Budget presentation

- How did TriMet arrive at the LPA budget
- How are estimates developed
- How are we tracking changes
- How are we doing with the budget
- What do we do about cost pressures
High quality product

- Station design
- Incorporation of art
- Streetscape
- Attention to details
High quality product
High quality product

[Image of a bus stop and a patterned brick pavement]
High quality product

Businesses contributed $22 million through a Local Improvement District in the Portland Mall.
How did TriMet arrive at a budget

- Conceptual designs
- Sub divide designs into similar type units
  - Square feet of pavement, traffic signals, track, etc.
- Develop cost per unit
  - Based on recent experience from I-205/Portland Mall, WES, Interstate Max, Airport MAX, Westside
- Sum by category and apply cost for engineering and contingency
2008 LPA Plan and Profile drawing
2008 LPA Plan and Profile drawing

- Based on 5% conceptual design
- Based on LPA decision made in July 2008
2008 LPA Plan and Profile drawing
2008 LPA Plan and Profile drawing
| Traffic signals on 17th Avenue | Stations on 17th Avenue |
2008 LPA cost estimate

- $1,029m in 2008 dollars
- Assumes:
  - Right-of-way
  - Materials
  - Construction,
  - 21 Light rail vehicles,
  - Expansion of Ruby Junction Maintenance Facility
  - Engineering
  - Contingency
Construction cost with inflation

- Year of expenditure (YOE) cost
- Assumed 4% annualized rate
- Outflow of money based on construction schedule
  - Informed by experience with past projects
- Adds $185 million to project costs
Projected cash flow curve

Milwaukee LRT Extension Cashflow Projection

Budget (1,000's)

Month/Year
Finance costs

- Finance cost based on:
  - When Federal appropriations are expected
    - Informed by past appropriations experience
  - When local dollars are expected
- Adds $203 million to the project costs
  - Based on 60% Federal New Starts share
  - Based on 2015 opening
Federal Appropriations

- Full funding grant agreement - 2012
- 1\textsuperscript{st} appropriation in 2013
  - $100 m per year from 2013 to 2020
  - $50.5 m in 2021
- To keep the project on schedule and to minimize impacts due to inflation, TriMet will borrow money to start construction in July 2011
July 2008 Project Estimate

- $1.029m in 2008 dollars
- $0.185m inflation cost
- $0.203m borrowing cost

- $1.417m project budget (YOE)
Project capital cost estimates

- LPA design set - July 2008
  - Configuration management plan
- 25% drawing set December 2009
- 30% drawing set (updates to 25%) March 2010
- 60% drawing set (April 2011)
- 90% drawing set
- Issued for construction (Jan 2012)
- Cost to complete estimates
Current Project Estimate

- Things that affect budget:
  - New project requirements - fish passable culverts
  - New or changed scope - increased ped/bike on bridge
  - Cost increases - price of materials/labor
  - Schedule
  - Federal participation ratio

- Project is tracking scope elements through the configuration management plan process.
Configuration management plan

- Tracks **scope** changes (+ or -) above $50,000
- Highlights cost pressures
- Scope changes approved by engineer, PMG or Steering Committee
- Contract Control Board approves changes
- Reviewed by:
  - Technical Advisory Committee
  - Project Management Committee
- Project Management Oversight Committee reviews process and plan
  - Monthly and quarterly reports
### Implemented Changes

<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
<th>Name</th>
<th>Status</th>
<th>Cost Impact</th>
<th>Likely Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>004</td>
<td>5/1/2009</td>
<td>WTR Bridge Bike/Ped Path Width</td>
<td>Approved</td>
<td>External</td>
<td>$3,254,000</td>
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<tr>
<td>024</td>
<td>6/17/2009</td>
<td>WRTB Type Selection</td>
<td>Approved</td>
<td>Internal</td>
<td>($25,378,098)</td>
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<td>025</td>
<td>6/17/2009</td>
<td>WRTB RFP Stipends</td>
<td>Approved</td>
<td>Internal</td>
<td>$1,500,000</td>
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<tr>
<td>026</td>
<td>6/24/2009</td>
<td>Bridge DB Final Design &amp; Construction Engr</td>
<td>Approved</td>
<td>Internal</td>
<td>($617,743)</td>
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</table>

**Bridge Segment Total**

$(21,241,839.00)$

<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
<th>Name</th>
<th>Status</th>
<th>Cost Impact</th>
<th>Likely Cost</th>
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<tbody>
<tr>
<td>002</td>
<td>1/12/2009</td>
<td>Bybee Station Access - Bus Stop on Bridge</td>
<td>Approved</td>
<td>Internal</td>
<td>($561,000)</td>
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<tr>
<td>014</td>
<td>1/21/2009</td>
<td>17th Ave. Station Location</td>
<td>Approved</td>
<td>External</td>
<td>($1,500,000)</td>
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**East Segment Total**

$(2,061,000.00)$

**Total:**

$(23,302,839)$
# Potential changes - Bridge

<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
<th>Name</th>
<th>Status</th>
<th>Cost Impact</th>
<th>Likely Cost</th>
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<tr>
<td>005</td>
<td>5/1/2009</td>
<td>Navigation Height Clearance</td>
<td>In Progress</td>
<td>External</td>
<td>0</td>
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<tr>
<td>007</td>
<td>5/1/2009</td>
<td>Underwater Utilities near East Bridge Tower</td>
<td>In Progress</td>
<td>Internal</td>
<td>5,046,000</td>
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<tr>
<td>016</td>
<td>6/1/2009</td>
<td>Ship Impact Provisions</td>
<td>In Progress</td>
<td>Internal</td>
<td>1,800,000</td>
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<tr>
<td>017</td>
<td>6/1/2009</td>
<td>East Greenway Grading</td>
<td>In Progress</td>
<td>External</td>
<td>343,000</td>
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<tr>
<td>018</td>
<td>6/1/2009</td>
<td>Tower Pile Cap Fenders</td>
<td>In Progress</td>
<td>External</td>
<td>2,287,000</td>
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<tr>
<td>019</td>
<td>6/1/2009</td>
<td>HazMat Implications at West end of Bridge</td>
<td>In Progress</td>
<td>External</td>
<td>0</td>
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<tr>
<td>020</td>
<td>6/1/2009</td>
<td>Aesthetic Lighting at Bridge</td>
<td>In Progress</td>
<td>Internal</td>
<td>500,000</td>
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<tr>
<td>029</td>
<td>7/6/2009</td>
<td>WRTB Pathway Surface</td>
<td>In Progress</td>
<td>Internal</td>
<td>150,000</td>
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**Bridge Segment Total**  
$11,025,000.00
## Potential changes - East segment

<table>
<thead>
<tr>
<th></th>
<th>Date</th>
<th>Description</th>
<th>Status</th>
<th>Type</th>
<th>Cost</th>
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<tbody>
<tr>
<td>001</td>
<td>5/19/2009</td>
<td>60&quot; Oak Lodge (Courtney Creek) Pipe</td>
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<tr>
<td>003</td>
<td>2/18/2009</td>
<td>Expand Powell Overpass - 2nd Track</td>
<td>In Progress</td>
<td>Internal</td>
<td>5,000,000</td>
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<tr>
<td>010</td>
<td>5/8/2009</td>
<td>Oatfield and Park Traffic lanes</td>
<td>In Progress</td>
<td>Internal</td>
<td>500,000</td>
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<tr>
<td>011</td>
<td>5/8/2009</td>
<td>Spring Creek Fish Passage Culvert</td>
<td>In Progress</td>
<td>External</td>
<td>200,000</td>
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<tr>
<td>013</td>
<td>5/8/2009</td>
<td>Kellogg Lake Bridge - Column/Span</td>
<td>In Progress</td>
<td>Internal</td>
<td>750,000</td>
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<tr>
<td>015</td>
<td>5/19/2009</td>
<td>PGE Trolley Trail easement</td>
<td>In Progress</td>
<td>Internal</td>
<td>300,000</td>
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<tr>
<td>022</td>
<td>6/5/2009</td>
<td>UPRR - Enhanced LPA Proposal</td>
<td>In Progress</td>
<td>External</td>
<td>2,400,000</td>
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<tr>
<td>027</td>
<td>6/30/2009</td>
<td>8th &amp; 9th Avenues Consolidation</td>
<td>In Progress</td>
<td>Internal</td>
<td>(220,000)</td>
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</table>

**East Segment Total**

$9,586,456.00
## Potential changes - West segment

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
<th>Status</th>
<th>Source</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Delete OCS Lift</td>
<td>5/4/2009</td>
<td>Pending</td>
<td>Internal</td>
<td>(1,003,308)</td>
</tr>
<tr>
<td>Double Crossover in SWF</td>
<td>5/6/2009</td>
<td>Pending</td>
<td>Internal</td>
<td>4,190,470</td>
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<tr>
<td>Add CTL Streetcar Items in PMLR</td>
<td>6/5/2009</td>
<td>In Progress</td>
<td>External</td>
<td>7,500,000</td>
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<tr>
<td>Operating Envelope</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lengthen Harbor Structure</td>
<td>6/9/2009</td>
<td>In Progress</td>
<td>External</td>
<td>(1,132,208)</td>
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</table>

**West Segment Total**

$9,554,955.53
## Budget assessment

<table>
<thead>
<tr>
<th>Implemented Changes</th>
<th>(23,302,839)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pending</td>
<td></td>
</tr>
<tr>
<td>East</td>
<td>9,554,955</td>
</tr>
<tr>
<td>West</td>
<td>9,586,456</td>
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<tr>
<td>Bridge</td>
<td>11,025,000</td>
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<tr>
<td>Total</td>
<td>30,166,411</td>
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<tr>
<td>Balance</td>
<td>6,863,572</td>
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</tbody>
</table>
Project contingency

- Contingency addresses:
  1. Project elements or scope incompletely defined due to incomplete knowledge at the LPA stage.
  2. Added project scope as more detail is developed in the design, approving jurisdictions conduct more detailed reviews, or regulatory procedures require mitigation measures, or due to community requests.
Project contingency standards

- FTA requires 30% contingency at beginning of Preliminary Engineering
- FTA requires 20% contingency at beginning of Final Design
Project contingency

- Project includes two types of contingencies
  
  **Allocated contingency** - Contingency allocated to specific cost items addressing known potential, but uncertain changes. Examples include:
  - South Waterfront fill
  - Grade separated overpass at SE McLoughlin
  - Willamette bridge structure type beyond concrete segmental type
  - Right-of-way

- Unallocated contingency - to address unknowns or added scope
Un-allocated contingency

- Contingency derived at line item cost, then pooled

<table>
<thead>
<tr>
<th>Fixed Costs</th>
<th>Contingency</th>
<th>Systemwide Costs</th>
<th>Contingency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-of-Way</td>
<td>10.0%</td>
<td>Fare Collection</td>
<td>15.0%</td>
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<tr>
<td>Utility Relocation</td>
<td>30.0%</td>
<td>Traction Electrification System</td>
<td>20.0%</td>
</tr>
<tr>
<td>Street Construction</td>
<td>25.0%</td>
<td>Signals</td>
<td>20.0%</td>
</tr>
<tr>
<td>Track Grade Construction</td>
<td>25.0%</td>
<td>Communications</td>
<td>20.0%</td>
</tr>
<tr>
<td>Structures</td>
<td>25.0%</td>
<td>Light Rail Vehicles</td>
<td>10.0%</td>
</tr>
<tr>
<td>Stations</td>
<td>20.0%</td>
<td>Operations &amp; Maintenance Facility</td>
<td>25.0%</td>
</tr>
<tr>
<td>Park &amp; Ride Lots</td>
<td>20.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Crossings</td>
<td>20.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Track Installation &amp; Materials</td>
<td>20.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Special Conditions 25.0%
Project cost contingencies

**Project Contingency at Pre-Preliminary Engineering = 30%**

- Allocated contingency: $115 m
- Unallocated contingency: $124 m

**Project Contingency required to enter Final Design = 20%**

<table>
<thead>
<tr>
<th></th>
<th>Allocated contingency</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocated contingency</td>
<td>$59 m</td>
<td>$56 m</td>
</tr>
<tr>
<td>Unallocated contingency</td>
<td>$116 m</td>
<td>$8 m</td>
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</table>
Project cost contingencies

Project Contingency at Pre-Preliminary Engineering = 30%

Allocated contingency $115 m
Unallocated contingency $124 m

Project Contingency required to enter Final Design = 20%

Allocated contingency $59 m $56 m
Unallocated contingency $116 m $8 m

Delta $8 m

Available for scope changes during PE
Next steps

- Refine design to 25%
  - Develop cost estimate
- Conduct value engineering process
- Refine cost for 30% design
- Conduct risk assessment process with application to enter final design
Cost pressure will remain

- Throughout the process the project will need to balance desires with finance
- Project have used lists to define cost pressures, potential deducts and potential adds