

Flexible Design for the 21st **Century**

Context Sensitive Solutions

Minnesota Department of Transportation

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WSDOT Mission & Principles

- Safety
- Project Delivery
- Accountability and Management
- Communication
- Innovation, Best Business Practices, Efficiency, & Effectiveness
- Strategic Long-Term Investment Programs
- One DOT & Partnerships
- Environmentally Responsible
- Excellence & Integrity

Context Sensitive Solutions

Alignment with WSDOT Mission

- Inclusive
- Transportation Solutions Responsive to the Natural and Built Environment
- Multi-modal – All Users
- Cost effective

Executive Order on CSS - Policy

Funding

Washington State Gas Tax

- Dedicated to Transportation
- Cities & Counties Receive Portion
- Legislature Approved Program

Federal Funds / Grants

Project Funding includes Design & Construction

Programming Projects

Preservation and Improvement

Preservation:

- Pavement Rehabilitation P1,P2

Improvement:

- Mobility I1
- Safety I2
- Economic I3
- Environmental I4

Addressing Safety

Goal: Target 0 Fatal & Serious
Accidents

Separate Safety Program (I2)

Other Programs Include Safety

Safety Program

HAL/HAC

- Locations of high number of accidents
- Prescriptive solutions

Results:

- 25% reduction fatal accidents/13 yr.
- Corrections to high severity locations

New Process: Collision Analysis Locations (CAL)

- Analyze cause / Focus solution

Design Process Goals

Comprehensive and Planned

Safe and Sustainable

Context – Built & Natural

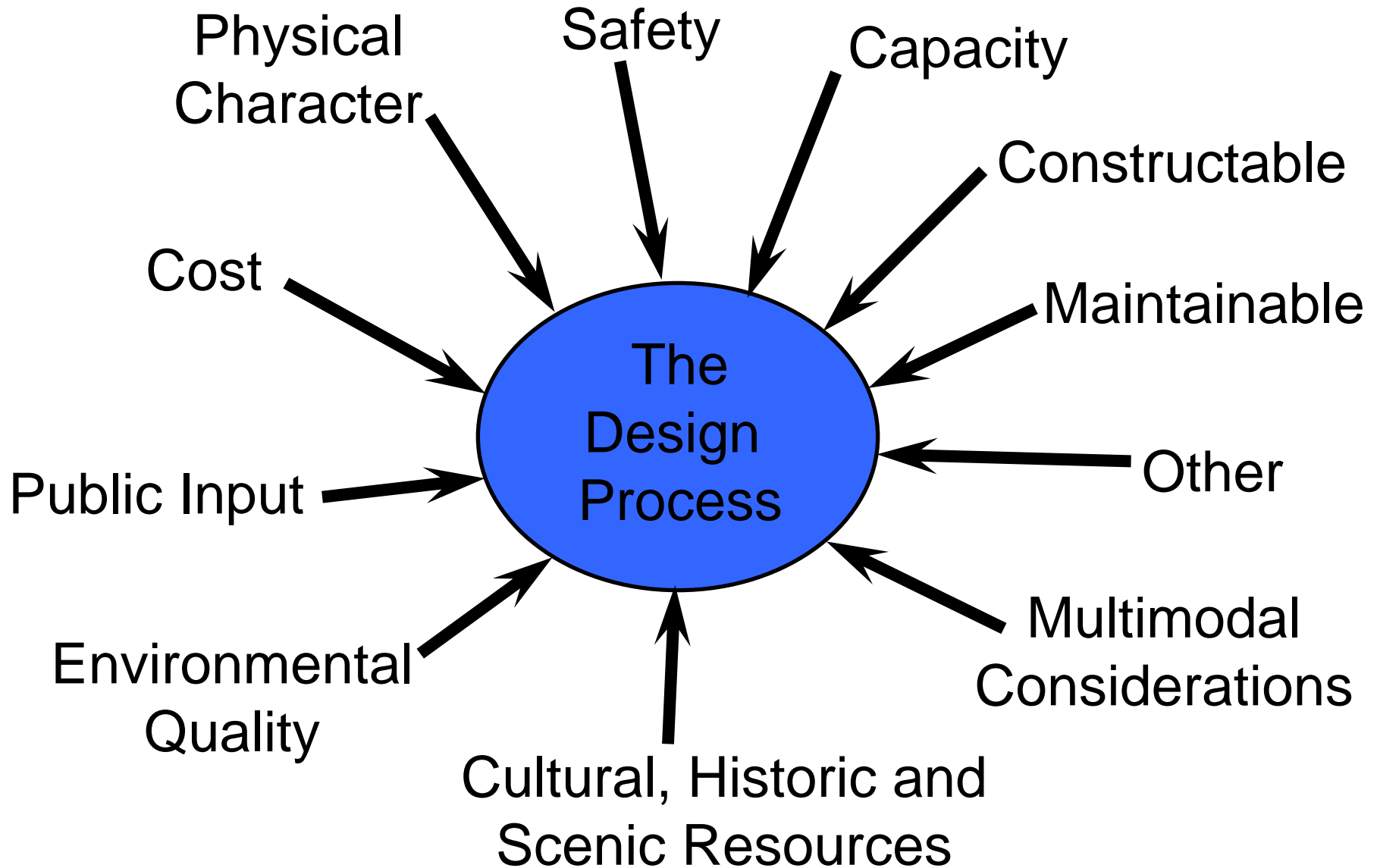
Multimodal – Vehicle, Bikes, Pedestrian,
Transit

Inclusive of Public, Governments, Agencies

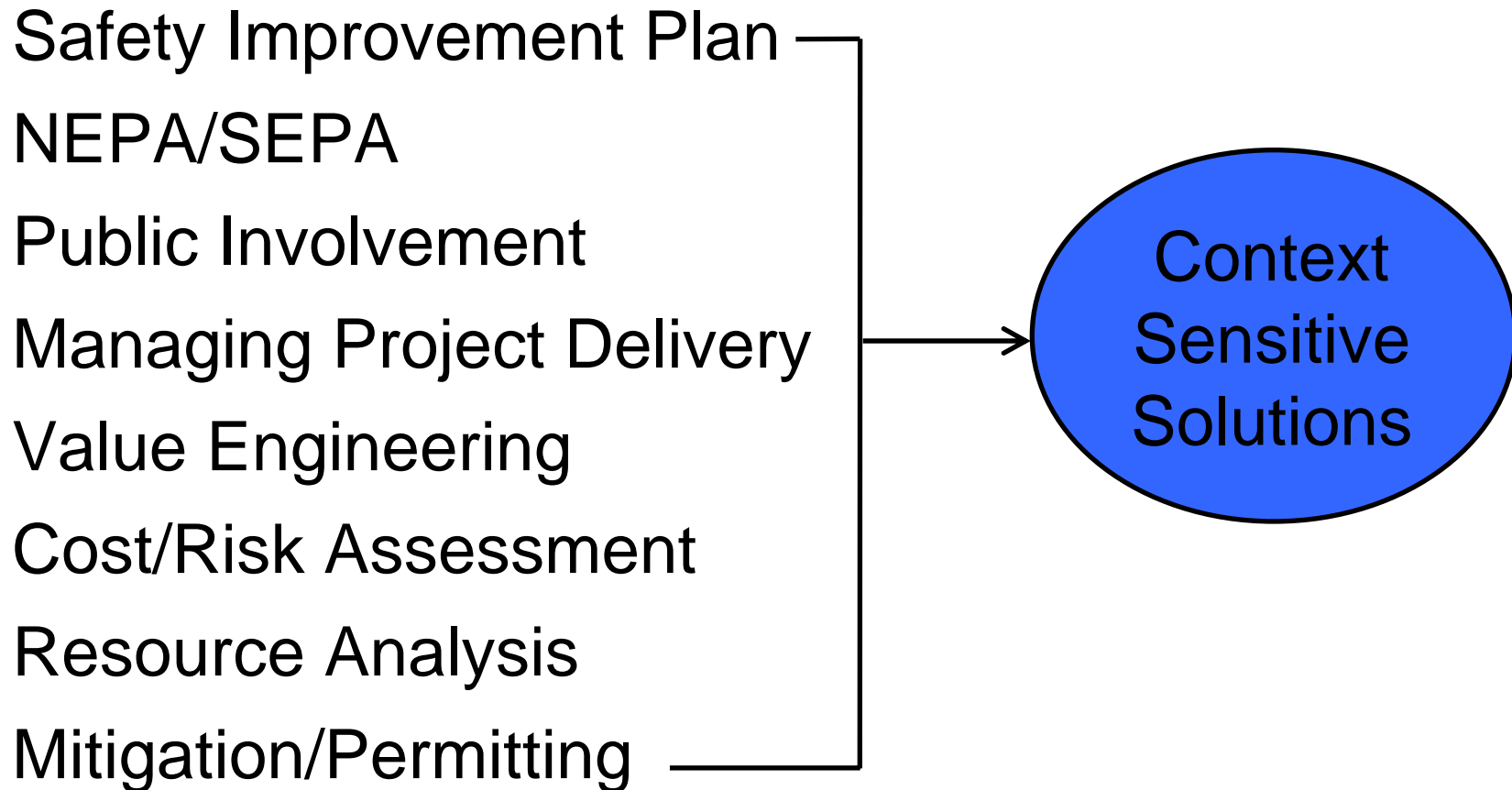
Interdisciplinary Approach

Project Management: Scope, Schedule, &
Budget

Factors to Consider



Design Process



Needs Assessment

Project Definition: Purpose and Need

- Connectivity of Wildlife Corridors



Design Guidance Structure

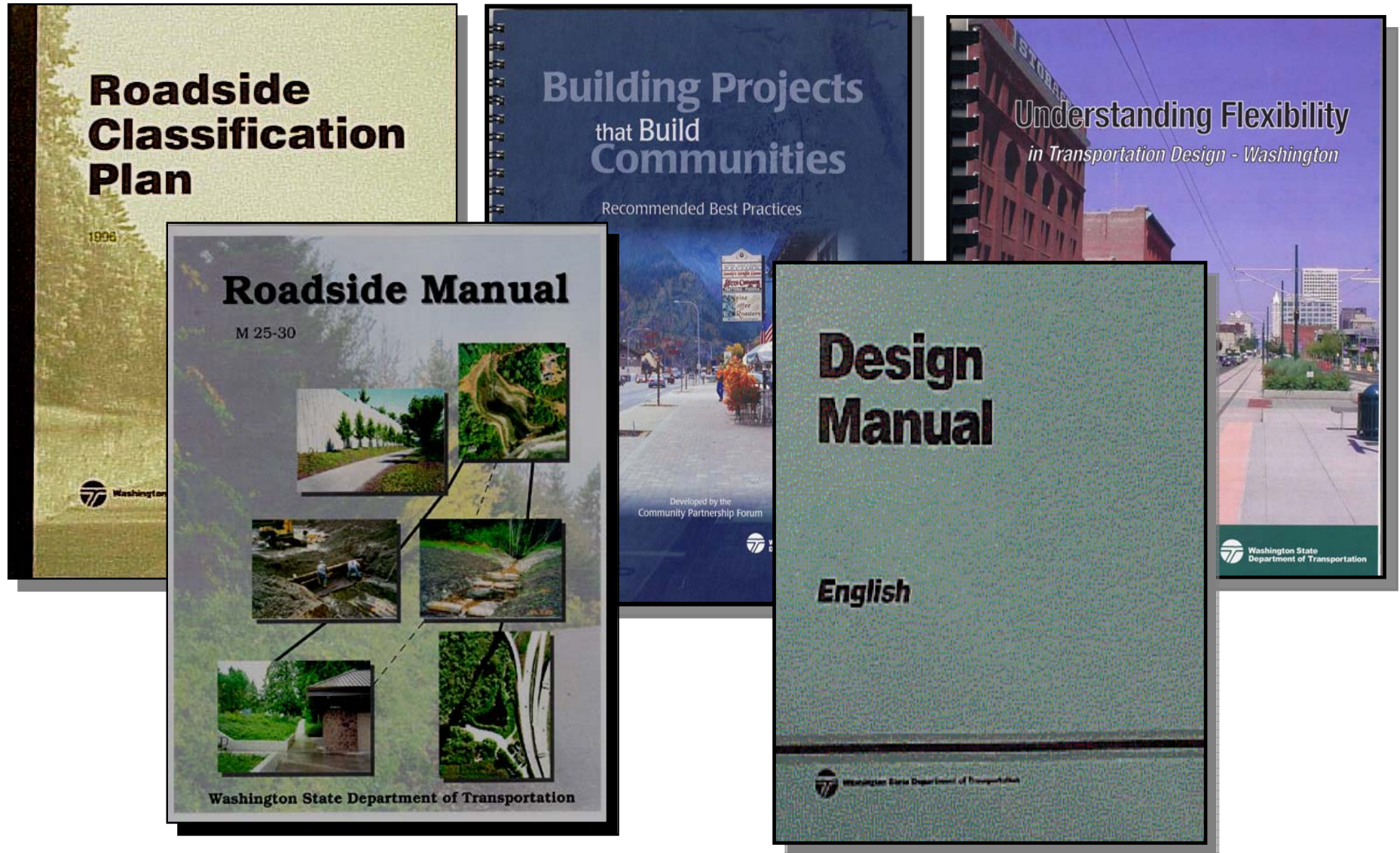
Matrix Driven Approach

- Define Design Elements to be Addressed
- Specific to Program
- FHWA Approved

Flexibility in Standards

- Range
- Recognize the Trade-offs within Design Flexibilities

Design Guidance



Early Project Planning

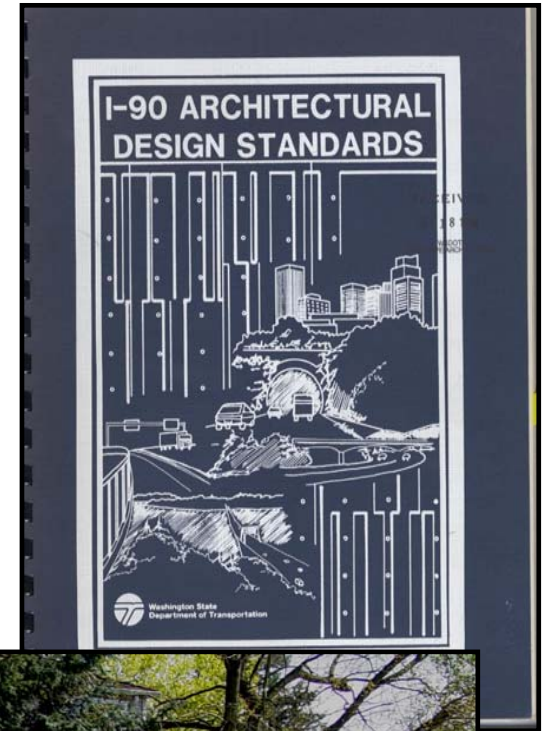
Comprehensive Approach

Coordinate Visual Elements

- Design Standards
- Standard Level of Treatment

Roadside Master Plan

- Site Analysis
- Functional Analysis
- Roadside Restoration

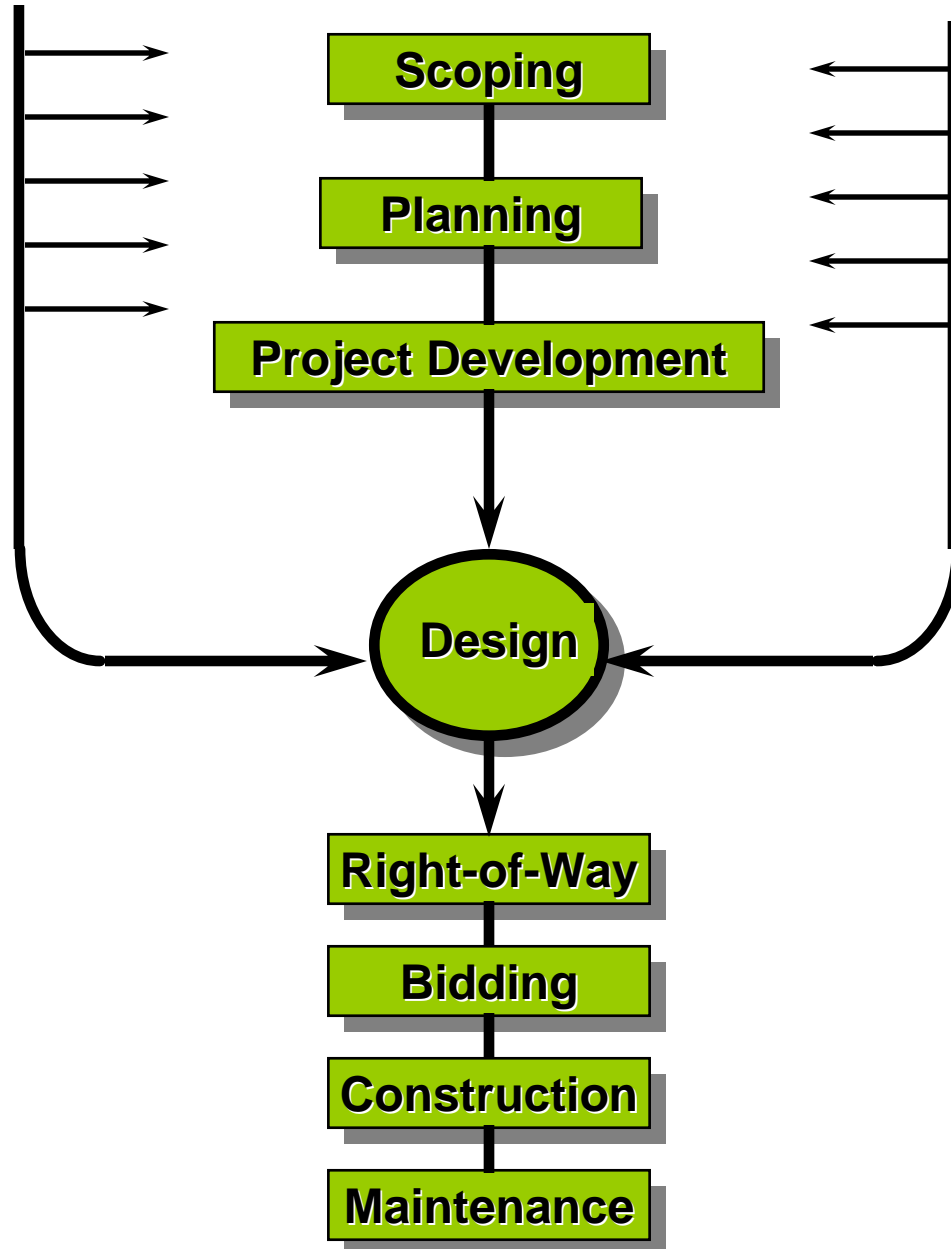


Professional Input

Engineers
Landscape Architects
Urban Planners
Archeologists
Historians
Environmental Specialists
Construction
Maintenance

Public Input

Citizen Groups
Public Meeting Participants
Bicycle and Other Interest Groups
Historical Associations
Public Officials
Tribes
Regulatory Agencies
Other Government Bodies
Elected Officials



Partnerships

Communicate Early and Throughout
Informed Consent (Bleiker/IPMP)



- Public
- Communities
- Government
- Tribes
- Elected
Officials
- Agencies

Funding Matrix

Funding
Group

Elements



Reference
to
Standards

Design Elements	WSDOT Design Standards	I1 - Mobility Improvements (Added Capacity)	I2 - Safety Improvements - Cities Less Than 22,500	I2 - Safety Improvements - Cities Greater Than 22,500	I3 - Economic Initiatives (Freight, Tourism, Avalanche & Flood Control)	I4 - Environmental Retrofit	P1 - Roadway Preservation (Paving)	P2 - Structures Preservation	P3 - Other Facilities (Rear Areas, Unstable Slopes, Major)	Notes
Pedestrian										
Pedestrian Refuge Areas (MEDIANS)	DM									DM 640.06, DM 910.07, DM 1025.07
Transit Pull Outs	DM									DM 1060.05
Transit Shelters	DM									DM 1060.03
Park and Ride Lots	DM									DM 1060.03
Safety Rest Areas	DM									DM 1030
Cross Walks	DM									DM 1025.07
Pedestrian Warning Devices	MUTCD & SP									DM 850.06
Curb Extensions (Bulbouts)	DM									DM 1025.07
Traffic Barrier - Protective	DM & SP									DM 700.01, DM 700.05, DM 710, SP Section "C"
Sidewalks - Sidewalk	DM & SP									DM 1025.07, SP "F-3" series
Vertical/Horizontal Separation - Sidewalk	DM & SP									DM 1025.07
Bike Path - Adjacent	DM & SP									DM 1025.07
Bike Path - Separate Alignment	DM & SP									DM 1020
Trails	DM & SP									DM 1020
Pedestrian Over/Under Crossings	DM & SP									DM 1025.07
Bollards	DM & SP									DM 1020.05, SP "H-13" series
Environmental Functions										
Noise Barriers	DM & EPM									DM 1140, DM 1300, SP "D-2" series
Storm Water Retention/Treatments	HRM									DM 530.05, DM 1210, SP Section "B"
Fish Barriers Removal and Habitat	RCW & DM									DM 240, DM 1210
Unstable slopes*										*Depends on the cause, location and B/C of unstable slope. Refer to RCW 47.24, DM 510
Street Furnishings										
Art or Non-Functional Feature										For mitigation only
Street Furnishings - Benches, Bike Rack, Trash Cans										For mitigation only
Gateway Features										For mitigation only
Traffic Control Devices										
Pavement Textures and Coloring	DM & SP		***	***	***					***These elements are not eligible for funding unless adding them would fix a known deficiency such as a Pedestrian Accident Location. DM 1025.07
Lighting	RCW & DM									Refer to RCW 47.24, DM 840, DM 1020.04, DM 1025.07, SP Section "J"
Lighting Under Structures	DM									DM 840.06
Raised Median - Traffic Island	DM									DM 700.04, DM 1025.04, DM 1025.07
Signing	DM									DM 820, SP Section "G"
Traffic Signals	DM									DM 850, SP Section "J"
Pavement Markings	SP									DM 650.04, DM 810.09, DM 860, DM 910.07, DM 915.09, DM 1020.05, DM 1050.06, SP "H-3" series & "H-5" series
Landscaping										
Median - Landscaping	RCP									DM 1300
Outside Curb Landscaping	RCP									DM 620.05, DM 640.07, DM 915.04, DM 1020.04, DM 1060.03, DM 1300, DM 1310, DM 1350
Irrigation	RCP									DM 1330
Structural Soil Mix	RCP									Treatment Level 2
Roadside Restoration	RCP									DM Fig 330-3, DM 1300, DM 1350.05
Planters	RCP									Treatment Level 2
Planter Strips	RCP									Treatment Level 2
Structures										
Changes to Bridge Structure to Capture an Opportunity	DM									DM 1120
Bridge Railing	DM, DM & SP									DM 710.11, DM 1025.07
Throw Barriers - Protective Screening	DM, DM & SP									DM 1120.04
Wall & Structure Treatments/Textures	DM									DM 1130.05
Traffic Safety Barriers	DM & SP									DM 710, SP Section "C"
Traffic Safety Barriers Treatments and Textures	DM									DM 710.09
Other										
Fencing	RCP, DM & SP									Project specific need and intent. DM 1460, SP "L" series
Scenic Viewpoints	DM									DM 1300

Abbreviations:
 BM - Bridge Manual
 DM - Design Manual
 EPM - Environmental Procedures Manual
 HRM - Highway Runoff Manual
 MUTCD - Manual of Uniform Traffic Control Devices
 RCP - Roadside Classification Plan
 RCW - Revised Code of Washington
 SP - Standard Plans

Codes:
 ■ Eligible for WSDOT funding, as required
 □ Not eligible for WSDOT funding, requires partnership
 ◐ Negotiable, not required
 *WSDOT retains full design control on limited access highways.
 # For bridge replacement only
 + For access management
 - Culvert replacement project that installs a bridge.

Note: Definitions for the improvement categories are listed on the following page.

Liabilities

Urban Corridors

- Improvement Projects - Moderate Speed
- Community Goals
- Balance Safety Goals and Community Goals for Aesthetic Treatment



Liabilities

Work Within Established Standards

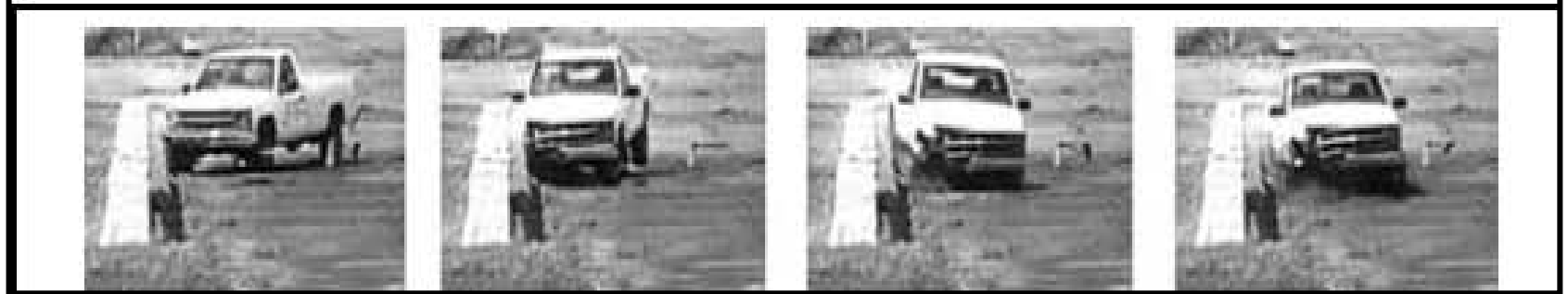
Test New Concepts

- Crash test
- In-Service Agreements

Promote National Research

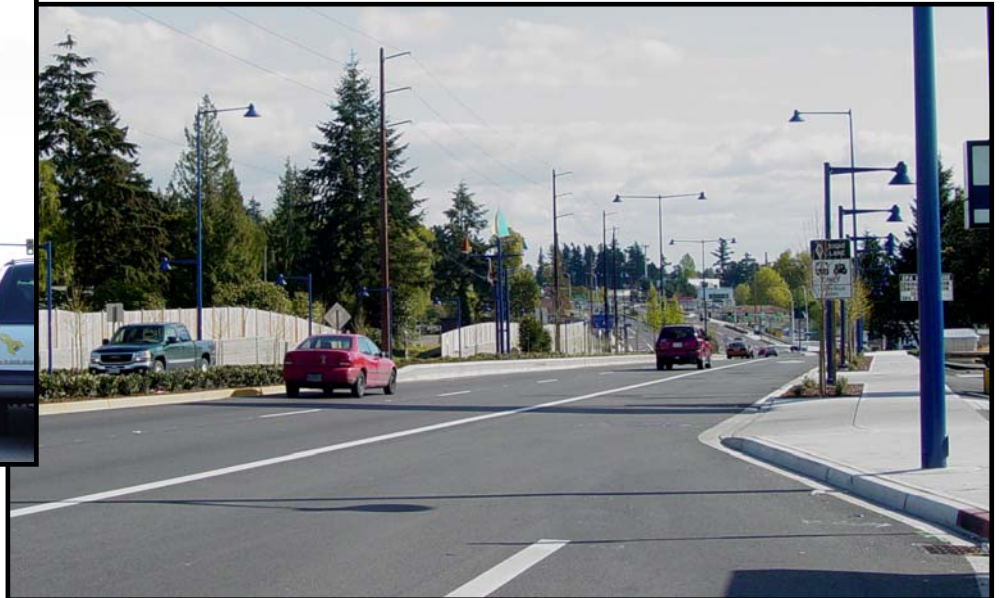
Documentation of Design Decisions

Testing Barrier Options



Urban Corridors

Created Projects that Meet All Goals



New Direction

Moving Washington 2020

- Add Capacity Strategically
- Operate Efficiently
- Manage demand

Collision Analysis Location (CAL)

- Analyze Cause and Focus Solution

Emerging Issues

- Revenue Decline
- Climate Change
- ESA- Salmon
Recovery
- Accommodation of
Disabilities - ADA



Roadblocks

Revenue

- State Constitution

Perception of CSS

- It's a Separate Process
- “Special Treatment: Cost is No Issue”
- Increase Project Scope/Cost
- Designer's Understanding of Flexibility
- Integrating Through Program

QUESTIONS?

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