrigation -----	706.4		
Definition -----	806.2		
Protective Coating -----	854.3		
CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)			
-----	43.2		
CONNECTIONS			
Access Openings on Expressways -----	205.1		
Branch -----	62.4		
Branch Interchange, Entrances and Exits -----	504.2		
Driveways on Frontage Roads -----	205.4		
Driveways on Rural Roads -----	205.4		
Driveways on Urban Roads -----	205.3		
Financial Responsibility -----	205.5		
Freeway-to-freeway -----	62.4		
-----	504.4		
Freeway with Local Roads -----	106.2		
Local Facility -----	203.1		
Private Road -----	205.2		
Roadway -----	107.1		
CONSERVATION OF MATERIALS AND ENERGY			
-----	110.11		
CONSTRUCTIBILITY			
Pavement -----	618.2		
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT			
-----	621.2		
also see RIGID PAVEMENT			
CONSTRUCTION			
Freeway Connections with Local Roads -----	106.2		
Initial and Stage -----	106.1		
Temporary Features -----	82.1		
Temporary Pavements and Detours -----	612.6		
CONTOUR GRADING			
-----	304.4		
Aesthetics -----	109.3		
CONTRACTORS YARDS/PLANT SITES			
-----	112		

CONTRAST TREATMENT

----- 704
 Policy ----- 704.1

CONTROL

Drainage, Definition ----- 806.2
 Erosion ----- 110.2
 Traffic, Devices ----- 62.8
 ----- 403.10
 Traffic, Special Problems ----- 110.7

CONTROL OF ACCESS

see ACCESS CONTROL

CONTROL OF POLLUTION

see POLLUTION CONTROL

CONTROLLED ACCESS HIGHWAY

----- 62.3

CONTROLLING CRITERIA

----- 82.1

CONVENTIONAL HIGHWAYS

----- 62.3
 Sidewalks ----- 105.1

COORDINATION WITH OTHER AGENCIES

----- 108
 Transit Loading Facilities ----- 108.2
 Divided Nonfreeway Facilities ----- 108.1
 with FHWA ----- 108.3

COST REDUCTION INCENTIVE PROPOSALS

Walls ----- 210.4

COUNTERFORT WALLS

----- 210.2

CRASH CUSHIONS

----- 702.1

CRIB WALLS

----- 210.2

CRITICAL

Depth, Definition ----- 806.2
 Flow, Definition ----- 806.2
 Slope, Definition ----- 806.2
 Velocity, Definition ----- 806.2

CROSS DRAINAGE

----- 820

CROSS SECTION

City Streets and County Roads ----- 308.1
 Clear Recovery Zone, ----- 309.1
 Effects on Drainage ----- 833
 Frontage Roads ----- 310.1
 Geometric ----- 62.1
 Grade ----- 204.2

Multilane, All Paved ----- 307.5
 Multilane, Divided ----- 307.4
 Multilane, 2R & 3R Criteria ----- 307.6
 Outer Separation ----- 310.2
 State Highway ----- 307
 Two-lane, New Construction ----- 307.2
 Two-lane, 2R & 3R ----- 307.3
 Warrants for ----- 307.1

CROSS SECTION, OTHER THAN STATE HIGHWAY ROADS

----- 308
 City and County Roads ----- 308.1

CROSS SECTION, STATE HIGHWAY

see CROSS SECTION

CROSS SLOPES

Effects on Drainage ----- 833
 Gutter ----- 303.2
 Median ----- 305.2
 Pavement ----- 301.2
 Shoulder ----- 302.2
 Structures ----- 208.2

CROSSINGS

Bicycle ----- 208.6
 Deer ----- 208.8
 Equestrian ----- 208.7
 Equipment ----- 208.8
 Pedestrian ----- 208.6
 Railroad ----- 104.3

CROSSOVER

Irrigation, Conduits ----- 706.3

CUL-DE-SAC STREET

----- 62.3

CULVERTS

Alignment & Slope ----- 823.4
 Alternative Pipes ----- 857
 Anchorage ----- 829.5
 Available Head ----- 821.4
 Backwater ----- 825.1
 Bedding & Backfill ----- 829.2
 Box and Arch ----- 852.3
 Bridges ----- 821.3
 Buoyant Forces ----- 826.3
 Camber ----- 823.2
 Choice of Type ----- 851.2
 Culvert Design System ----- 825.3
 Curvature ----- 823.2
 Definition ----- 806.2
 Design Discharge ----- 821.2
 Design Flood, Definition ----- 806.2
 Design Frequency, Definition ----- 806.2
 Design Storm, Definition ----- 806.2
 End Treatment ----- 826.2
 Entrance Design ----- 826
 Entrance Riser ----- 826.3

Gradeline -----	823.2		
Headwall -----	826.3		
Headwater -----	821.4		
Height of Cover -----	829.2		
-----	856		
Hydrologic Considerations -----	821.2		
Improved Inlets -----	826.4		
Inlet Control -----	825.2		
Joints -----	829.4		
-----	854.1		
Length -----	828.3		
Minimum Cover -----	856.5		
Multiple Pipes -----	824.2		
Outlet Design -----	827		
Piping -----	829.3		
Roughness -----	851.2		
Sag -----	829.7		
Service Life -----	855		
Settlement -----	829.2		
Slope -----	823.2		
Transitions -----	826.4		
Type Selection -----	824		
CURB RAMPS			
-----	105.4		
Guidelines for -----	105.4		
Policy and Procedure -----	105.3		
CURBS			
-----	303		
Bridges -----	303.5		
Design Considerations -----	404.2		
Extensions -----	303.4		
Frontage Roads and Streets -----	303.6		
General Policy -----	303.1		
Grade Separations -----	303.5		
Gutter Pan, Cross Slope -----	303.2		
Median -----	305.4		
Position of -----	303.5		
Ramps -----	504.3		
Returns, for City Streets -----	405.8		
Structures -----	303.5		
Types and Uses -----	303.2		
CURVES			
Broken-back -----	203.7		
Compound -----	203.5		
Compound, Superelevation of -----	202.6		
Horizontal -----	203		
Length and Central Angle -----	203.4		
Location of Ramp on -----	504.2		
Maximum Comfortable Speeds -----	202.2		
Radius -----	203.2		
Ramp Widening -----	504.3		
Reversing -----	203.6		
Reversing, Superelevation Transition for -----	202.5		
Spiral -----	203.8		
Superelevation -----	202		
Three-Center -----	405.7		
Vertical -----	204.4		
CUT WIDENING			
-----		304.3	
D			
D-LOAD			
Cracking D-Load -----	856.2		
Definition -----	806.2		
Reinforced Concrete Pipe -----	852.1		
DAM			
-----		829.9	
DEAD END STREET			
Definition -----		62.3	
DEBRIS			
-----		813.8	
Barrier, Definition -----		806.2	
Basin, Definition -----		806.2	
Bulking -----		813.8	
Control Structure -----		822.2	
Definition -----		806.2	
Rack, Definition -----		806.2	
Riser -----		822.2	
DECELERATION LANE			
-----		403.4	
Left Turns -----		405.2	
Right Turns -----		405.3	
DECISION SIGHT DISTANCE			
-----		201.7	
DEER CROSSINGS			
-----		208.8	
DEFENSE ROUTE			
Rural and Single Interstate Routes -----		309.2	
DEFINITIONS			
-----		62	
Drainage -----		806.2	
Pavement Structural Section -----		62.7	
Deflection Studies -----		635.1	
DEGRADATION			
Definition -----		806.2	
DELAY			
Definition -----		62.8	
DENSITY			
-----		62.8	
DESIGN			
Bank Protection -----		873.1	
Capacities -----		102	
Designation -----		103	

Discharge	811.3
Discharge, Estimating	819
Flood, Establishing	818.2
Frequency, Definition	806.2
Geometric Standards	200
Hourly Volume	103.1
Hourly Volume, Definition	62.8
Interchange	504
Intersection	405
Period	103.2
Philosophy	81.1
Shore Protection	883.1
Speed (See DESIGN SPEED)	
Standards, Applications	80
Storm	821.2
Storm, Definition	806.2
Wave Heights	883.2

DESIGN DESIGNATION

Design Period	103.2
Relation to Design	103.1

DESIGN HOURLY VOLUME

.....	62.8
.....	103.1

DESIGN LIFE

Pavement	612
Relation to Design Period	103.1

DESIGN SPEED

.....	101
Definition	62.8
Entrances & Exits	504.2
Freeway-to-freeway Minimum	504.4
Freeway Entrances & Exits	504.2
Local Facility	101.1
Scenic Values	109
Selection	101.1
Standards	101.2

DESIGN VEHICLE

Definition	62.10
.....	404
Transit	404.2
California Truck	404.2
Offtracking	404.1
STAA Truck	404.2
Swept Width	404.2
Tracking With	404.2
Turning Templates	404.3
Wheelbase	404.2

DESIGN VOLUME

see DESIGN HOURLY VOLUME

DESIGN, FACTORS AFFECTING

.....	401
Bicycles	401.6
Driver	401.2
Environment	401.4

General	401.1
Pavement	611
Pedestrian	401.5
Vehicle	401.3

DESIGN, OPERATIONAL FEATURES AFFECTING

.....	402
Accidents	402.2
Capacity	402.1
Undesirable Geometric Features	402.2

DESIGNATION, DESIGN

Design Period	103.2
Relation to Design	103.1

DETOURS

.....	110.7
Local Roads Used as	106.2

DETRITUS

Definition	806.2
------------------	-------

DHV

see DESIGN HOURLY VOLUME

DIAMOND INTERCHANGE

.....	502.2
-------	-------

DIKES

Frontage Roads and Streets	303.6
General Policy	303.1
Guide, Earthen	873.4
PCC Grouted Riprap	873.4
Position of	303.5
Ramp	504.3
Toe, Earthen	873.4
Types and Uses	303.3

DISCHARGE

Definition	806.2
Design	811.3
Estimating	819
Peak	811.3

DISPOSAL SITES/MATERIALS SITES

.....	111
Acquisition of	111.5
Environmental Requirements	111.1
Information Furnished to Prospective Bidders ..	111.3
Investigation of Local Material Sources	111.2
Mandatory, on Federal-aid Projects	111.6
Material Arrangements	111.4

DISTANCE, CLEAR

Stopping Sight Distance on Horizontal Curves -	201.6
--	-------

DITCHES

Grade	834.3
Side	303.2
.....	834.3

Slope ----- 834.3

DIVERGING

----- 62.8

DIVERSION

Definition ----- 806.2

DIVIDED HIGHWAY

Definition ----- 62.3

Grade Line ----- 204.2

DIVIDED NONFREEWAY FACILITY

----- 108.1

DIVISION OF DESIGN

----- 10

DOWEL BAR

----- 622.7

Definition ----- 62.7

DOWNDRAINS

Definition ----- 806.2

Flume ----- 834.4

Pipe ----- 834.4

DRAIN

Edge System (See EDGE DRAIN)

DRAINAGE

Area, Definition ----- 806.2

Area ----- 819.2

Basic Policy ----- 803.1

Channels ----- 861

Computer Programs ----- 819.6

----- 825.3

Cooperative Projects Policy ----- 803.2

Course, Definition ----- 806.2

Definition ----- 806.2

Design Responsibility ----- 802.1

Detention Basins ----- 891.3

Divide, Definition ----- 806.2

Easement, Definition ----- 806.2

Economics of Design ----- 801.5

Galleries ----- 841.5

Glossary of Terms ----- 806.2

Median ----- 834.2

Objectives of Design ----- 801.4

Pavement ----- 650

by Pumping ----- 839

Roadway ----- 830

Section, Duties of ----- 802.1

Subsurface ----- 840

System, Definition ----- 806.2

DRAINS

Anchorage ----- 834.4

Benches ----- 834.4

Entrance Standards ----- 834.4

Geotextile ----- 841.5

Horizontal ----- 841.5

Outlet Treatment ----- 834.4

Overside, Spacing & Location ----- 834.4

Service Life ----- 857.1

----- 857.2

Slope ----- 834.4

Subsurface Types ----- 841.5

DRIVEWAYS

----- 205

Access Openings on Expressways ----- 205.1

Commercial ----- 205.3

Financial Responsibility ----- 205.5

Frontage Roads ----- 205.4

Local Standards ----- 205.3

Pedestrian Access ----- 205.3

Private, Definition ----- 62.3

Residential ----- 205.3

Rural Areas ----- 205.4

Urban ----- 205.3

DRY WEATHER FLOWS

Definition ----- 806.2

DUFF

Definition ----- 62.5

E

EARTH RETAINING SYSTEMS

Anchored Wall ----- 210.2

Cantilever Wall ----- 210.2

Concrete Gravity Wall ----- 210.2

Counterfort Wall ----- 210.2

Crib Wall; Concrete, Steel and Timber ----- 210.2

Drainage ----- 210.8

Electroliers and Signs ----- 210.8

Footings ----- 210.8

Gabion Basket Wall ----- 210.2

Gravity Wall ----- 210.2

L-Type Wall ----- 210.2

Masonry Wall ----- 210.2

Mechanically Stabilized Wall ----- 210.2

Non-Gravity Cantilevered Walls ----- 210.2

Proprietary ----- 210.2

Reinforced Embankments ----- 210.2

Rock Gravity Wall ----- 210.2

Rock/Soil Anchors ----- 210.2

Safety Railings ----- 210.6

Salvaged Material Retaining Wall ----- 210.2

Secant Soldier Pile Wall ----- 210.2

Sheet Pile Wall ----- 210.2

Slurry Diaphragm Wall ----- 210.2

Soil Mix Wall ----- 210.2

Soil Nail Wall ----- 210.2

Soil Reinforcement Systems ----- 210.2

Soldier Pile Wall with Lagging ----- 210.2

Tangent Soldier Pile Wall ----- 210.2

Tire Anchored Timber Wall ----- 210.2

Utilities	210.8
EARTHQUAKE CONSIDERATIONS	
.....	110.6
EASEMENT	
Definition	62.6
Definition	806.2
ECONOMIC ANALYSIS	
see LIFE-CYCLE COST ANALYSIS	
EDDY LOSS	
Definition	806.2
EDGE DRAIN	
.....	651.2
System, Definition	62.7
ELECTROLIERS AND SIGNS	
Walls	210.7
EMBANKMENT	
Definition	62.7
Side Slope Standards	304
Slopes at Structures	208.5
Structure Approach Embankment	208.11
EMINENT DOMAIN	
Definition	62.6
ENCROACHMENT	
Definition	62.6
END OF FREEWAY	
Connections with Local Roads	106.2
ENDWALL	
Definition	806.2
ENERGY	
Dissipator, Definition	806.2
Dissipator	827.2
Grade Line, Definition	806.2
Head, Definition	806.2
ENTRANCE	
Design (Hydraulic)	826
Freeway Interchange	504.2
Head, Definition	806.2
Loss, Definition	806.2
ENVIRONMENTAL REQUIREMENTS	
Transit Loading Facilities	108.2
Contractor's Yard and Plant Site	112
FHWA	108.3
Material Sites and Disposal Sites	111
Median Width	305.1
Project Development	81.1
Special Considerations	110

EQUALIZER	
Definition	806.2
.....	826.3
EQUESTRIAN TRAILS	
see TRAILS, MULTIPURPOSE	
EQUESTRIAN	
Definition	62.10
Undercrossing and Overcrossing	208.7
EQUIPMENT CROSSINGS	
.....	208.8
EQUIVALENT SINGLE AXLE LOADS	
Definition	62.7
Conversion ESAL to Traffic Index	613.3
ESAL Constants	613.3
Lane Distribution Factors	613.3
Projections, Truck Traffic	613.3
EROSION	
And Accretion, Definition	806.2
Control, Channel & Shore	871.1
Control, Planting	902
Control, Water Pollution	110.2
Definition	806.2
Vegetative Control	62.5
EVAPORATION	
Definition	806.2
.....	812.8
.....	814.4
.....	819.2
EXITS	
Freeway Interchange	504.2
EXPRESSWAY	
.....	62.3

F

FAA	
Abbreviation	61.1
Notice Requirements	207.3
FACTORS AFFECTING INTERSECTION DESIGN	
see DESIGN, FACTORS AFFECTING	
FALSEWORK	
.....	204.8
Grade Line	204.8
Vertical Clearance	204.8
Width of Traffic Openings	204.8
Worker Safety	204.8

FAN			
Definition	806.2		
FEDERAL-AID			
.....	40		
Funding Determination	44		
Programs (see also PROGRAMS)	43		
System	42		
FEDERAL LANDS PROGRAM			
.....	43.4		
FENCES			
.....	701		
Approval	701.1		
Barbed Wire, Type BW	701.2		
Chain Link	701.2		
Exceptions to Standard Types	701.2		
Freeways and Expressways	701.2		
Location of	701.2		
Locked Gates	701.2		
Median	701.2		
on Other Highways	701.3		
Policy and Purpose	701.1		
Retaining Walls	210.6		
Safety Roadside Rests	903.5		
Standard Types	701.2		
Vinyl-clad	705.1		
Weathering Type Steel	705.1		
Wire Mesh, Type WM	701.2		
FHWA			
Approval of Locked Gates	701.2		
Approval of Mandatory Sites	111.6		
Coordination With	108.7		
Federal-aid	40		
FILTER FABRIC			
.....	841.5		
FLAP GATES			
Definition	806.2		
.....	821.6		
.....	838.5		
FLARED END SECTION			
.....	826.3		
.....	834.4		
FLEXIBLE PAVEMENT			
Definition	62.7		
Aged Residue (AR)	632.1		
Analytical Depth	635.2		
Transit Pads	636.4		
California R-value	633.1		
Climate Region	632.1		
Cold in-Place Recycled Asphalt	635.1		
Concrete Overlay	635.1		
Data Collection	635.2		
80th percentile Deflection	635.2		
Deflection Studies	635.2		
Empirical Method	633.1		
Engineering Analysis Software	637		
Full Depth Hot Mix Asphalt	633.1		
Gravel Equivalent	633.1		
Gravel factor (Gr)	633.1		
Grouping	635.2		
Hot Mix Asphalt (HMA)	631		
Hot Mixed Asphalt Base	633.1		
Hot Recycled Asphalt	635.2		
International Roughness Index (IRI)	635.2		
Intersections	636.3		
Lean Concrete Base (LCB)	635.2		
Lime Treated Subbase	633.1		
Mainline	636.1		
Mill and Overlay	635.2		
Open Graded Friction Course (OGFC)	631.4		
Park & Ride Facilities	636.4		
Pavement Condition Report	635.2		
Pavement Preservation	634		
Percent Reduction in Deflection	635.2		
Percent Reduction in deflection required at the Milled depth	635.2		
Performance Factors	633.2		
Performance Graded (PG)	632.1		
Polymer modified binders	632.1		
RHMA-G	631.4		
RHMA-O	631.4		
Ramp Termini	636.1		
Reflective crack retardation	635.2		
Remove and Replace	635.2		
Ride Quality	635.2		
Roadside Facilities	636.4		
Safety Roadside Rest Areas	636.4		
Rubberized HMA	631.5		
SAMI-R	631.8		
Shoulders	636.2		
Smoothness	635.2		
Stress Absorbing Membrane Interlayers (SAMI) - Structural Adequacy	631.8		
Test Sections	635.2		
Tolerable Deflection at the Surface (TDS)	635.2		
Tolerable Deflections	635.2		
Traffic Index (TI)	633.1		
Traveled Way	636.1		
Treated Permeable Base (TPB)	633.1		
Wearing Course	633.1		
Whitotopping	635.2		
FLOOD			
Base	818.1		
Control Projects	803.2		
Design	818.1		
Design Criteria, Recommended	821.3		
.....	831.3		
Greatest of Record	821.3		
Magnitude	817		
Maximum Historical	818.1		
Measurement	817.2		
Plain, Definition	806.2		
Plane, Definition	806.2		

Stage, Definition -----	806.2
Waters, Definition -----	806.2

FLOW

Channel -----	816.6
Critical -----	864.3
Definition -----	806.2
Line -----	806.2
Subcritical -----	864.3
Supercritical -----	864.3

FREE

Outlet, Definition -----	806.2
Water, Definition -----	806.2

FREEBOARD

Definition -----	806.2
-----	866

FREEWAY

-----	62.3
Entrances and Exits at Interchanges -----	504.2
Landscape -----	62.5
-----	900

FREEWAY CONNECTIONS WITH EXISTING ROADS

-----	106.2
-------	-------

FREEWAY-TO-FREEWAY CONNECTIONS

-----	62.4
-----	504.4
Branch Connections -----	504.4
Grade Line -----	204.2
Grades -----	504.4
Lane Drops -----	504.4
Metering -----	504.3
-----	504.4
Shoulder Width -----	504.4

FREEWAY-TO-FREEWAY INTERCHANGES

-----	502.3
-------	-------

FRENCH DRAINS

Definition -----	806.2
-----	841.5

FRICTION FACTORS

-----	202.1
-------	-------

FRONTAGE ROADS

Definition -----	62.3
Cross Section Standards -----	310
Access Control -----	104.3
Cross Section -----	310.1
Curbs -----	303.6
Driveways -----	205.4
Financed by Others -----	104.3
Headlight Glare -----	310.3
Horizontal Clearance -----	309.1
Outer Separation -----	310.2

Railroad Crossings -----	104.3
Sidewalks -----	105.1

FUNDING

-----	44
Federal-Aid Eligibility -----	44.1
Federal Participation Ratio -----	44.2

FUNNELING

-----	403.1
-------	-------

G

GALLERIES

Drainage -----	841.5
----------------	-------

GEOMETRIC CROSS SECTIONS

-----	300
Definition -----	62.1

GEOMETRIC DESIGN

Definition -----	62.4
Structure Standards -----	200
Undesirable Geometric Features, Intersections --	402.2

GEOTECHNICAL DESIGN REPORT

-----	113
Content -----	113.2
Local Materials Sources -----	111.2
Policy -----	113.1
Side Slope Standards -----	304.1
Submittal and Approval -----	113.3

GORE

-----	62.4
Contrasting Surface Treatment -----	504.2
Paved Gore -----	504.2

GRADE

Cross Section, Position with Respect to -----	204.2
to Drain, Definition -----	806.2
Freeway Entrance Standards -----	504.2
Freeway Exit Standards -----	504.2
Freeway-to-freeway Connection Standards -----	504.4
General Controls -----	204.1
Horizontal Alignment, Coordination with -----	204.6
Ramps -----	504.2
Rolling Profile -----	204.1
Safety Roadside Rests -----	903.5
Separate Lines -----	204.7
Separation -----	62.4
Separation Structures -----	208
Separation, Pedestrian -----	105.2
Standards -----	204.3
Stopping Sight Distance at Crests -----	201.4
Stopping Sight Distance at Sags -----	201.5
Structures -----	204.8
Sustained Grades -----	204.5
Vertical Curves -----	204.4

GRADE LINE

Bridge Decks ----- 204.8
Depressed, Under Structures ----- 204.8
General ----- 204.1
Separate ----- 204.7
Structures ----- 204.8

GRADE SEPARATION STRUCTURES

----- 208
Cattle Passes, Equipment, and Deer Crossings -- 208.8
Cross Slope ----- 208.2
Curbs ----- 303.5
Equestrian Undercrossing ----- 208.7
Median ----- 208.3
Open End Structures ----- 208.5
Pedestrian ----- 105.2
Pedestrian Overcrossings and Undercrossing ---- 208.6
Railings ----- 208.10
Railroad Underpasses and Overheads ----- 208.9
Sidewalks ----- 208.4
Widths ----- 208.1

GRADIENT (SLOPE)

Definition ----- 806.2

GRADING PLANE

Definition ----- 62.7

GRATED LINE DRAIN

----- 837.2

GRAVEL EQUIVALENT

----- 635.2

GRAVITY WALL

----- 210.2

GROIN

----- 883.3

GROUND WATER

Definition ----- 806.2
----- 841.2

GUARDRAIL

Bridge Approach Railings ----- 208.10
References ----- 702

GUIDE BANK

----- 873.4

GUTTER PAN

Cross Slope ----- 303.2
General Policy ----- 303.1
Uses, Curb Types ----- 303.2

GUTTERS, SIDE

----- 834.3
Capacity ----- 836.2
Grade ----- 836.2

Intersection, at ----- 836.2
Types ----- 836.1
Valley ----- 836.2

H

HAULING

Overloaded Material/Equipment , Design for ---- 110.1

HEAD

Available ----- 821.4

HEADLIGHT GLARE

----- 310.3

HEADLIGHT SIGHT DISTANCE

Grade Sags ----- 201.5

HEADWAY

----- 62.8

HIGH SPEED RAIL

Definition ----- 62.10
Clearances ----- 309.1

HIGHWAY

----- 62.3
Capacity ----- 102
Context ----- 81.6
Controlled Access ----- 62.3
Conventional ----- 62.3
Federal Lands Program ----- 43.4
Interstate, Definition ----- 81.4
Landscape Architect Definitions ----- 62.5
Major ----- 62.3
National Highway System ----- 42
Parkway ----- 62.3
Pedestrian Facilities ----- 105
Planting ----- 62.5
Radial ----- 62.3
Route Numbers ----- 21.2
Scenic ----- 62.3
State System ----- 81.4
Structures, Definitions ----- 62.2
Structures, Grade Line ----- 204.8
Through ----- 62.3
Types, Definitions ----- 62.3

HIGHWAY DESIGN MANUAL STANDARDS

----- 82.1

HORIZONTAL ALIGNMENT

Aesthetic Factors ----- 109.3
Alignment Consistency ----- 203.3
Bridges ----- 203.9
Broken Back Curves ----- 203.7
Compound Curves ----- 203.5
Curve Length and Central Angle ----- 203.4
General Controls ----- 203.1

Grade, Coordination with ----- 204.6
 Radius ----- 203.2
 Reversing Curves ----- 203.6
 Standards for Curvature ----- 203.2
 Spiral Transition ----- 203.8

HORIZONTAL CLEARANCE

Bridges ----- 309.1
 Between Elevated Structures ----- 309.4
 Clear Distance ----- 201.6
 Noise Barriers ----- 1102.2
 Off-track Maintenance ----- 309.5
 Railroad Walkway ----- 309.5
 Railroads, Adjacent to ----- 309.5
 Retaining Walls ----- 309.1
 Structure ----- 309.1
 Tunnels ----- 309.3

HORIZONTAL DRAINS

----- 841.5

HOT MIX ASPHALT CONCRETE BASE

also see BASE Engineering Criteria ----- 663

HOT MIXED ASPHALT

----- 631.1

also see FLEXIBLE PAVEMENT

HYDRAULIC

Gradient, Definition ----- 806.2
 Jump, Definition ----- 806.2
 Mean Depth, Definition ----- 806.2
 Mean Depth ----- 864.3
 Radius, Definition ----- 806.2

HYDRAULIC DESIGN DISCHARGE

Empirical Methods ----- 819.2
 Field Investigation ----- 815.3
 Hydrograph Methods ----- 816.5
 Rational Methods ----- 819.2
 Regional Analysis ----- 819.2
 Statistical Methods ----- 819.3
 Summary of Methods ----- 819.1

HYDROGRAPH

Definition ----- 806.2
 ----- 816.5
 SCS Triangular ----- 819.4
 Synthetic ----- 819.4
 Unit ----- 819.4

HYDROGRAPHY

Definition ----- 806.2

HYDROLOGIC DATA

Basin Characteristics ----- 812
 Federal Agencies ----- 815.3
 Field Investigations ----- 815.3
 Precipitation ----- 815.2
 ----- 815.3
 Rainfall ----- 815.5

Sources ----- 815.3
 Stream Flow ----- 815.4
 Surface Runoff ----- 815.2
 Transfer of Data ----- 819.5

HYDROLOGICAL ANALYSIS

Gumbel Extreme Value Distribution ----- 819.3
 Log Normal Distribution ----- 819.3
 Log Pearson Type III Distribution ----- 819.3
 Objectives ----- 811.2
 Rational Methods ----- 819.2
 Regional Analysis Methods ----- 819.2
 SCS Triangular Hydrograph ----- 819.4
 Synthetic Hydrograph ----- 819.4
 Unit Hydrograph ----- 819.4

HYDROLOGY

Definition ----- 806.2
 ----- 811.1

HYDROPLANING

Definition ----- 831.4

I

INFILTRATION

----- 602.1
 ----- 819.2
 Definition ----- 806.2

INITIAL CONSTRUCTION

and Stage ----- 106.1

INLETS

Combination ----- 837.2
 Curb Opening ----- 837.2
 Grate ----- 837.2
 Hydraulic Design ----- 837.4
 Location and Spacing ----- 837.3
 Pipe Drop ----- 837.2
 Time, Definition ----- 806.2
 Transition ----- 826.4
 Types ----- 837.2
 Use of ----- 837.1

INSPECTION STATIONS, BORDER

----- 107.3

INTERCHANGES

Access Control ----- 504.8
 Aesthetic Factors ----- 109.3
 Approval of Design ----- 503.2
 Auxiliary Lanes ----- 504.5
 Cloverleaf ----- 502.2
 Concepts ----- 501.1
 Data Required for Design ----- 503.1
 Definition ----- 62.4
 Design, Procedure ----- 503
 Design, Standards ----- 504

Diamond ----- 502.2
 Elements ----- 62.4
 Freeway Entrances and Exits, Design ----- 504.2
 Freeway-to-freeway ----- 502.3
 Freeway-to-freeway Connections, Definition ---- 62.4
 Freeway-to-freeway Connections, Standards ---- 504.4
 Freeway-to-freeway, Minimum Design Speed --- 504.4
 Freeway-to-freeway Omission of Movements --- 502.3
 Grade Separations ----- 62.4
 Grades Exits/Entrances ----- 504.2
 Lane Reduction ----- 504.6
 Local Streets ----- 502.2
 Parallel Street Systems ----- 502.2
 Ramps ----- 504.3
 Reviews ----- 503.2
 Sight Distance for Planting ----- 902.2
 Single Point Interchange ----- 502.2
 Spacing ----- 501.3
 Traffic ----- 500
 Trumpet ----- 502.2
 Two-quadrant Cloverleaf ----- 502.2
 Types ----- 502
 Warrants ----- 501.2
 Weaving Sections ----- 504.7
 also see RAMPS

**INTERMODAL SURFACE TRANSPORTATION
 EFFICIENCY ACT (ISTEA)**

----- 40

INTERSECTION

Access Control ----- 405.6
 Accidents ----- 402.2
 Angle of Intersection ----- 403.3
 Areas of Conflict ----- 403.2
 Bicycle, Affecting Design of ----- 401.6
 Capacity ----- 402.1
 Capacity, Ramps ----- 406
 Channelization ----- 403
 Definition ----- 62.4
 Design, Factors Affecting ----- 401
 Design, Operational Features Affecting ----- 402
 Design, Standards ----- 405
 Design Vehicle ----- 404
 Driver, Affecting Design of ----- 401.2
 Environment, Affecting Design of ----- 401.4
 General, Factors Affecting Design ----- 401.1
 at Grade ----- 400
 Grade Separations ----- 62.4
 Left-turn Channelization ----- 405.2
 Major Movement, Preference to ----- 403.1
 Median Openings ----- 405.5
 Operational Features ----- 402
 Pedestrian, Affecting Design of ----- 401.5
 Points of Conflict ----- 403.4
 Precautions ----- 403.12
 Prohibited Turns ----- 403.8
 Public Road ----- 405.7
 Ramp ----- 406
 Refuge Area ----- 403.7
 Returns and Corner Radii, City Street ----- 405.8

Right-turn Channelization ----- 405.3
 Right-turn Lanes at Off Ramp ----- 405.3
 Roundabout, Definition ----- 62.4
 Sight Distance ----- 405.1
 Signal Control ----- 403.9
 Speed-change Areas ----- 403.5
 Traffic Control Devices ----- 403.10
 Traffic Islands ----- 405.4
 Turning Traffic ----- 403.6
 Types ----- 401.5
 Undesirable Geometric Features ----- 402.2
 Vehicle, Affecting Design of ----- 401.3
 Widening at Signalized Intersections ----- 405.9

INTERSTATE

Definition ----- 81.4
 Funding ----- 42.2
 Numbering ----- 21.2

INUNDATE

Definition ----- 806.2

INVERSE CONDEMNATION

Definition ----- 62.6

INVERT

Definition ----- 806.2
 Paving, Definition ----- 806.2
 Paving ----- 852.1
 ----- 852.4
 ----- 853.6
 Protection ----- 852.4
 ----- 852.5

INVERTED SIPHON

Definition ----- 806.2
 ----- 829.7

IRRIGATION SYSTEM

Crossover Conduits ----- 706.4

ISLAND

----- 62.4
 Traffic ----- 405.4

ISOHYETAL

Line, Definition ----- 806.2
 Map, Definition ----- 806.2

ISOVEL

Definition ----- 806.2

ISTEA

----- 41.1
 ----- 42.2

J

JACK

Definition ----- 806.2

JACKING OPERATIONS

Definition ----- 806.2

JETTY

Definition ----- 806.2

Types ----- 873.4

JOINT

Longitudinal ----- 62.7

Pavement ----- 622.4

Seals ----- 62.7

JOINT BANK PROTECTION COMMITTEE

----- 802.3

JOINT PLAIN CONCRETE PAVEMENT

----- 621.2

also see RIGID PAVEMENT

JOINTS

Culverts ----- 829.4

----- 854.1

JUNCTION STRUCTURES

----- 838.5

K

KINEMATIC WAVE EQUATION

----- 816.6

KIRPICH EQUATION

----- 816.6

K-RAIL

----- 204.8

L

L-TYPE WALL

----- 210.2

LAG

Definition ----- 806.2

LAMINAR FLOW

Definition ----- 806.2

LANDSCAPE

Aesthetic Factors ----- 109.3

Architecture ----- 62.5

----- 900
Highway ----- 62.5

LANE

Addition ----- 206.2

Addition on Ramps ----- 504.3

Auxiliary ----- 62.1

----- 504.5

Climbing ----- 204.5

----- 206.2

Deceleration ----- 405.2

----- 405.3

Definitions ----- 62.1

Drops ----- 206.3

Drops on Freeway-to-freeway Connectors ----- 504.4

Drops on Ramps ----- 504.3

Express Toll Lanes ----- 62.8

High-Occupancy Vehicle ----- 62.8

High Occupancy Toll ----- 62.8

Left Turn ----- 405.2

Managed, Definition ----- 62.8

Median, Definition ----- 62.1

Multiple, Definition ----- 62.1

Numbering ----- 62.1

Passing ----- 204.5

Reductions ----- 206.3

Reduction at Interchanges ----- 504.6

Right Turn ----- 405.3

Separate Turning ----- 403.6

Speed Change ----- 403.5

Speed Change, Definition ----- 62.1

Traffic, Definition ----- 62.1

Two-way Left-turn Lanes ----- 405.2

Width ----- 301.1

Width on Curves ----- 504.3

Width of Opening for Falsework ----- 204.8

Width, Ramps ----- 504.3

LATERAL

Definition ----- 806.2

----- 838.4

----- 838.5

LEAN CONCRETE BASE

See BASE

Definition ----- 62.7

Engineering Criteria ----- 662

Design, Flexible (Asphalt) Pavement ----- 635.2

Design, Rigid (Concrete) Pavement ----- 624.1

LEFT-TURN CHANNELIZATION

----- 405.2

LEFT-TURN REFUGE

----- 403.7

LEGISLATION

----- 41

ISTEA ----- 41.1

LEVEE
 Definition ----- 806.2

LEVEL OF SERVICE
 Definition ----- 62.8
 ----- 102

LIFE-CYCLE COST ANALYSIS (LCCA)
 ----- 619

LIME
 Treatment Definition ----- 614.4
 Use of ----- 633.1

LIME TREATED SUBBASE
 see SUBBASE

LOAD TRANSFER DEVICE
 See DOWEL BAR

LOADING FACILITIES
 Transit ----- 108.2

LOCAL STREETS/ROADS
 Cross Section ----- 308.1
 Definition ----- 62.3
 ----- 81.4
 Design Speed ----- 101.1
 Driveways ----- 205.3
 Grade ----- 204.1
 Horizontal Alignment ----- 203.1
 Interchanges ----- 502.2
 Returns and Corner Radii ----- 405.8
 Superelevation ----- 202.7

LOCKED GATES
 ----- 701.2

LOG OF TEST BORINGS
 ----- 210.8

M

MAINTAINABILITY
 Pavement ----- 618.1

MAINTENANCE
 Definitions ----- 62.7

MAINTENANCE VEHICLE PULLOUT
 Definition ----- 62.3

MAINTENANCE YARDS
 On Freeways ----- 107.2

MAJOR STREET/MAJOR HIGHWAY
 Definition ----- 62.3

MANDATORY MATERIAL SITES
 Federal-aid Projects ----- 111.6

MANDATORY STANDARDS
 ----- 82.1

MANNING
 Equation ----- 866.3
 Roughness Coefficient ----- 851.2
 ----- 866.3

MARKERS
 ----- 702.1
 Contrast Treatment ----- 704.1

MATERIALS
 Availability, Pavement ----- 617.1
 Color Selection for Steel Structures ----- 705.2
 Conservation of ----- 110.1.1
 Hauling, Overloaded Design ----- 110.1
 Information Furnished to Prospective Bidders --- 111.3
 Plants ----- 112
 Recycling, Pavement ----- 617.2
 Report (see MATERIALS REPORT)
 Sites ----- 111
 Sites, Acquisition ----- 111.5
 Sites, Arrangements ----- 111.4
 Sites, Environmental Requirements ----- 111.1
 Sites, Investigation of Local Sources ----- 111.2
 Sites, Mandatory ----- 111.6
 Special Treatment ----- 705.1

MATERIALS REPORT
 Content ----- 114.3
 Local Materials Sources ----- 111.2
 Policy ----- 114.1
 Preliminary ----- 114.4
 Requesting ----- 114.2
 Retention of Records ----- 114.5
 Reviews ----- 114.5

MAXIMUM COMFORTABLE SPEED
 Chart ----- 202.2
 Superelevation ----- 202.2

MAY
 Definition and Usage ----- 82.1

MEAN VELOCITY
 ----- 864.3

MECHANISTIC-EMPIRICAL
 ----- 606.3

MEDIAN
 Definition ----- 62.1
 Aesthetic Factors ----- 109.3
 Barriers ----- 305.3
 Cross Slope ----- 305.2
 Curbs ----- 305.4

Decking on Bridge ----- 208.3
 Fencing ----- 701.2
 Grade ----- 834.2
 Lane ----- 62.1
 Left-turn Lane ----- 405.2
 Openings ----- 405.5
 Paved ----- 305.5
 Position ----- 303.5
 Separate Roadways ----- 305.6
 Standards ----- 305
 Width ----- 305.1

MERGING

Definition ----- 62.8

METEOROLOGY

Evapo-transpiration ----- 814.4
 Rainfall ----- 814.2
 Snow ----- 814.3
 Tides and Waves ----- 814.5
 Tsunami ----- 814.5

METERING

----- 504.3
 Definition ----- 62.8
 Freeway-to-Freeway Connections ----- 504.4
 Lane Merges ----- 206.3
 Ramp Lane Drops ----- 504.3

MINIMUM TURNING RADIUS

Definition ----- 62.4

MINOR ARTERIAL

Definition ----- 81.4

MISCELLANEOUS STANDARDS

----- 700
 Fences ----- 701
 Guardrail ----- 702
 Mailboxes ----- 702
 Markers ----- 702

MUD FLOW

Definition ----- 806.2

MULTILANE CROSS SECTIONS

All Paved ----- 307.5
 Divided ----- 307.4

MULTIPLE LANES

Definition ----- 62.1

MULTIPLE PIPES

----- 824.2

N

NATIONAL HIGHWAY SYSTEM

----- 42.1

NAVIGABLE WATERS

Definition ----- 806.2

NEGATIVE PROJECTING CONDUIT

Definition ----- 806.2

NOISE ABATEMENT

----- 1100
 By Others ----- 1101.2
 Objective ----- 1101.2
 Prioritizing ----- 1101.5
 Terminology ----- 1101.3

NOISE BARRIERS

Aesthetics ----- 1102.6
 Alternate Designs ----- 1102.5
 Clearances ----- 1102.2
 Design Criteria ----- 1102
 Design Procedures ----- 1102.5
 Drainage Openings ----- 1102.9
 Emergency Access ----- 1102.8
 Heights ----- 1102.3
 Lengths ----- 1102.4
 Location ----- 1102.2
 Maintenance Considerations ----- 1102.7
 Pay Quantities ----- 1102.5
 Planting ----- 1102.6
 Preliminary Site Data ----- 1102.5
 Sight Distance Requirements ----- 1102.2

NONFREEWAY FACILITIES

Conversion to Divided ----- 108.1

NONMOTORIZED TRAFFIC

Provisions for ----- 104.3

NORMAL DEPTH

Definition ----- 806.2
 ----- 864.2

O

OFFICE OF

State Landscape Architecture ----- 901.1

OFF-SET LEFT-TURN LANE

Definition ----- 62.4

OFF-SITE DRAINAGE

Definition ----- 806.2

OFFTRACKING

Definition ----- 62.4
 Design Considerations ----- 404.1

ON-SITE DRAINAGE

Definition ----- 806.2

ON-STREET PARKING

Definition ----- 62.1
----- 402.3

OPEN CHANNEL

Definition ----- 62.8

OUTER SEPARATION

Definition ----- 62.1
----- 310.2

OUTFALL

Definition ----- 806.2

OUTWASH

Definition ----- 806.2

OVERFLOW

Channel ----- 861.5

OVERLAND FLOW

----- 816.6

OVERLAYS

Asphalt On Structure Decks ----- 607.6
Definitions ----- 62.7

OVERLOADS

Design for ----- 110.1

P

PAINTING

Concrete ----- 705.1
Steel ----- 705.2

PARALLEL STREET SYSTEMS

Interchanges ----- 502.2

PARK AND RIDE LOTS

Definition ----- 62.5
Pavement Structural Section Design ----- 636.4

PARKWAY

Definition ----- 62.3

PARTIAL ACQUISITION

Definition ----- 62.6

PASSING LANE

----- 204.5

PASSING SIGHT DISTANCE

----- 201.2

PAVEMENT/PAVEMENT STRUCTURE

Capital Preventive Maintenance ----- 603.3
Composite see COMPOSITE PAVEMENT

Condition Survey ----- 603.3
Cross Slopes ----- 301.2
Definition ----- 62.7
Design Life, Definition ----- 62.7
Design Life ----- 612
Detours ----- 603.6
Drainage, Impact of ----- 651.1
Flexible see FLEXIBLE PAVEMENT
Joints ----- 622.4
Layers ----- 602
New ----- 603.1
Performance see PAVEMENT SERVICE LIFE - 62.7
Portland Cement Concrete ----- 603
Preservation ----- 603.3
Reconstruction ----- 603.5
Reductions ----- 206.3
Rehabilitation, Roadway ----- 603.4
Rehabilitation, Definition ----- 62.7
Rigid see RIGID PAVEMENT
Tapered Edge ----- 302.3
Serviceability, Definition ----- 62.7
Service Life, Definition ----- 62.7
Structure ----- 62.7
Surface Course ----- 62.7
Temporary ----- 603.6
Transitions ----- 206
Transitions for Freeways, Temporary ----- 206.4
Type Selection ----- 611.2
Types of Projects ----- 603
Widening ----- 603.2
Width ----- 301.1

PEAK FLOW

Definition ----- 806.2
----- 811.3

PEDESTRIAN FACILITIES

----- 105
Accessibility Requirements ----- 105.3
Bridges ----- 208.4
Conventional Highways ----- 105.1
Crosswalk, Definition ----- 62.4
Curb Ramps, Guidelines ----- 105.4
Design Considerations ----- 404.2
Freeway Facilities ----- 105.1
Frontage Roads ----- 105.1
Grade Separations ----- 105.2
Pedestrian, Definition ----- 62.10
Overcrossings ----- 105.2
Overcrossing/Undercrossing, Standards ----- 208.6
Railings ----- 208.10
Refuge, Definition ----- 62.4
Refuge Areas ----- 403.7
Replacement in Kind ----- 105.1
School Walkways ----- 105.1
Sidewalks ----- 105.1
Sidewalks, Definition ----- 62.1
Sidewalks, Structures ----- 208.4
Trails ----- 1003.4

Undercrossings -----	105.2	Sight Distance -----	902.2
-----	208.6	Trees -----	902.3
PERCHED WATER		Vista Points -----	904.3
Definition -----	806.2	Water Supply -----	706.5
-----	841.4	PLASTIC COATINGS	
PERCOLATING WATERS		-----	852.4
Definition -----	806.2	POINT OF CONCENTRATION	
PERMEABILITY		Definition -----	806.2
Definition -----	806.2	POINTS OF CONFLICT	
-----	841.2	Intersections -----	403.4
PHYSICALLY DISABLED PERSONS		POLICE FACILITIES	
See ACCESSIBILITY REQUIREMENTS		-----	107.2
PIPE		POLLUTION CONTROL	
Alternative Pipe Culvert Selection Procedure		Air -----	110.3
Using AltPipe -----	857.2	Water -----	110.2
Cast in Place Concrete -----	852.2	PONDING	
Concrete Box and Arch, Strength Requirements -	852.3	-----	821.4
Corrugated Aluminum Pipe and Arch, Strength		PORTLAND CEMENT CONCRETE	
Requirements -----	852.5	Channel Linings -----	865.2
Corrugated Steel Pipe and Arch, Strength		Pavement see RIGID PAVEMENT	
Requirements -----	852.4	POSITIVE PROJECTING CONDUIT	
Culverts -----	828.2	Definition -----	806.2
-----	828.3	POTAMOLOGY	
Minimum Cover -----	856.5	Definition -----	806.2
Minimum Diameter -----	838.4	PRECAST PANEL CONCRETE PAVEMENT	
Multiple -----	824.2	-----	621.3
Plastic, Strength Requirements -----	852.7	also see RIGID PAVEMENT	
Protective Coatings -----	852.4	PRECIPITATION	
Reinforced Concrete, Strength Requirements ---	852.1	Area, Definition -----	806.2
Standards for Drain -----	838.4	Definition -----	806.2
Structural Metal Pipe and Arch, Strength		Mean Annual -----	819.2
Requirements -----	852.6	Point, Definition -----	806.2
PIPING		PRELIMINARY HYDRAULIC DATA	
Definition -----	806.2	-----	805.1
-----	829.3	PRESENT WORTH	
PLACE TYPES		see ECONOMIC ANALYSIS	
Definition -----	81.3	PRIORITY NETWORK	
Rural Area -----	81.3	42 000 km -----	309.2
Suburban Area -----	81.3	PRINCIPAL ARTIRIAL	
Urban Area -----	81.3	Definition -----	62.3
PLANT SITES/CONTRACTOR'S YARD		PRIVATE ROAD	
-----	112	Definition -----	62.3
PLANTING		PRIVATE ROAD CONNECTIONS	
Aesthetic Factors -----	109.3	-----	205.2
Design -----	902		
Guidelines -----	902.3		
Highway -----	62.5		
Irrigation -----	902.4		
Replacement -----	62.5		
Restoration -----	62.5		
Safety Requirements -----	902.2		
Safety Roadside Rests -----	903.5		

Financial Responsibility ----- 205.5
Sight Distance ----- 405.1

PROCEDURAL REQUIREMENTS

----- 82.4

PROGRAMS, FEDERAL-AID

Bridge Replacement and Rehabilitation Program- 43.3
Congestion Mitigation and Air Quality Improvement
Program (CMAQ) ----- 43.2
Federal Lands Program ----- 43.4
Special Programs ----- 43.5
Surface Transportation Program (STP) ----- 43.1

PROHIBITED TURNS

----- 403.8

PROJECTING BARREL

----- 826.3

PROJECTING ENDS

----- 826.3

PROPRIETARY ITEMS

----- 110.10
Earth Retaining Systems ----- 210.2

PROTECTION OF ACCESS RIGHTS

----- 104.4

PROTECTION OF WETLANDS

see WETLANDS

PROTECTIVE COATINGS

----- 852.4

PUBLIC ROAD INTERSECTION

----- 405.7
Sight Distance ----- 405.1

PULL OUTS

see TURNOUTS

PUMPING

Definition ----- 62.7

PUMPING PLANT

----- 839.1

R

R-VALUE

see CALIFORNIA R-VALUE

RADIAL HIGHWAY

Definition ----- 62.3

RADIUS

Curb ----- 405.8

Horizontal Alignment ----- 203.2

RAILINGS

Bicycle ----- 208.10
Bridge ----- 208.10
Bridge Approach ----- 208.10
Cable ----- 210.6
Chain Link ----- 208.10
Earth Retaining Systems ----- 210.6
Guardrail ----- 208.10
----- 702.1
Pedestrian ----- 208.10
Vehicular ----- 208.10

RAIL

Clearances ----- 309.2
Structures Adjacent to ----- 309.5
Commuter, Definition ----- 62.10
Conventional, Definition ----- 62.10
Crossings ----- 104.3
Grade Line of Structures ----- 204.8
High Speed, Definition ----- 62.10
High Speed, Clearances ----- 309.1
Light, Definition ----- 62.10
Overheads ----- 208.9
Slope Treatment, Structures ----- 707
Underpasses ----- 208.9

RAINFALL

Definition ----- 806.2
Sources of Data ----- 815.3

RAIN GAGE

----- 819.5

RAINWASH

Definition ----- 806.2

RAMPS

Curbs on ----- 504.3
Curb Ramps ----- 105.4
Definition ----- 62.4
Dikes ----- 504.3
Distance Between Exits ----- 504.3
Distance Between On-Ramps ----- 504.3
Entrance and Exit ----- 504.2
Grade ----- 504.2
Grade Line ----- 204.2
Grade, Standards ----- 204.3
Hook ----- 502.2
Intersection Capacity ----- 406
Intersections on Crossroad, Location of ----- 504.3
Lane Drops ----- 504.3
Loop ----- 504.3
Metering (see METERING) -----
Pavement, Flexible ----- 636.1
Pavement, Rigid ----- 626.1
Pavement, Traffic Considerations ----- 613.5
Pavement Transitions ----- 206
Single Lane ----- 504.3
Structural Design ----- 602.3

-----	603.5	Flexible Pavement -----	635
-----	604.5	Rigid Pavement -----	625
Superelevation -----	504.3	REINFORCED EARTH SLOPES	
Tapers -----	206.3	-----	210
Termini, Flexible Pavement -----	636.1	RELICTION	
Termini, Rigid Pavement -----	626.1	Definition -----	806.2
Transitions -----	504.3	RELINQUISHMENT	
Two-lane Entrance -----	504.3	Definition -----	62.6
Two-lane Exit -----	504.3	REPLACEMENT IN-KIND	
Width -----	504.3	Sidewalks -----	105.1
Widening for Trucks -----	504.3	REPLACEMENT PLANTING	
RATIONAL METHOD		Aesthetic Factors -----	109.3
-----	819.2	Definition -----	62.5
RAVELING		RESEARCH/SPECIAL DESIGNS	
Definition -----	62.7	Research, Experimentation -----	606.1
REACH		Special Designs -----	606.2
Definition -----	806.2	Mechanistic-Empirical Design -----	606.3
RECORD KEEPING		RESOURCES	
Documentation, Type of Pavement -----	605.1	Other, Pavement -----	604.3
Revisions -----	605.2	RESTORATION PLANTING	
RECOVERY AREA		Aesthetic Factors -----	109.3
-----	309.1	Definition -----	62.5
RECYCLING, ASPHALT CONCRETE		RESURFACING	
General -----	110.11	Definition -----	62.7
Hot, Definition -----	62.7	see PRESERVATION, PAVEMENT	
REFUGE AREAS		see REHABILITATION, PAVEMENT	
-----	403.7	see REHABILITATION, ROADWAY	
REGIME		RETAINING WALLS	
Definition -----	806.2	-----	210
REHABILITATION, CULVERTS		Aesthetic Considerations -----	210.5
General -----	853.1	Construction Methods and Types -----	210.2
Caltrans Host Pipe Structural Philosophy -----	853.2	Guidelines for Plan Preparation -----	210.8
Problem Identification and Coordination -----	853.3	Safety Railing, Fences, and Concrete Barriers --	210.6
Alternative Pipe Liner Materials -----	853.4	RETARD	
Cementitious Pipe Lining -----	853.5	Types -----	873.4
Invert Paving with Concrete -----	853.6	RETARDING BASIN	
Structural Repairs with Steel Tunnel Liner		Definition -----	806.2
Plate -----	853.7	RETENTION BASIN	
REHABILITATION, PAVEMENT		Definition -----	806.2
Capital Preventive Maintenance, part of -----	603.3	RETROGRESSION	
Definitions -----	62.7	Definition -----	806.2
Design Life -----	612.4	RETURN WALLS	
Composite -----	645	-----	210.8
Flexible Pavement -----	635	RETURNS, CITY STREET AND CORNER RADII	
Rigid Pavement -----	625	-----	405.8
REHABILITATION, ROADWAY			
-----	603.4		
Definitions -----	62.7		
Design Life -----	612.4		
Composite Pavement -----	645		

REVEGETATION

----- 62.5
Aesthetic Factors ----- 109.3

REVERSING CURVES

----- 203.6
Superelevation Transitions ----- 202.5

REVTMENT

Definition ----- 806.2

RIGHT OF ACCESS

Definition ----- 62.6

RIGHT OF WAY

Definitions ----- 62.6
Through Public Domain ----- 306.2
Width ----- 306.1

RIGHT-TURN CHANNELIZATION

----- 405.3

RIGID PAVEMENT

Catalog ----- 623.1
Definition ----- 62.7
Design Procedure for ----- 623
Engineering Properties ----- 622.1
Joints ----- 622.4
New Construction ----- 623
Mechanistic-Empirical Procedures ----- 606.3
Pavement Preservation ----- 624
Performance Factors ----- 622.2
Reconstruction ----- 623
Rehabilitation ----- 625
Texturing ----- 622.9
Types ----- 621
also see CONCRETE

RIPARIAN

Definition ----- 806.2

RIPRAP

Definition ----- 806.2
----- 827.2
----- 873.3

RISER

Culvert Entrance ----- 822.2
Definition ----- 806.2

RISK ANALYSIS

Definition ----- 806.2
----- 818.2

ROADBED

Definition ----- 62.1
----- 62.7

ROADSIDE

Definition ----- 62.1

ROADSIDE INSTALLATIONS

----- 107
Border Inspection Stations, Location of ----- 107.3
Define Roadside ----- 62.1
Maintenance Yards and Police Facilities ----- 107.2
Roadway Connections ----- 107.1

ROADSIDE RESTS, SAFETY

Definition ----- 62.5
Design Standards ----- 903
Facilities and Features ----- 903.5
Fencing ----- 903.5
Grading ----- 903.5
Minimum Standards ----- 903.1
Pavement Design ----- 613.5
Pavement, Flexible ----- 636.4
Pavement, Rigid ----- 626.4
Planting and Irrigation ----- 903.5
Site Feasibility ----- 903.4
Size and Capacity ----- 903.5
Water Supply ----- 110.2
----- 706.6
----- 903.5

ROADSIDE TREATMENT

Irrigation Crossover Conduits ----- 706.4
Roadside Management ----- 706.1
Topsoil ----- 706.3
Vegetation Control ----- 706.2
Water Supply ----- 706.5

ROADWAY

Connections ----- 107.1
Definition ----- 62.1
Drainage ----- 830
Structural Elements ----- 601.2

ROCKFALL RESTRAINING NETS

----- 703.2

ROUNDABOUTS

Access Control ----- 405.10
Bicyclist Use ----- 405.10
Central Island ----- 62.4
Circulatory Roadway ----- 62.4
Definition ----- 62.4
Design Guidance ----- 405.10
Design Vehicle ----- 405.10
Entry Speeds ----- 405.10
Exit Design ----- 405.10
Inscribed Circle Diameter ----- 62.4
----- 405.10
Landscape Buffer/Strip ----- 62.4
----- 405.10
Lighting ----- 405.10
Number of Legs ----- 405.10
Path Alignment (Natural Path) ----- 405.10
Pedestrian Refuge ----- 62.4
Pedestrian Use ----- 405.10
Splitter Island ----- 62.4
----- 405.10

Stopping Sight Distance and Visibility ----- 405.10
 Transit Use ----- 405.10
 Truck Apron ----- 62.4
 Vertical Clearance ----- 405.10

ROUNDED INLET

Definition ----- 806.2

ROUNDED LIP

----- 826.3

RRR CRITERIA

Design Period ----- 103.2
 Left-Turn Lanes ----- 405.2
 Multi lane Cross Section ----- 307.6
 Pavement Design Life ----- 612.5
 Two-lane Cross Section ----- 307.3

RUNNING

Speed ----- 62.8
 Time ----- 62.8

RUNOFF

----- 816
 Drainage, Definition ----- 806.2
 Factors Affecting ----- 811.5
 Superelevation Transition ----- 202.5

RURAL

Acceleration Lane at Intersection ----- 405.1
 Access Control ----- 504.8
 Area, Definition ----- 81.3
 Design Speed ----- 101.2
 Driveway Connection ----- 205.4
 Interchange Spacing ----- 501.3
 Median Standards ----- 305.1
 Outer Separation ----- 310.2
 Weaving Section ----- 504.7

RURAL AND SINGLE INTERSTATE ROUTING

----- 309.2

RUTTING

Definition ----- 62.7

S

SAFETY

Planting ----- 902.2
 Planting and Irrigation ----- 902.1
 Railings on Walls ----- 210.5
 Reviews ----- 110.8
 Roadside Rests ----- 903
 Tunnel Safety Orders ----- 110.12
 Worker ----- 110.7
 Worker, Falsework Clearance ----- 204.8

SAFETY ROADSIDE RESTS

Definition ----- 62.5

Design Standards ----- 903
 Facilities and Features ----- 903.5
 Fencing ----- 903.5
 Grading ----- 903.5
 Minimum Standards ----- 903.1
 Planting and Irrigation ----- 903.5
 Sewage Facilities ----- 903.5
 Site Feasibility ----- 903.4
 Size and Capacity ----- 903.5
 Water Supply ----- 706.6
 Water Supply ----- 903.5

SAG CULVERT

Definition ----- 806.2
 ----- 829.7

SCENIC

Highway ----- 62.3
 Values ----- 109
 Values, Safety Roadside Rests ----- 903.4

SCENIC VALUES IN PLANNING AND DESIGN

----- 109
 Aesthetic Factors ----- 109.3
 Basic Precepts ----- 109.1
 Design Speed ----- 109.2

SCHOOL PEDESTRIAN WALKWAYS

----- 105.1

SCOUR

Definition ----- 806.2
 ----- 827.2

SEA LEVEL RISE

----- 883.2

SEAL

Fog ----- 613.5
 Slurry ----- 613.5

SEDIMENTATION

Definition ----- 806.2
 ----- 823.2
 ----- 862.2
 ----- 865.2

SEPARATE ROADWAY

----- 305.6

SERVICEABILITY

Definition ----- 62.7

SETTLEMENT

Definition ----- 62.7
 Structure Approach ----- 208.11

SEVERANCE DAMAGES

Definition ----- 62.6

SHALL		Passing -----	201.2
Definition and Usage -----	82.1	Planting -----	902.2
SHEET FLOW		Ramp Intersections -----	504.3
Definition -----	806.2	Standards -----	201.1
SHOALING		Stopping -----	201.3
Definition -----	806.2	Stopping at Grade Crests -----	201.4
SHORE PROTECTION		Stopping at Grade Sags -----	201.5
-----	880	Stopping on Horizontal Curves -----	201.6
Armor -----	883.3	Stopping at Intersections -----	405.1
Design, Concepts -----	883.1	SIGNAL CONTROL	
Design, High Water and Design Wave Height ---	883.2	-----	403.9
Planning -----	882.1	SIGNALIZED INTERSECTION	
Site Considerations -----	882.3	Widening -----	405.9
SHOULD		SIGNS	
Definition and Usage -----	82.1	Vertical Clearance -----	309.2
SHOULDER		SILT	
Cross Slope -----	302.2	Definition -----	806.2
Definition -----	62.1	SILTATION	
Design Considerations -----	404.2	-----	110.2
Pavement, Flexible -----	636.2	SIPHONS	
Pavement, Rigid -----	626.2	-----	829.7
Standards, Geometric -----	302	SKEW	
Standards, Pavement -----	613.5	Angle -----	62.4
Superelevation Transitions -----	202.5	Angle of Intersection -----	403.3
Transitions (Widen, Reduction) -----	206	Definition (Hydraulic) -----	806.2
Width -----	302.1	SLIDE	
Width, Right Turn Channelization -----	405.3	Definition -----	806.2
Width, Two-lane Roads, New Construction -----	307.2	SLIPOUT	
SIDE GUTTERS/DITCHES		Definition -----	806.2
-----	834.3	SLOPE	
SIDE SLOPES		Aesthetic Factors -----	109.3
-----	304	Cross -----	301.2
Benches and Cut Widening -----	304.3	Crown -----	301.2
Clearance to Right of Way Line -----	304.2	Definition (Hydraulic) -----	806.2
Contour Grading and Slope Rounding -----	304.4	Rounding -----	304.4
Standards -----	304.1	Protection -----	873.3
Stepped -----	304.5	Shoulder Cross Slopes -----	302.2
Structures -----	208.5	Side -----	304
Transition Slopes -----	304.1	Side, Benches and Cut Widening -----	304.3
Widening -----	304.3	Standards, Side Slopes -----	304.1
SIDEWALKS		Stepped -----	304.5
See PEDESTRIAN FACILITIES		Treatment Under Structures -----	707
SIGHT DISTANCE		SLOPE TREATMENT UNDER STRUCTURES	
Clear Distance (m) -----	201.6	-----	707
Corner -----	405.1	Guidelines -----	707.2
Decision -----	201.7	Policy -----	707.1
Decision at Intersections -----	405.1	Procedure -----	707.3
Exit Nose -----	504.2	SLOTTED DRAINS	
General -----	201.1	-----	837.2
Headlight, at Grade Sags -----	201.5		
Intersection -----	405.1		

SLOUGH

Definition ----- 806.2

SLUG FLOW

Definition ----- 806.2

SNOW PACK

----- 812.8
----- 814.3

SOFFIT

Definition ----- 806.2

SOIL

Characteristics for Pavements ----- 614.1
Imported Topsoil, Definition ----- 62.5
Local Topsoil, Definition ----- 62.5
Soil Horizon "A" ----- 62.5
Soil Horizon "O" ----- 62.5
Topsoil ----- 706.3
Unified Soil Classification System ----- 614.2

SPACING

Drainage Pipes ----- 824.2
Vehicle ----- 62.8

SPECIAL CONSIDERATIONS

----- 110
Air Pollution, Control of ----- 110.3
Control of Noxious Weeds ----- 110.5
Earthquake Consideration ----- 110.6
Overloaded Material Hauling, Design for ----- 110.1
Safety Reviews ----- 110.8
Traffic Control Plans ----- 110.7
Water Pollution, Control of ----- 110.2
Wetlands Protection ----- 110.4

SPECIAL DESIGNS

See RESEARCH/SPECIAL DESIGNS

SPECIAL STRUCTURES AND INSTALLATION

----- 703

SPECIFIC ENERGY

Definition ----- 806.2
----- 864.3

SPEED

Definition ----- 62.8
Comfortable (see MAXIMUM COMFORTABLE SPEED)
Design (See DESIGN SPEED)
High, Definition ----- 62.8
Low, Definition ----- 62.8
Operating ----- 62.8
Posted ----- 62.8
Running ----- 62.8
Speed Change Areas ----- 402.5

SPEED-CHANGE LANES

----- 62.1
Intersections ----- 403.5
Left-turn Channelization ----- 405.2
Pavement Transitions ----- 206
Right-turn Channelization ----- 405.3
Speed Change Areas ----- 402.5

SPILLWAY

Paved ----- 834.4

SPIRAL TRANSITIONS

----- 203.8

STABILIZATION TRENCHES

----- 841.5

STAGE

Definition ----- 806.2

STAGE CONSTRUCTION

----- 106.1
Freeway Connections with Local Roads ----- 106.2

STANDARDS

----- 80
Advisory ----- 82.1
Approval for Nonstandard Design ----- 82.2
FHWA and AASHTO ----- 82.3
Mandatory ----- 82.1
Other Approval ----- 82.1
Permissive ----- 82.1

STATE HIGHWAY, CROSS SECTIONS

----- 307
also see CROSS SECTIONS

STEEL STRUCTURES

Colors ----- 705.2

STEPPED SLOPES

----- 304.5

STOPPING SIGHT DISTANCE

see SIGHT DISTANCE

STORAGE

----- 838.4
Basin, Definition ----- 806.2
Definition ----- 806.2
Depression ----- 819.2
Detention ----- 812.6
Interception ----- 812.6
Left-turns ----- 405.2
Retention, Definition ----- 806.2
Right-turns ----- 405.3

STORM

Definition ----- 806.2
Design, Establishing ----- 818.2

Design, Recommended Criteria -----	821.2	Engineering Considerations -----	614.1
Drain, Definition -----	806.2	Enhancement Fabrics -----	614.5
STP		SUBSEAL	
see SURFACE TRANSPORTATION PROGRAM		-----	607.6
STREAM WATERS		SUBSURFACE DRAINAGE	
Definition -----	806.2	-----	840
STREETS		SUBURBAN	
Definitions -----	62.3	-----	81.3
STREET FURNITURE		SUMP	
Definitions -----	62.5	Definition -----	806.2
STRUCTURAL PLATE		-----	831.3
Arches -----	852.6	SUPERCritical FLOW	
Vehicular Underpasses -----	852.6	Definition -----	806.2
STRUCTURAL SECTION		-----	864.3
see PAVEMENT STRUCTURE		SUPERELEVATION	
STRUCTURE APPROACH		Axis of Rotation -----	202.4
Design Responsibilities -----	601.3	Basic Criteria -----	202.1
Pavement Systems -----	672	Bridge -----	203.9
Structure Approach Slabs -----	209	Channels -----	866.2
Slab-Rehabilitation Projects -----	673	City Streets and County Roads -----	202.7
STRUCTURE CLEARANCE		Comfortable Speeds -----	202.2
-----	309	Compound Curves -----	202.6
Elevated Structures -----	309.4	Ramps -----	504.3
Horizontal -----	309.1	Relationship to Speed on Curves -----	203.2
Railroad -----	309.5	Reversing Curves -----	203.6
Tunnel -----	309.3	Runoff -----	202.5
Vertical -----	309.2	Standards -----	202.2
STRUCTURES, SLOPE TREATMENT UNDER		Transition -----	202.5
See SLOPE TREATMENT		SURFACE	
STRUTTING		Course, Definition -----	62.7
Definition -----	806.2	Course, Description -----	602.1
SUBBASE		Runoff, Definition -----	806.2
Definition -----	62.7	Water, Definition -----	806.2
Description -----	602.1	Water -----	831.1
Engineering Criteria -----	663	SURFACE TRANSPORTATION PROGRAM	
Lime Treated -----	662.2	-----	43.1
Treated -----	662.2	SWALE	
SUBCRITICAL FLOW		Definition -----	806.2
Definition -----	806.2	SWEPT WIDTH	
-----	864.3	Definition -----	62.4
SUBDRAIN		-----	404.1
Definition -----	806.2	Design Considerations -----	404.2
-----	841.5	T	
SUBGRADE		TAPERED INLET	
-----	614	Definition -----	806.2
Definition -----	62.7	-----	826.4
Description -----	602.1		

TEXTURING		Factors Affecting Design -----	401.6
Rigid Pavement -----	622.9	Loading Facilities -----	108.2
THREE-CENTER CURVE		Turning Templates -----	404.5
Intersections -----	405.7	TRANSITIONS	
THROUGHWAY		General Standards, Pavement -----	206.1
Definition -----	62.3	Lane Additions -----	206.2
TIME OF CONCENTRATION		Lane Drops -----	206.3
Channel Flow -----	816.6	Pavement -----	206
Combined Flow -----	816.6	Spiral -----	203.8
Culvert Flow -----	816.6	Superelevation -----	202.5
Kinematic Wave Equation -----	816.6	Temporary Freeway -----	206.4
Kirpich Equation -----	816.6	TRANSPARATION	
Overland Equation -----	816.6	-----	812.8
Soil Conservation Service (SCS) Equation -----	816.6	-----	819.2
Upland Method -----	816.6	TRANSPORTATION MANAGEMENT AREA	
TOLL ROAD, BRIDGE OR TUNNEL		Definition -----	81.3
-----	62.3	Interchange Spacing -----	501.3
TOPSOIL		TRASH RACK	
Roadside Treatment -----	706.3	Definition -----	806.2
TRACKING WIDTH		-----	822.2
Definition -----	62.4	TRAVELED WAY	
-----	404.1	Definition -----	62.1
Design Considerations -----	404.2	Design Considerations -----	404.2
TRAFFIC		Standards -----	301
Axle Load Spectra -----	613.4	TREATED BASE AND SUBBASE	
Considerations -----	401.3	-----	662.2
Considerations in Pavement Engineering -----	613	TREATED PERMEABLE BASE AND SUBBASE	
Control Devices -----	62.8	-----	662.3
Control Devices -----	403.10	TREES	
Control Plans, Special Problems -----	110.7	Conventional Highways -----	902.3
Definitions -----	62.8	Freeways and Expressways -----	902.2
Engineering -----	82.7	TRUCK	
Index, TI -----	613.3	Critical Lengths of Grade -----	204.5
Interchanges -----	500	Design Vehicle -----	404.3
Islands -----	405.4	Escape Ramps -----	702.1
Lane -----	62.1	Turning Templates -----	404.5
Markings -----	62.8	Turns -----	404.5
Noise Abatement -----	1100	Weighing Facilities -----	703.1
Pedestrian Refuge -----	405.4	TRUMPET INTERCHANGE	
Ramp Intersection Flow -----	406	-----	502.2
Sign -----	62.8	TRUNK LINE	
Signals -----	62.8	Definition -----	806.2
Specific Traffic Loading Considerations -----	613.5	TUNNEL	
Volume Projections -----	613.2	Classification -----	110.12
Volumes -----	102.1	Clearances -----	309.3
TRAILS		Liner Plate -----	852.6
Multipurpose -----	1003.5	Projects -----	110.12
TRANSIT		Structural Repairs with Steel Tunnel Liner	
Bus Rapid Transit (BRT) -----	62.10	Plate -----	853.7
Definition -----	62.10		
Design Vehicle -----	404.3		

-----	838.4
TURBULENCE	
Definition -----	806.2
TURBULENT FLOW	
Definition -----	806.2
TURNING LANES	
Left-turn Channelization -----	405.2
Right-turn Channelization -----	405.3
Separate -----	62.1
Traffic -----	403.6
Two-way Left-turn -----	405.2
TURNING RADIUS	
Minimum -----	62.4
TURNING TEMPLATES	
-----	404.3
Truck and Transit -----	407
TURNOUTS	
-----	204.5
URNS, PROHIBITED	
Intersections -----	403.8
TWO-LANE CROSS SECTIONS	
New Construction -----	307.2
RRR Projects -----	307.3
TWO-QUADRANT CLOVERLEAF INTERCHANGE	
-----	502.2
TWO-WAY LEFT-TURN LANES	
-----	405.2
U	
UNDERCUT	
Definition -----	806.2
-----	865.2
UNDERDRAINS	
Design Criteria -----	842.4
Installations -----	842.2
Open Joint -----	842.5
Perforated Pipe -----	842.5
Pipe -----	842.5
Selection of Type -----	842.7
Service Life -----	842.6
UNDERFLOW	
Definition -----	806.2
UNDERPASS	
Railroad, Grade Line -----	204.8

Railroad -----	208.9
UNDIVIDED HIGHWAYS	
Axis of Rotation -----	202.4
Grade Line -----	204.2
UNTREATED GRANULAR BASE	
see BASE	
URBAN/URBANIZED	
Access Control -----	504.8
Corner Radii -----	405.8
Definition -----	81.3
Design Speed -----	101.2
Drive way -----	205.3
Horizontal Clearance -----	309.1
Interchange Spacing -----	501.3
Median Standards -----	305.1
Outer Separation -----	310.2
Position of Curbs and Dikes -----	303.5
Weaving Section -----	504.7
UTILITIES	
at Walls -----	210.8

V

VACATION	
Definition -----	110.9
VALUE ANALYSIS	
-----	110.9
VEGETATIVE EROSION CONTROL	
-----	62.5
VELOCITY HEAD	
Definition -----	806.2
-----	864.3
VERTICAL CLEARANCE	
see CLEARANCES	
VERTICAL CURVES	
-----	204.4
also see SIGHT DISTANCE	
VISTA POINTS	
Definition -----	62.5
Aesthetic Factors -----	109.3
Design Standards -----	904
Features and Facilities -----	904.3
General -----	904.1
Minimum Standards -----	904.1
Site Selection -----	904.2
Water Supply -----	706.6
VOLUME	
-----	62.8

Design Hourly Volume -----	103.1
Design Volume -----	62.8

W

WALKWAYS

see PEDESTRIAN FACILITIES

WALLS

Head -----	826.3
------------	-------

WALLS, RETAINING

see EARTH RETAINING SYSTEMS

WATER

Course, Definition -----	806.2
Pollution, Control of -----	110.2
Quality Control Boards -----	110.2
Shed -----	819.2
Table, Definition -----	806.2
Way, Definition -----	806.2
Wells, Abandonment -----	110.2

WATER SUPPLY

Roadside Rests -----	903.5
Roadside Rests and Landscaping -----	706.6
Vista Points -----	706.6

WAVE

Height -----	873.2
Run-up -----	873.2

WEAVING

-----	62.8
Sections -----	62.4
Sections, Interchange -----	504.7

WEED CONTROL

Noxious, Control of -----	110.5
---------------------------	-------

WEEPHOLES

Definition -----	806.2
------------------	-------

WEIGHING FACILITIES

Truck -----	703.1
-------------	-------

WEIR

Definition -----	806.2
------------------	-------

WELLS

-----	841.5
Water, Abandonment -----	110.2

WETLANDS PROTECTION

-----	110.4
-------	-------

WHEELBASE

Definition -----	62.4
------------------	------

WHEELCHAIR RAMPS

see CURB RAMPS

WIDENING

Pavement -----	206.2
Ramps, for Trucks -----	504.3
Pavement Design Life -----	612.3
Pavement, Project Type -----	603.2
Signalized Intersections -----	405.9
Slope Benches and Cut Widening -----	304.3

WIDTH

Driveway, Access Openings on Expressways ---	205.1
Driveway, Urban -----	205.3
Lane -----	301.1
Lane, on Curves -----	504.3
Left Turn Lanes -----	405.2
Median -----	305.1
Opening for Falsework -----	204.8
Pavement -----	301.1
Right of Way -----	306
Shoulder -----	302.1
Structures -----	208.1
Swept, Definition -----	62.4
Swept, Design Considerations -----	404.2
Tracking, Definition -----	62.4
Tracking, Design Considerations -----	404.2

Y

YARDS

Maintenance -----	107.2
Plant Sites, Contractors -----	112