Maintenance Cycle for Transportation Infrastructure

Preventative Maintenance

Targeted Major Maintenance Plan

Annual / Budgeted Major Maintenance

Accomplished Major Maintenance
Results in renewed or extended useful life

Deferred Major Maintenance
$350 Million as of year end 2000
Results in increased maintenance costs and impacts useful life
Transportation Infrastructure Inventory - $7.6 Billion (Asset Replacement Value)

- Pavement: $4.7 Billion
- Roadway Structures: $2.4 Billion
- Traffic Management Control Devices: $85 Million
- Pedestrian & Bike Facilities: $246 Million
- Neighborhood Traffic Control Devices: $7 Million
- Street Trees & Landscaping: $123 Million
Examples of Transportation Inventory Elements

- 4,230 lane miles of Pavement -
  - 1,524 arterial lane miles &
  - 2,706 non-arterial lane miles
- 142 Bridges
- 586 Retaining Walls & 5 Seawalls - 20 linear miles
- 430 Stairways - 6 linear miles
- 975 Signalized Intersections
- 975 Traffic Controllers
- 52 Interconnected Signal Systems
- 1,400 Beacons & Lighted Signs
- 13 miles of Guardrails
- 120,000 Signs
- 8,750 Parking Meters
- 4,700 Crosswalks
- 2,000 miles of Sidewalks
- 2,800 Curb Ramps
- 28.5 miles of Bike Trails
- 90.5 miles of Bike Routes
- 750 Traffic Circles
- 77 Traffic Diverters & Chicanes
- 30,000 Street Trees city maintained (120,000 street trees in total)
- 115 acres of Landscaping
- 1.6 million Lane Markers
- 1,100 miles Lane Stripes
## Examples of Average Useful Life vs. Current Replacement Cycle

<table>
<thead>
<tr>
<th>Inventory Item</th>
<th>Average Useful Life</th>
<th>Current Replacement Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pavement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asphalt</td>
<td>20 - 25 years</td>
<td>40 - 50 years</td>
</tr>
<tr>
<td>Concrete</td>
<td>60 - 80 years</td>
<td>150 - 200 years</td>
</tr>
<tr>
<td>Chip Seal</td>
<td>10 years</td>
<td>12 years</td>
</tr>
<tr>
<td><strong>Structures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retaining Walls</td>
<td>20 - 40 years</td>
<td>300 years</td>
</tr>
<tr>
<td>Stairways</td>
<td>20 - 45 years</td>
<td>120 years</td>
</tr>
<tr>
<td>Bridges - varies widely by bridge</td>
<td>60 years</td>
<td>180 years</td>
</tr>
<tr>
<td><strong>Traffic Control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal Equipment</td>
<td>40 years</td>
<td>50 years</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>15 years</td>
<td>30 years</td>
</tr>
<tr>
<td>Pavement Legends</td>
<td>7 years</td>
<td>8 years</td>
</tr>
</tbody>
</table>
What Deferred Maintenance Looks Like

- Roadway Structures
- Pavement
- Traffic Control Devices
Asphalt street in excellent/very good condition
70<Pavement Condition Index <=100
Asphalt street in very poor/failed condition
Pavement Condition Index \( \leq 25 \)
Concrete street in excellent/very good condition
70 < Pavement Condition Index <= 100
Concrete street in very poor/failed condition
Pavement Condition Index \(\leq 25\)
NE 45th Street Viaduct
Shoring for the replacement of rotten timber cap beams.
Magnolia Bridge
Major crack in bridge deck. If this crack is not repaired, deterioration will continue and eventual load limiting and closure are possible
Fremont Bridge
Spall with exposed rebar in bridge column
Fremont Bridge Approach
Cracks, spalling and corrosion
Retaining wall at N. Northlake Pl & N 34th St
Crack and tilting of retaining wall
Target Level of Investment: Goals

The target level of investment is intended to provide the funding needed to:

- Operate the system safely
- Provide regular preventative maintenance
- Make cost effective major maintenance investments
- Strategically make capital investments in the safety of the system
- Make investments in projects that enhance the capacity of and the mobility throughout the system
- Make strategic enhancements to the system via leveraged dollars
- Represent a level of investment that can be physically accommodated by the capacity of the system without significant disruption to neighborhoods and businesses
### Target Level of Investment: Funding Level

<table>
<thead>
<tr>
<th>Category</th>
<th>Funding Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations &amp; Preventative Maintenance</td>
<td>$29 to $32 million</td>
</tr>
<tr>
<td>Major Maintenance &amp; Safety</td>
<td>$46 to $50 million</td>
</tr>
<tr>
<td>Mobility &amp; Enhancements</td>
<td>$14 to $15 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$89 to $97 million</strong></td>
</tr>
</tbody>
</table>
### 2001 Target Level of Investment - continued

<table>
<thead>
<tr>
<th>Operations &amp; Preventative Maintenance</th>
<th>$29 to $32 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>This level of funding would provide for an adequate level of routine and preventive maintenance to maximize the life cycle of our existing infrastructure. <strong>It would increase service levels in many areas, including:</strong></td>
<td></td>
</tr>
<tr>
<td>• Bridge preventive maintenance.</td>
<td></td>
</tr>
<tr>
<td>• Maintenance of street landscaping.</td>
<td></td>
</tr>
<tr>
<td>• Preventive maintenance of traffic signals.</td>
<td></td>
</tr>
<tr>
<td>• Street cleaning.</td>
<td></td>
</tr>
</tbody>
</table>
This funding level would maintain the existing system in its current condition, and would bring the entire system up to the targeted level of maintenance. **It would:**

- Improve the overall condition of Arterial Asphalt and Concrete Paving;
- Fully fund traffic signal and safety programs;
- Reduce the backlog of major structures projects such as Fremont Bridge Approaches and Alaskan Way Seawall;
- Begin work on Phase II Seismic bridge improvements;
- Upgrade retaining walls that are in a weakened to failed condition.
### 2001 Target Level of Investment - continued

<table>
<thead>
<tr>
<th>Mobility &amp; Enhancements</th>
<th>$14 to $15 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>This level funding would allow for an increase in projects designed to enhance the capacity of Seattle’s transportation infrastructure to move people, goods, and services. <strong>It would provide for:</strong></td>
<td></td>
</tr>
<tr>
<td>- Continue implementation of the Urban Trails Plan;</td>
<td></td>
</tr>
<tr>
<td>- New technology for signals and Intelligent Transportation System;</td>
<td></td>
</tr>
<tr>
<td>- Improvements as recommended in Neighborhood Plans;</td>
<td></td>
</tr>
<tr>
<td>- New sidewalk improvements;</td>
<td></td>
</tr>
<tr>
<td>- Neighborhood transit service improvements.</td>
<td></td>
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</tbody>
</table>
Target Level of Funding for Major Maintenance

Transportation Inventory
$7.6 Billion

Target Investment for Major Maintenance
$48 Million (middle of range)

2001 Budget for Major Maintenance
$39 Million

2001 Current Year Major Maintenance Accomplished
$28 million
Target Level: $28 Million

2001 Deferred Major Maintenance Accomplished
$11 million
Target Level: $20 million
SEATRAN Target Level of Investment vs. Annual Actual/Projected Revenues
[Does Not Include Finance General & Accompanying Leveraged $'s Held for I-722]

<table>
<thead>
<tr>
<th>Year</th>
<th>Target Range</th>
<th>Actual $ in Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>$78.7</td>
<td>$54.3</td>
</tr>
<tr>
<td>1996</td>
<td>$81.3</td>
<td>$51.5</td>
</tr>
<tr>
<td>1997</td>
<td>$83.8</td>
<td>$64.5</td>
</tr>
<tr>
<td>1998</td>
<td>$86.0</td>
<td>$61.9</td>
</tr>
<tr>
<td>1999</td>
<td>$88.0</td>
<td>$70.3</td>
</tr>
<tr>
<td>2000</td>
<td>$90.0</td>
<td>$74.2</td>
</tr>
<tr>
<td>2001</td>
<td>$93.3</td>
<td>$81.2</td>
</tr>
<tr>
<td>2002</td>
<td>$96.1</td>
<td>$76.7</td>
</tr>
<tr>
<td>2003</td>
<td>$99.0</td>
<td>$81.0</td>
</tr>
<tr>
<td>2004</td>
<td>$102.0</td>
<td>$82.5</td>
</tr>
<tr>
<td>2005</td>
<td>$105.1</td>
<td>$83.9</td>
</tr>
<tr>
<td>2006</td>
<td>$108.2</td>
<td>$85.3</td>
</tr>
</tbody>
</table>

**TARGET [Mid Range]**

- **LOCAL FUNDS**
- **GRANTS / LOANS / OTHER**

**ACTUAL**

- $54.3
- $51.5
- $64.5
- $61.9
- $70.3
- $74.2
- $81.2
- $76.7
- $81.0
- $82.5
- $83.9
- $85.3

**DIFFERENCE**

- $(24.3)
- $(29.8)
- $(19.3)
- $(24.1)
- $(17.6)
- $(15.8)
- $(12.1)
- $(19.5)
- $(18.1)
- $(19.5)
- $(21.2)
- $(22.9)