Chapter 6

Planning

Maintenance Activity Priorities

Maintenance activities are prioritized according to their impact upon specific policy objectives. The objectives are:

Safety of Traveling Public and Employees
Operation of the Highway System, keeping the road open
Meeting Environmental Responsibilities
Maintaining the Infrastructure
Addressing Legal Mandates other than Environmental (including torts)
Contributing to comfort, aesthetics or convenience

A 0 to 9 scale (9 being highest impact) is used to rate the impact of each maintenance activity on each policy objective. Each policy objective is represented by a multiplier. When the math is done, a numerical priority value is obtained. Priorities are set using these values, highest to lowest.

Page 6-2 contains the 2011-2013 Priority Matrix. Current biennium matrixes can be found at http://www.wsdot.wa.gov/Maintenance/Accountability/ .

2011-2013 Maintenance Activities

Priority and Level of Service Matrix

STATEWIDE MAP PRIORITIES					Policy Objectives												
		09-11 Actual Dollars (Millions)	2010 LOS Delivered	11-13 LOS Target	Safety of Travelling Public and Employees		Operate the Highway System and Keep the Road Open		Meet Environmental Responsibilities		Maintaining the Infrastructure		Address Legal Mandates Other than Environmental (Including Torts)		Contribute to Comfort, Aesthetics or Convenience		Total Priority
Num.	**MAP Activity**				**10**		**9**		**7**		**7**		**7**		**2**		
1A1	Pavement Patching, Repair & Crack Sealing		C		6	60	3	27	3	21	9	63	6	42	3	6	219
1A3	Shoulder Maintenance		C+	B-	3	30	3	27	3	21	6	42	3	21	3	6	147
1A4	Sweeping and Cleaning		A	B+	3	30	3	27	9	63	3	21	3	21	9	18	180
1B1	Safety Patrol				9	90	3	27	0	0	3	21	3	21	3	6	165
2A1	Maintain Ditches		B+	B	3	30	3	27	6	42	6	42	3	21	3	6	168
2A2	Maintain Culverts		D	D+	3	30	3	27	6	42	6	42	3	21	0	0	162
2A3	Maintain Catch Basins & Inlets		C+	D+	6	60	6	54	6	42	6	42	3	21	0	0	219
2A4	Maintain Stormwater Facilities		C	C	0	0	0	0	9	63	3	21	6	42	0	0	126
2A5	Slope Repairs		B	B	6	60	6	54	6	42	6	42	3	21	3	6	225
3A1	Litter Pickup		D	D	0	0	0	0	3	21	0	0	3	21	9	18	60
3A2	Noxious Weed Control		C+	B	0	0	0	0	9	63	3	21	9	63	3	6	153
3A3	Nuisance Vegetation Control		D	B-	0	0	0	0	6	42	3	21	3	21	9	18	102
3A4	Control of Vegetation Obstructions		C+	D+	9	90	3	27	0	0	3	21	6	42	6	12	192
3A5	Landscape Maintenance		D	D+	0	0	0	0	3	21	3	21	3	21	9	18	81
4A1	Bridge Deck Repair		C+	C	6	60	3	27	3	21	9	63	6	42	3	6	219
4A2	Structural Bridge Repair		C-	C	6	60	3	27	6	42	9	63	6	42	3	6	240
4A3	Bridge Cleaning & Painting		B	C	0	0	0	0	9	63	6	42	0	0	6	12	117
4B1	Movable & Floating Bridge Operations		A-	B+	6	60	9	81	6	42	9	63	9	63	6	12	321
4B2	Keller Ferry Operations		C-	B	3	30	9	81	3	21	9	63	9	63	6	12	270
4B3	Urban Tunnel Systems Operations		B+	B	3	30	6	54	3	21	9	63	9	63	6	12	243
5B1	Snow & Ice Control Operations		A	A-	9	90	9	81	6	42	0	0	9	63	9	18	294
6A1	Pavement Striping Maintenance		D	C	9	90	6	54	0	0	0	0	6	42	9	18	204
6A2	Raised/Recessed Pavement Markers		C+	B	9	90	6	54	0	0	0	0	6	42	9	18	204
6A3	Pavement Marking maintenance		C	C	6	60	3	27	0	0	0	0	9	63	6	12	162
6A4	Regulatory/Warning Sign Maintenance		C+	C+	9	90	6	54	0	0	3	21	9	63	6	12	240
6A5	Guide Sign Maintenance		A-	B-	3	30	6	54	0	0	3	21	3	21	9	18	144
6A6	Guidepost Maintenance		D+	D	6	60	3	27	3	21	3	21	3	21	9	18	168
6A7	Guardrail Maintenance*		B+	B+	9	90	3	27	0	0	6	42	6	42	3	6	207
6B1	Traffic Signal System Operations		B	C	9	90	9	81	3	21	6	42	9	63	3	6	303
6B2	Highway Lighting Systems		B-	C+	6	60	3	27	0	0	6	42	3	21	9	18	168
6B3	Intelligent Transportation Systems(ITS)		B+	B-	6	60	9	81	3	21	6	42	0	0	9	18	222
7B1	Rest Area Operations		B-	B	3	30	3	27	6	42	6	42	3	21	9	18	180
9B2	Disaster Operations				9	90	9	81	9	63	9	63	3	21	0	0	318

	Non-prioritized Support Activities																
8B1	Employee Technical & Safety Training																
8B2	Support and Testing																
*9B1	3rd Party Damages & Repair																

TOTAL $0.0

LEGEND:

Contribution To Program Goals

- 9 - Critical Impact
- 6 - Significant Impact
- 3 - Contributing Impact
- 0 - No Impact

Data Collection and Reporting

Data is collected in many different ways, depending on which activity is involved. See Chapter 4 for details about each activity, including the data source and when it is collected.

Field Surveys

Field condition surveys are conducted once a year, (beginning in 2008), during the summer months, collecting data for 14 MAP activities. This data is used to assess the maintenance service levels that exist at a given point in time. Each region will have two dedicated survey teams, with two alternates. Surveyors will not collect data in their normally assigned area or section. The teams will collect data according to the criteria in the Field Data Collection Manual (available online at **http://www.wsdot.wa.gov/Maintenance/Accountability/**.

Statistical methods are used to determine the number of surveys needed per region based on the number of centerline miles. Currently the numbers are**:**

Northwest	372 surveys
North Central	372 surveys
Olympic	371 surveys
Southwest	370 surveys
South Central	371 surveys
Eastern	375 surveys

These numbers are then prorated out per the number of centerline miles in each area and/or section.

A random site generator is used compile a list of sites for each region/section/area. Using the roadway functional class (found in the State Highway Log Planning Report, located online at http://www.wsdot.wa.gov/mapsdata/roadway/statehighwaylog.htm), the generator compiles the site list to reflect the functional class of total centerline miles. For instance, if 50% of a region/area/section total centerline miles are functional class 5 (interstate), then roughly 50% of the survey sites in that region/area/section would be on functional class 5 highways.

Training is set up by HQ MAP personnel in conjunction with regional maintenance trainers. Training is offered in each region once a year, prior to the field survey period. Half of the training time is spent in the classroom and the other half in the field. Additionally, HQ MAP personnel will spend a minimum of one day with each team within the first two weeks of the survey period, working side by side with the teams as they conduct their surveys.

Quality Control/Quality Assurance

QA/QC surveys are performed by HQ personnel in the same time frame as regional surveys. Beginning in 2008, some of these surveys will be performed alongside the regional surveyors, as they conduct their surveys. QA/QC surveys will be done on approximately 10% of the regional survey sites. The focus of the QA/QC surveys will be to increase the accuracy and consistency of the regional teams' data collection.

Data Input

A PDA application has been developed for MAP and is the only option for data collection. The device is used in the field and downloaded once the surveyors return to the office. Use of the PDA and options for reviewing after download will be covered in the training sessions.

Targets

In the early stages of MAP, targets were established based on initial levels of service achieved. Decisions to adjust targets up or down were made at the discretion of the Regional Maintenance Engineers and the State Maintenance Engineer, again based on history and level of service achieved. This was changed during the 2007 Legislative Session. Legislators' fine tuned the targets and included them in LEAP Transportation Document 2007-C, thereby writing the targets for the 07-09 biennium into "legislation". In the 09-11 biennium the Secretary of WSDOT lowered some MAP targets in response to budget constraints. The 2011-2013 targets are on the next page.

Maintenance Accountability Process
Activity Service Level Targets
2011-2013

Activity	1.0 +	A	1.9 -	2.0 +	B	2.9	3.0 +	C	3.9 -	4.0 +	D	4.9 -	5.0 +	F	5.9 -
Group - 1 Roadway Maintenance and Operations															
1A1 Pavement Patching, Repair & Crack Sealing							⊙								
1A3 Shoulder Maintenance						⊙									
1A4 Sweeping and Cleaning				⊙											
Group - 2 Drainage Maintenance and Slope Repair															
2A1 Maintain Ditches					⊙										
2A2 Maintain Culverts										⊙					
2A3 Maintain Catch Basins and Inlets										⊙					
2A4 Maintain Detention/Retention Basins								⊙							
2A5 Slope Repair					⊙										
Group - 3 Roadside and Vegetation Management															
3A1 Litter Pickup											⊙				
3A2 Noxious Weed Control					⊙										
3A3 Nuisance Vegetation Control						⊙									
3A4 Control of Vegetation Obstructions										⊙					
3A5 Landscape Maintenance										⊙					
Group - 4 Bridge and Urban Tunnel Maintenance and Operations															
4A1 Bridge Deck Repair								⊙							
4A2 Structural Bridge Repair								⊙							
4A3 Bridge Cleaning								⊙							
4B1 Movable and Floating Bridge Operations				⊙											
4B2 Keller Ferry Operations					⊙										
4B3 Urban Tunnel Systems					⊙										
Group - 5 Snow and Ice Control Operations															
5B1 Snow and Ice Control Operations			⊙												
Group - 6 Traffic Control Maintenance and Operations															
6A1 Pavement Striping Maintenance								⊙							
6A2 Raised/Recessed Pavement Marker Maint.					⊙										
6A3 Pavement Marking Maintenance								⊙							
6A4 Regulatory Sign Maintenance							⊙								
6A5 Guide Sign Maintenance						⊙									
6A6 Guidepost Maintenance											⊙				
6A7 Guardrail Maintenance				⊙											
6B1 Traffic Signal Systems								⊙							
6B2 Highway Lighting Systems							⊙								
6B3 Intelligent Transportation Systems						⊙									
Group - 7 Rest Area Operations															
7B1 Rest Area Operations					⊙										

Key

⊙ Projected Delivery

December 1, 2010

Service Level Rating

Once all data is collected from the field surveys and other sources, it is processed by HQ MAP personnel. This involves gathering all data from all sources, validating the data (example: numbers deficient cannot exceed total on site), importing all data into the MAP database and performing all calculations to arrive at the outcome unit (i.e. % deficient, linear feet of deficiencies per lane mile – see MAP activities in Chapter Four for more detail). After the outcome unit is achieved, further calculations are performed to arrive at a numerical score, with 1 being the highest, which then equates to a letter score (shown on the following chart).

Service Level	A			B			C		
Letter Rating	A+	A	A-	B+	B	B-	C+	C	C-
Numeric Rating	1.0-1.25	1.26-1.75	1.76-1.99	2.0-2.25	2.26-2.75	2.75-2.99	3.0-3.25	3.26-3.75	3.75-3.99
Service Level	D			F					
Letter Rating	D+	D	D-	F+	F	F-			
Numeric Rating	4.0-4.25	4.26-4.75	4.76-4.99	5.0-5.25	5.26-5.75	5.76-5.99			

Beginning in 2011, all of this will be happening on the web. Data will be input and scores will be immediately available, based on the data in the database. Queries will be available to peruse specific data to see why the scores are what they are. Links for this process will be located at http://www.wsdot.wa.gov/Maintenance/Accountability/default.htm as soon as the system is available.

Reporting

Reports are created using the numeric and alpha scores created from the gathered data. Preliminary reports will be available as soon as any data is in the new MAP database. All reports from 2005 to present can be found at http://www.wsdot.wa.gov/Maintenance/Accountability/default.htm .

Reports compiled and data collected are used in conjunction with the Priority Matrix, for the budgeting and planning of required maintenance activities. This process is a continual one that identifies what needs to be done and what the cost will be, balanced with priorities and allocated funds, then comes full circle back around to data collection and processing, to report the level of service provided within the priorities set and dollars allocated. See 2011 Statewide report below.

Maintenance Accountability Process
Activity Service Level Target and Service Levels Delivered
CY 2011 - Statewide
Area: All
Section: All

Activity	1.0 +	A	1.9 -	2.0 +	B	2.9 -	3.0 +	C	3.9 -	4.0 +	D	4.9 -	5.0 +	F	5.9 -
Group - 1 Roadway Maintenance and Operations															
1A3 Shoulder Maintenance						⊙		✓							
1A4 Sweeping and Cleaning			✓	⊙											
Group - 2 Drainage Maintenance and Slope Repair															
2A1 Maintain Ditches					✓⊙										
2A2 Maintain Culverts									✓	⊙					
2A3 Maintain Catch Basins and Inlets								✓		⊙					
2A5 Slope Repair				✓	⊙										
Group - 3 Roadside and Vegetation Management															
3A1 Litter Pickup											✓⊙				
3A2 Noxious Weed Control					✓⊙										
3A3 Nuisance Vegetation Control						⊙				✓					
3A4 Control of Vegetation Obstructions							✓			⊙					
3A5 Landscape Maintenance										⊙	✓				
Group - 4 Bridge and Urban Tunnel Maintenance and Operations															
4A1 Bridge Deck Repair							✓	⊙							
4A2 Structural Bridge Repair								⊙		✓					
4A3 Bridge Cleaning					✓			⊙							
4B1 Movable/Floating Bridge Ops		✓		⊙											
4B2 Keller Ferry Operations					✓⊙										
4B3 Urban Tunnel Systems Operation					⊙				✓						
Group - 5 Snow and Ice Control Operations															
5B1 Snow and Ice Control Operations		✓	⊙												
Group - 6 Traffic Control Maintenance and Operations															
6A1 Pavement Striping Maintenance								✓⊙							
6A2 Pavement Marker Maint.					⊙		✓								
6A3 Pavement Marking Maintenance								⊙			✓				
6A4 Regulatory Sign Maintenance							⊙	✓							
6A5 Guide Sign Maintenance					✓	⊙									
6A6 Guidepost Maintenance											✓⊙				
6A7 Guardrail Maintenance			✓	⊙											
6B1 Traffic Signal Systems							✓	⊙							
6B2 Highway Lighting Systems				✓			⊙								
6B3 Intelligent Transportation Systems			✓			⊙									
Group - 7 Rest Area Operations															
7B1 Rest Area Operations					✓⊙										

Key

⊙ Current Law Budget Service Level Commitment

✓ 2011 Service Level Delivered

⊙ Missed Target

1/25/2012

Inventories and Databases

As the MAP has evolved, it has become apparent that inventories should play a major role in planning and execution of this process. Unfortunately, a complete inventory of all WSDOT features does not exist at this time. Existing inventories used for MAP are:

Signal Maintenance Management System (SIMMS) – contains all location, preventive maintenance and repair information for Signals, Intelligent Transportation Systems (ITS) and Illumination.

Traffic Sign Management System (TSMS) – contains sign location info, sign description info, sign materials, post materials, and maintenance history (reasons and actions).

MPET – contains all information for Urban Tunnels, all movable bridges, plus the two Tacoma Narrows Bridges, per the Operating Manuel for each bridge, including schedules and completion of preventive maintenance tasks and all repairs. Also, four regions have added their fixed bridges, with three regions using MPET for all of their bridges data needs.

The Bridge Preservation Office (BPO) has a database containing information (location, type of structure, BPO inspections, maintenance reports and much more) for all bridges statewide. A pilot project is in development between BPO and MPET, to allow the exchange of information from the Bridge Repair List that will permit the bridge crews to access their work requirements much quicker and provide the results back to BPO in a more expedient manner.

The Roadside Features Inventory Program (RFIP) is a program for collecting, storing and reporting highway features, with a focus on fixed objects within the clear zone. Find out more at: http://www.wsdot.wa.gov/mapsdata/tdo/rfip/RFIP_Resources.htm

The Highway Asset Tracking System is designed to be a tool for managing Maintenance activities by asset and/or roadway section. The system connects to Highway Features (HF) where the asset information of the agency is stored (ex. Asset ID, Name and location). Maintenance Technicians, using a PDA, will use this program to document their work, while building/maintaining the inventory in HATS at the same time. When doing an inspection on an asset, they will have the capability to add the asset, and/or generate a pending activity, recording deficiencies which require action to be taken. The action could be anything from making a

specific repair, cleaning, or making a recommendation for a larger repair. The system will track when, where and what was inspected; if a pending activity was generated from the inspection, when the pending activity was completed, or if it remains to be completed.

The system will also track multiple work activities within a section of roadway. An example of this is Safety Patrol, where multiple activities are done on a given section of roadway. The system will create a pending repair for those items that cannot be completed at the time of the safety patrol

MAP Team

The MAP Team consists of representatives from each region and HQ. Current members of the MAP Team are:

Headquarters	Rico Baroga
	Tom Clay
	Anna Zaharris
Northwest:	Gary Ward
North Central	Wayne Rice
Olympic	
	Neil Beckman
	Tom Gibbs
Southwest	Gene Dotson
	John Hagadorn
South Central	Jim Henderson
	Tom Lenberg
	Todd Trepanier
Eastern	Ernie Sims

The team meets as often as the need requires.

Change Process

The process for changes to MAP activities has been defined. Suggestions are made, the MAP Teams discusses and if the majority of the team agrees, a recommendation is written and presented to the Maintenance Engineers for approval or rejection.

Suggestions can be contributed by anyone, simply by filling out the MAP Team Change Request Form (see page 7-9), identifying the requested change, the reason for the change and all benefits to be gained from the change. All contributions are considered and responded to.

MAP Team Change Request Form

Submitted by: _____ Date: _____

Requested Change:

Reason for Change:

Benefit of the Change: