



Multnomah County

Department of Business and Community Services

**Multnomah County
Fiscal Years 2005-2009
Transportation Capital
Improvement Plan
And Program**

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Prepared by
Multnomah County
Land Use and Transportation Program

Multnomah County Fiscal Years 2005-2009 Transportation Capital Improvement Plan and Program

Preface

The Multnomah County Land Use and Transportation Program has established a Capital Improvement Plan (CIP) process. This process follows the guidelines established in the County Comprehensive Framework Plan: Physical Support System Policies. The objective of the Capital Improvement Plan is to identify and set priorities for road, bicycle, pedestrian, culvert (fish passage), bridge projects, and related improvements necessary to maintain and enhance the County transportation system. The transportation system provides the basic infrastructure necessary to support a thriving economy. The Transportation Capital Improvement Program (TCIP) implements the CIP by assigning available revenue to the highest ranked capital projects. A 5-year schedule is established of ranked projects for each fiscal year for funding.

The format for the Fiscal Years (FY) 2005-2009 CIP is to evaluate transportation needs for each of the six categories as follows:

1. FY 2005-2009 Roadway Capital Improvement
2. FY 2005-2009 Bikeway Capital Improvement Plan
3. FY 2005-2009 Pedestrian Capital Improvement Plan
4. FY 2005-2009 Fish Passage Culvert Capital Improvement Plan
5. FY 2005-2009 Roadway Capital Improvement Program
6. 20 Year 2005-2024 Capital Improvement Plan and Program for the Willamette River Bridges

The relative jurisdictional authority of the County and the cities within its boundaries has evolved significantly during the last decade. In 1995, Multnomah County completed negotiations with the cities of Fairview, Troutdale and Gresham to transfer many local roads to the cities, and subsequently effected those transfers. Multnomah County retained the regional road network outside of Portland. In January of 2004, a consultant delivered a report titled "Multnomah County Road Jurisdictional Study" to the County. That Study further considered the relative jurisdictional authority of cities with Multnomah County, the County, and the State of Oregon. The Multnomah County Board of Commissioners will be reviewing the Study and its recommendations.

Further, the structure of transportation funding has changed significantly in the last decade. In 2003, the Oregon State Legislature passed legislation which provides \$1.3 billion for the replacement and repair of bridges on state highways. This appropriation follows in the steps of 2001 legislation that authorized \$400 million over the next three biennia for bridge repair, pavement preservation and modernization projects for bridges or ODOT highways. Ongoing Multnomah County projects that incorporate OTIA funds include: improvements to Sandy Boulevard between 162nd Ave. and 207th Ave. restoration of Beaver Creek Bridge; improvements to the Broadway Bridge over the Willamette River; and replacement of the Corbett Hill Road Viaduct. Additionally, Multnomah County recently received an appropriation of \$25,000,000 of OTIA III funds for the replacement of the Sauvie Island Bridge.

The OTIA funds cannot meet all the region's transportation needs. First, not all projects that are eligible for OTIA funds will receive OTIA funds, due to a demand in excess of the available funding. For example, funds are not yet in place for the replacement of the Sellwood Bridge, which has experienced considerable structural deterioration. The estimated cost of replacing the Sellwood Bridge is \$90 million.

Additionally, funds for non-OTIA eligible projects are limited, particularly given the economic recession that Oregon has experienced in recent years. The state legislature has yet to address the issue of a tax increase to help finance county and city local transportation projects and initiatives. As a result, many of the local jurisdictions throughout the State, including Multnomah County, find themselves short of funds to preserve their existing infrastructure at appropriate levels, and unable to move new construction projects forward.

The competition to fund regional and local capital improvements is fierce and requires jurisdictions to carefully leverage available funds. In Multnomah County that has meant creating opportunities to leverage County capital funds with other sources of funds such as funds from private development, traffic impact fees, regional funding such as the Metropolitan Transportation Improvement Program and OTIA.

Comprehensive Project Delivery System

In 1998, the County undertook an internal audit of the capital planning process. The audit recommended that the County strengthen its ranking process for project prioritization, and also that the County enhance the coordination of its information systems. In response to the audit, the County prepared the Comprehensive Project Delivery System Manual (CPDS). The Manual has enabled the County to better identify and track projects from inception to completion. Implementing the CPDS has provided enhanced:

- Integration of projects
- Project scope management
- Cost management
- Quality project management and documentation
- Human resource management
- Communication management
- Risk management

In 2002 the County established a new project database that includes project-specific information gathered for each project (description, costs, attributes, etc.) that is more closely aligned with regional project ranking and rating criteria. The database also cross-links the projects with the Integrated Road Information Systems (IRIS) road number and milepost. This identification method allows the County to maintain all project data in one integrated system.

Further, using IRIS road number and mileposts allows the project engineer/manager to access the IRIS database and the county's GIS data. The information in each of these databases continues to expand, but allows reference to information such as culverts, pavement condition, utility locations, project agreements, etc. All this information will allow for optimal and efficient project management for project delivery.

Partially Funded Projects

The County's ability to fully fund its transportation improvements is limited due to level or decreased revenue projections despite rising construction costs. This limitation has required Multnomah County to leverage its funds wherever possible. Therefore several of the projects included in the Capital Improvement Program are only partially funded with Multnomah County transportation funds. Multnomah County will apply for other sources of funds to fully fund these projects. Where applicable, the Program identifies these alternative sources.

Multnomah County
FY 2005—2009 Transportation
Capital Improvement Plan and Program

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ROADWAY CAPITAL IMPROVEMENT PLAN

ROADWAY CAPITAL IMPROVEMENT PLAN

Multnomah County FY 2005-2009 Roadway Capital Improvement Plan

The Multnomah County Land Use and Transportation Program has instituted a capital improvement planning process consistent with guidelines established in the County Comprehensive Framework Plan: Trafficways Policy #32 regarding capital funding of County transportation projects. The Capital Improvement Plan establishes a priority list of road and road-related improvements deemed necessary to enhance and maintain the County road system at acceptable levels.

A goal of the Comprehensive Framework Plan #32 is to:

Promote and enhance a balanced transportation system that encourages economic development, increases public safety, allows for efficient transportation movement, and protects the quality of neighborhoods and communities through the best possible use of available funds.

The Capital Improvement Plan (CIP) inventories the extent of future transportation capital needs and costs, and precedes the Capital Improvement Program (Program) which allocates revenue by priority of need. The Program uses objective criteria to evaluate and give priority to road, bike, bridge, pedestrian and fish passage culvert improvements from the array of potential projects. The Program implements the CIP by assigning available revenues to the highest ranked projects. The Program is addressed under its own section in this document.

Project Identification

The Division uses several internal and external means of identifying transportation improvement projects. Internal sources of information include: (1) data regarding crash locations, (2) the County Pavement Management Program, (3) Transportation System Plan, (4) Fiscal Years 2003-2007 Capital Improvement Plan and Program, (5) Functional Classification of Trafficways, and (6) the Multnomah County Master Road List. These sources identify road segments, intersections, and structures on the County road system that are hazardous or congested, substandard or in need of reconstruction.

Additionally, this year, as in previous years, the County has held 3 public meetings to gather input from concerned citizens, neighborhood and community associations. In 2004, the County has held such meetings in rural East County, rural West County and City of Troutdale. Finally, the County has asked each city within its boundaries to consider and identify potential projects in county road rights-of-way.

Other sources of information include:

- Metro's Traffic Forecast Model;
- Metro's Regional Transportation Plan;
- Transportation System Plans of other jurisdictions;
- Input from utilities and other users of the county right of way; and,
- City of Gresham Trafficway Plan and Impact Fee Study.

Road Fund Capital Projects Ranking Criteria

Beginning with the FY 2003-2007 Capital Improvement Plan and Program, Multnomah County used new project evaluation criteria for road fund capital projects. This Capital Plan and Program continues using the new criteria that are based upon project selection criteria used by Metro for funding regional projects. The reason for this shift was to align Multnomah County projects with Metro 2040 criteria while still meeting Multnomah County criteria and objectives. A review of the project rankings reveals that the new criteria did not cause a major shift in project focus (i.e. those project that ranked high with the old criteria, continue to rank high with the new criteria).

Each potential project was evaluated and ranked using the Road Fund Capital Projects Ranking Criteria in Table 1, as follows:

Table 1
Road Fund Capital Projects Ranking Criteria

<u>Safety Priority Indexing System (SPIS) maximum 20 points</u>	
Does Project include a site identified in the SPIS as:	
• 10% of the highest crash locations/intersections	20
• 11% - 25% of the highest crash locations/intersections	10
• 26% - 50% of the highest crash locations/intersections	5
<u>Multi-modal benefit maximum 15 points</u>	
• Does project add bike and pedestrian facilities where none exist	10
• Are improvements being made to bike and pedestrian facilities that are currently built to minimum standards	5
• Is project in identified transit corridor	5
<u>2040 Focus Areas (land use) maximum 15 points</u>	
• Is project located in or directly serving a regional center or town center	5
• Is project located in or directly serving an industrial center or employment core	5
• Is project serving an activity center (MHCC, Blue Lake Park, Legacy Hospital, K-12 school)	5
<u>Non-county funding secured maximum 10 points</u>	
• Has project secured 50 – 100% of funding from non-county source	10
• Has project secured less than 50% from a non-county source	5
<u>Project support maximum 15 points</u>	
• Is the project in a local plan (transportation system plan, corridor plan, refinement plan, etc.)	5
• Has the project received citizen support (letters, phone calls, hearings, etc.) either from individuals, neighborhood groups, etc.	5
• Is the project a local jurisdiction priority	5
<u>Completion of corridor maximum 5 points</u>	
• Will the project complete a gap in a corridor (i.e. is the roadway on either end of segment constructed to county standards)	5
<u>Perceived safety factor administrative criteria</u>	
• Location without high SPIS rating that has high perceived safety problems due to either citizen concerns or problems not identified through crashes	
Total points possible	80

County transportation projects are ranked and priorities are established using a scoring system for each classification of facility. Points are assigned according to criteria recommended by the East Multnomah County Transportation Committee to rank projects within each priority and classification of project (road, bikeway, pedestrian).

The County's Fish Passage Culvert rating and ranking methodology is explained in the Fish Passage Culvert Plan chapter.

The County's Willamette River Bridge ranking methodology is explained in the Project Rating Criteria chapter of the Capital Improvement Plan and Program for the Willamette River Bridges section.

Project Report

The Capital Improvement Projects list (Table 2) includes all known potential projects in rank order within their project category (arterial streets, collector streets, [non-Willamette River] bridges, signal/intersections, and street design concepts*). Total points assigned, project descriptions, and cost estimates are displayed for each project.

This list of future transportation projects is the result of the County's CIP process. The CIP will be presented for review and recommendation by the East Multnomah County Transportation Committee (EMCTC), and approved by Board of County Commissioners (BCC). It will then be used by the Transportation Division in the preparation of the Transportation Capital Improvement Plan and Program, and preparation of the annual Transportation Division budget.

Traffic Impact Fee Projects

In 1993 the City of Gresham and Multnomah County undertook a Traffic Impact Fee Study with the purpose of developing a Traffic Impact Fee (TIF), or system development charge, to help fund the transportation improvements that will be needed as Gresham grows in the future. The purpose of the TIF study was to identify capacity deficiencies beyond the trafficway system's design standard that is attributable to future development.

Identifying and determining the necessary improvement costs allowed for an equitable cost sharing system to be devised. The TIF was adopted in 1994 by the City of Gresham and Multnomah County. TIF fees have been collected and are accumulating. Sufficient funds have been amassed allowing for projects identified in the TIF study to begin to be developed, either as stand-alone projects or in conjunction with capital improvement projects.

* Street design projects are design concepts that reflect the fact that streets perform many, and often conflicting, functions and the need to reconcile conflicts among travel modes. Improvements associated with Regional Street Design Concepts (i.e. Boulevard) and will be noted as *Street Design Concepts* in the CIP.

In 2001 the City of Gresham prepared an update of the TIF program. The study recommended numerous new capacity and mode improvements, as well as a new fee per trip. The Gresham City Council subsequently adopted a new fee structure based on the study's recommendations.

The CIP Update Process

The Multnomah County CIP process is a continuous and open process, allowing citizen input annually. The County road system is dynamic, changing in response to land use decisions and infrastructure life cycles. Consequently, the Capital Improvement Plan and Program must be reconsidered and revised on a regular basis.

Public meetings are held in the various communities to solicit public input regarding transportation needs. Project proposals are also solicited from each of the cities. The list of projects is reviewed and revised before being transmitted to EMCTC for review, and approval by the BCC.

The Capital Improvement Plan is reviewed by the Transportation Division on an annual basis. A full update process involving all interested parties is scheduled every two years. The annual review and the biennial updates ensure that limited resources for capital projects will be efficiently allocated to the most critical capital needs. (Appendix I illustrates the Roadway CIP process.)

INFORMATION FORMAT

The Capital Improvement Project Ranking Report for roads organizes potential future capital improvement projects by category: Arterial and Collector Streets, Bridges (non-Willamette River Bridge), Signals/Intersections, Street Design Concepts and Fish Passage Culverts. Projects are organized within each category by priority and displayed in descending order of points based on project ranking criteria (see Table 1). The information provided describes each project and ranks projects by relative importance. Project descriptors include the following:

Category - All projects are categorized into one of six types of projects: Arterial Street, Collector Street, Bridges, Signals/Intersections and Street Design Concepts.

Project Number - An identifying number was assigned to each project. Refer to the CIP map for the location of each project, which is referenced by a map number.

Project Name - The name of the project is taken from the street segment or intersection location proposed for construction or reconstruction. The termini are identified for each road segment project. For intersection projects, 200 feet of each leg of the intersection is the assumed project boundary.

Project Description - A brief description of each project is provided.

Total Points - The sum total of points awarded to each project with 80 points maximum possible. The "Total Points" score establishes the projects rank order within each category. Projects with the highest point total have the greatest need.

Total Cost - Budgetary cost estimate is provided (2004 dollars) for each project that includes right-of-way and construction cost estimate.

IRIS Road Number - Road identification number assigned in Integrated Road Information Systems.

IRIS Milepost - Segment reference points.

Project Description - A brief description of each project is provided.

RTP No. - Regional Transportation Plan (Metro) project identification number.

TIF - Traffic Impact Fee. If this box is checked, all or a portion of project is funded through the TIF program.

Right-of-Way Cost - The estimated cost for the purchase of required additional right-of-way (2004 \$s).

Construction Cost - The sum of estimated project construction (budgetary) cost (2004 \$s)

Project Location Map - Location map of project proposal, not to scale.

Functional Classification - The highest classified street segment (Arterial, Collector, Local) within the project limits.

Existing Travel Lanes/New Travel Lanes - Indicates the current and standard number of travel and turning lanes for the road segment or intersection leg.

Existing Sidewalk/New Sidewalk - Indicates sidewalks currently exist, or a new or replacement sidewalk will be constructed.

Existing Bikeway/New Bikeway - Indicates either a bike route or bike lanes exist, or a bikeway will be installed as part of the project.

Existing Drainage/New Drainage - Indicates current and proposed storm sewer facilities: ditches, sumps, or culvert types of storm water drainage facilities.

Existing Illumination/New Illumination - Indicates street lighting exists, or new or replacement street lighting will be installed.

Existing Turn Lane/New Turn Lane - Indicates turning lanes exist, or new or replacement turn lanes will be installed.

Existing/New Intersection Improvement - Indicates modification to an existing intersection such as realignment, adding turn lanes, upgrading signals, or widening pavement.

Table 2

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Arterial Category				
708	242nd Ave: Stark St--Glisan St	Construct 242nd Ave to principal arterial standards with 4 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Project is southern segment of 242nd Ave Connector.	50	\$1,124,000
60	257th Ave: Division St--800' south of Powell Vly Rd	Construct 257th Ave to 5 lane major arterial standards with bike lanes, sidewalks and drainage improvements. Programmed project is in the draft ODOT State Transportation Improvement Program for FY '08.	45	\$4,911,000
716	Sandy Blvd: 207th Ave-- 238th Ave	Construct interim intersection improvements at 223rd Ave and Sandy Blvd. Cost of improvements is \$432,000.	40	\$5,313,000
57	Stark St: 257th Ave.-- Troutdale Rd	Improve Stark St to arterial standards by widening the existing 2 lanes to provide for 4 traffic lanes, a continuous left-turn lane, bike lanes, sidewalks, and intersection improvements.	40	\$2,248,000
98	Orient Dr: 257th Ave--267th Ave	Construct Orient Dr to 5 lanes including center turn lane/median, sidewalks and bicycle lanes	40	\$2,350,000
123	242nd Ave Southern Connector	Construct new road to principal arterial standards with 4 travel lanes, center turn lane/median, sidewalk, bicycle lanes	40	\$18,083,000
729	Burnside Rd: 242nd Ave--Powell Blvd	Reconstruct road--capital preservation project.	40	\$766,000
64	242nd Ave: Burnside Rd--Powell Blvd	Reconstruct 242nd Ave to major arterial standards with 4 travel lanes, center turn lane/median and bicycle lanes.	35	\$2,450,000
88	242nd Ave Connector: I84--Stark St	Construct 5 lane arterial, widening 242nd Ave to 5 lanes between Stark St and Glisan St, and construct new roadbed from Glisan St to I-84. Includes new traffic signals, direct connection to I-84, bicycle lanes and sidewalks. Requires corridor study before project can move forward.	35	\$24,500,000
107	Halsey St: 238th Dr--HCRH	Widen Halsey St to 3 lane arterial with center turn lane/median, sidewalk and bicycle lanes.	35	\$2,555,000
110	Glisan St: 202nd Ave--207th Ave	Construct Glisan Street to arterial standards including bike lanes, sidewalks, two travel lanes in each direction, center turn lane/median and drainage improvements. Programmed project constructs half-street improvements on south side of Glisan St, adjacent to Microchip property for \$220,000	35	\$1,640,000
121	Cornelius Pass Rd: Skyline Blvd--Wash Co Line	Widen Cornelius Pass Rd to rural arterial standards, including bicycle lanes.	30	\$2,247,000
119	Division St: 198th Ave--202th Ave	Construct to arterial standards with sidewalks, bicycle lanes, 4 travel lanes and center turn lane/median.	25	\$474,000
105	190th Ave: Butler Rd--Highland Dr	Reconstruct 190th Ave to arterial standards with 4 travel lanes and center turn lane/median, sidewalks and bicycle lanes.	25	\$2,250,000
746	172nd Ave Extension	Construct new extension of 172nd Ave. between Foster Rd and 174th Ave/Jenne Rd to serve Pleasant Valley Area.	25	\$13,000,000

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Arterial Category				
68	162nd Ave: Halsey St--Glisan St	Construct 162nd Ave to 5 lane minor arterial standards with bike lanes and sidewalks.	20	\$1,735,000
202	Stark St: Troutdale Rd--Hampton Ave	Reconstruct road to arterial standards with 1 travel lanes in each direction, center turn lane/median, sidewalks and bicycle lanes.	20	\$603,000
67	242nd Ave: Powell Blvd--Springwater Trail	Construct 242nd Ave to 5 lane arterial standard including center turn lane/median, sidewalks, bike lanes and drainage improvements	20	\$2,560,000
63	Powell Vly Rd: 257th Ave--Burnside Rd	Construct Powell Valley Rd to minor arterial standards with 4 travel lanes, center turn lane/median, bike lanes and pedestrian facilities.	20	\$2,047,000
93	Foster Rd: Jenne Rd--County Line	Widen Foster Rd by adding two 6' shoulder/bicycle lanes. Roadway improvements will require replacing existing culverts with open bottom culverts.	20	\$2,555,000
722	238th Dr: Glisan St--Arata Rd Safety Improvements	Construct safety improvements along 238th Dr.	20	\$323,000
59	Halsey St: 190th Ave--207th Ave	Improve Halsey St to minor arterial standards with 1 travel lanes in each direction, center turn lane/median, bike lanes, street lights, and sidewalks.	20	\$1,944,000
65	Jenne Rd: Foster Rd--Powell Blvd	Construct Jenne Rd to rural arterial standards that will include bike lanes, new bridge at Johnson Creek and drainage improvements.	20	\$4,820,000
101	Scholls Ferry Rd: US 26--Wash Co Line	Widen roadway to add 4th lane for turns and uphill bicycle lanes.	15	\$2,350,000
115	Division St: 257th Ave--268th Ave	Widen to 3 lane minor arterial standards including sidewalks, bicycle lanes, drainage and illumination.	15	\$2,350,000
113	162nd Ave: Halsey St--I 84	Construct 162nd Ave to arterial standards, with 4 travel lanes, center turn lane/median, sidewalks, bicycle lanes	15	\$1,226,000
709	242nd Ave: Palmquist Rd--Johnson Creek	Improve 242nd Ave to arterial standards with 4 travel lanes, center turn lane/median, sidewalks and bicycle lanes.	15	\$1,328,000
109	Orient Dr.: 267th Ave--Gresham City Limit	Improve Orient Dr to arterial standards with sidewalks and bicycle lanes.	10	\$750,000
103	Cornelius Pass Rd: MP 2--MP 3	Widen and realign Cornelius Pass Rd, including new box culvert and passing lane.	10	\$7,460,000
389	Cornelius Pass Rd: US 30--MP 2	Reconstruct Cornelius Pass Road including passing lane, safety, shoulder and drainage improvements.	10	\$19,310,000
66	Corbett Hill Rd: 1200' s of I-84	Widen and realign road to meet rural arterial standards.	5	\$2,150,000
747	Sandy Blvd.: 165th Ave to 207th Ave	Widen Sandy Blvd to urban minor arterial standards. ODOT transferred segment to Multnomah County in 2005. OTIA funds of \$1,320,000 will be used to begin to bring road to current standards	0	\$0
111	Division Dr: 268th Ave--Troutdale Rd	Widen to rural arterial standards. There are considerable concerns, including culverts, side-slope, erosion and sediment control	0	\$2,352,000
				Arterial Category Cost \$139,774,000

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Bridge Category				
198	223rd Ave RR Undercrossing	Construct new railroad bridge to accommodate 223rd Ave with bike lanes and sidewalks.	50	\$5,848,000
197	223rd Ave RR Undercrossing	Reconstruct railroad bridge on 223rd Ave, 2000' north of I-84 to accommodate wider travel lanes, sidewalks and bike lanes.	30	\$3,883,000
724	Beaver Creek Bridge on Historic Columbia River Hwy	Restore Bridge	30	\$1,048,000
199	Hist Col River Hwy RR Overcrossing	Replace RR over crossing.	20	\$2,963,000
196	201st Ave RR Overcrossing	Reconstruct railroad bridge at 201st Ave and I-84 to accommodate wider travel lanes, sidewalks and bike lanes.	15	\$3,883,000
195	162nd Ave RR Overcrossing	Reconstruct railroad bridge at 162nd Ave and I-84 to accommodate 4 travel lanes, sidewalks and bike lanes.	15	\$3,883,000
723	Corbett Hill Viaduct	Replace viaduct with OTIA funds. Shoulder repairs to Corbett Hill Road will be undertaken with viaduct replacement. Cost of shoulder repair is an additional \$628,000	15	\$690,000
736	Stark St Viaduct	Reconstruct Stark St Viaduct	10	\$753,000
			Bridge Category Cost	\$22,951,000

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Collector Category				
135	223rd Ave:Halsey St--Sandy Blvd	Reconstruct 223rd Ave to major arterial standards with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Requires reconstruction of RR bridge under another project.	55	\$961,000
129	Arata Rd: 223rd Ave--238th Dr	Construct to 3 lane collector standards with center turn lane/median, sidewalks, bicycle lanes.	45	\$1,634,000
143	223rd Ave: Sandy Blvd--Marine Dr	Improve 223rd Ave to major collector standards including 2 travel lanes, center turn lane/median, sidewalks, bicycle lanes. Possible culvert replacement for fish passage could add \$120,000 to cost. Requires replacement of RR bridge not included in this proposal.	40	\$1,532,000
702	Bull Run Rd: Burnside Rd--257th Ave	Reconstruct Bull Run Rd to collector standards with a travel lane in each direction, center turn lane/median, sidewalks and bicycle lanes.	35	\$654,000
710	Wood Village Blvd: Arata Rd--Halsey St	Construct new extension of Wood Village Blvd as a major collector with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Construction of improvements is dependent upon funding through MTIP.	30	\$1,124,000
131	Powell Vly Rd: 257th Ave--262nd Ave	Construct Powell Valley Road 3 lane major collector standards with sidewalks, bike lanes and drainage improvements.	25	\$797,000
153	202nd Ave: Stark St--Division St	Reconstruct to major collector standards with 2 travel lanes, sidewalks and bicycle lanes	25	\$2,444,000
151	Hist Columbia River Hwy: 244th Ave--Halsey St	Reconstruct to minor arterial standards with 2 travel lanes, center turn lane/median, bicycle lanes and sidewalk. Reconstruction of railroad bridge is not included in this project.	25	\$4,393,000
134	Troutdale Rd: Streb In St--Stark St	SE Troutdale Rd will be improved from 2 lanes to collector standards with 2 traffic lanes, a center left turn lane/median, bike lanes and sidewalks. Intersection improvements and storm drainage are included in the improvement.	25	\$1,226,000
150	Troutdale Rd: Stark St--N'ly 1700'	Reconstruct to major collector standards with 2 travel lanes, center turn lane/median, sidewalks, bicycle lanes. Requires new fish culvert at Beaver Creek	25	\$2,861,000
137	201st Ave: Glisan St--Halsey St	Reconstruct 201st Ave to major collector standards with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes.	25	\$1,022,000
154	282nd Ave: Powell Vly Rd--Orient Dr	Reconstruct road to major collector standards including 2 travel lanes, sidewalks, bicycle lanes, illumination. Requires replacement of 60" CMP culvert.	20	\$3,678,000
127	201st Ave: Halsey St--Sandy Blvd	Widen 201st Ave to major collector standards with sidewalks, 2 travel lanes, center turn lane/median, bicycle lanes, drainage and illumination. (Requires completion of 201st RR bridge over crossing at I-84.)	20	\$1,635,000
138	202nd Ave: Stark St--Glisan St	Reconstruct to major collector standards including 2 travel lanes, center turn lane/median, sidewalk and bicycle lanes. Study is needed to determine possibility of realigning 202nd Ave.	20	\$1,737,000
745	Marine Drive Reconstruction	Reconstruct Marine Drive between 185th Ave. and the frontage roads in Troutdale.	20	\$10,000,000
155	Butler Rd: 190th Ave--Regner Rd	Reconstruct to collector standards with 2 travel lanes, sidewalks and bicycle lanes. Project restricted by topography and proximity to creek.	20	\$3,167,000
159	Sauvie Island Rd: Bridge--Reeder Rd	Widen road to rural collector standards with 2 travel lanes. Requires working on dike.	20	\$1,430,000

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Collector Category				
160	202nd Ave: Division St--Powell Blvd	Reconstruct to major collector standards with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes.	20	\$1,225,000
145	Cochran Dr: Troutdale Rd--W'yly 2175'	Reconstruct to major collector standards including 2 travel lanes, center turn lane/median, sidewalks, bicycle lanes and culvert replacement at Beaver Creek to accommodate fish passage.	15	\$1,225,000
152	Powell Valley Rd--Lusted Rd	Connect Powell Valley to Lusted Rd using major collector standards. Two options are possible with substantial costs. Option 1 relocates 13 residences. Option 2 relocates 7 houses but has potentially high environmental costs (fish passage). Option 2 with lower cost is used here.	15	\$4,190,000
165	Troutdale Rd: 19th St--Cherry Park Rd	Widen to major collector standards with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes.	15	\$409,000
125	Powell Vly Rd: Barnes Rd--Troutdale Rd	Construct Powell Valley Rd to major collector standards with bike lanes, sidewalks and drainage improvements.	10	\$2,860,000
162	209th Ave: Butler Rd--Heiney Rd	Widen to major collector standards with 2 travel lanes and sidewalks.	10	\$2,248,000
148	Regner Rd: Butler Rd--County Line	Reconstruct to major collector standards with 2 travel lanes, center turn lane/median, sidewalk and bicycle lanes.	10	\$491,000
149	Sweetbriar Rd: Troutdale Rd--E City Limit	Widen to neighborhood collector standards with 2 travel lanes, sidewalk and bicycle lanes.	10	\$562,000
701	262nd Ave: 267th Ave--City Limits	Widen road to rural collector standards , including overlay Includes Callister Rd from 267th Ave to 262nd Ave.	5	\$1,380,000
156	267th Ave: Gresham City Limit--County Line	Widen to rural collector standards. Requires replacement of 2 culverts	5	\$1,328,000
726	Germentown Rd/Old Germentown Rd	Widen Germentown Rd to create left turn pocket and improve sight distance.	5	\$153,000
713	190th Ave: Division St--Yeon Complex	Construct to collector standards. (Gresham IGA requirement.)	0	\$766,000
164	Clatsop St: Barbara Welch Rd--162nd Ave	Widen to rural collector standards adding storm drain inlets and drainage.	0	\$746,000
157	Barbara Welch Rd: City Limits--County Line	Widen road to rural collector standards.	0	\$511,000
			Collector Category Cost	\$58,389,000

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Signal/Intersection Category				
720	257th Ave/Stark St Intersection	Add second left turn lane on the south leg to provide 200 ft. of north bound, double right turn lanes, and add 250 ft. east bound exclusive right turn lane	50	\$639,000
719	181st Ave/Burnside Rd Intersection	Add second left turn lane on the north approach to provide double left turn lanes. Upgrade signal to provide for westbound, right turn overlap with the southbound left turn movement.	45	\$288,000
168	182nd Ave/Division St	Upgrade traffic signal and add southbound right turn lane.	45	\$337,000
172	242nd Ave/23rd St	Install traffic signal and replace curbs, sidewalks and ADA ramps on east side of intersection. Widening of 242nd Ave is under a separate project.	40	\$225,000
176	Burnside Rd/242nd Ave	Construct intersection improvements with turn lanes and new signals. Add additional southbound through lane, and eastbound right turn lane.	35	\$419,000
743	HIGHLAND DR/Pleasant View Intersection	Improve and install fully-actuated mast arm traffic signal at intersection, revise sidewalks to comply with ADA guidelines. Make drainage improvements as necessary. Possible revision to the southwest corner to channel north-bound right-turn movement.	35	\$286,000
183	257th Ave/Bull Run Rd	Replace signal.	35	\$194,000
721	181st Ave/Glisan St Intersection	Add second left turn lane on the north and south legs to provide 150 ft. double left turn lanes, and add 150 ft. exclusive right turn lanes to the northbound and southbound approaches	30	\$583,000
178	172nd Ave/Foster Rd	Install traffic signal and construct bike and pedestrian improvements. Add turn pockets for west bound and north bound traffic	25	\$541,000
193	Cornelius Pass Rd/US 30	Widen pavement to allow for north bound left turn lane, right turn lane and bicycle lanes.	20	\$532,000
181	Glisan St/188th Ave	Replace signal, reconstruct ADA ramps at each corner.	20	\$276,000
184	257th Ave/26th St	Install traffic signal and replace all ADA ramps.	20	\$307,000
187	Marine Dr/Sundial Rd	Install traffic signal.	20	\$317,000
190	Halsey St/172nd Ave	Replace signal and reconstruct ADA ramp on each corner.	20	\$235,000
180	162nd Ave/Stark St	Improve traffic signal at the intersection of Stark Street and 162nd Avenue, add south bound and east bound right turn lanes.	15	\$399,000
744	Schollis Ferry Rd/Patton Rd	Improve safety and reduce delay at intersection. Improvements will include ADA, new signals, curb ramps and add permissive/protective phasing	10	\$307,000
173	Burnside Rd/3rd St	Replace existing signal and reconstruct ADA ramps.	10	\$275,000
194	Butler Rd/Regner Rd	Realign intersection, install signal and add left turn lanes.	10	\$542,000
192	Butler Rd/Rodlin Rd	Realign intersection, add left turn lane and install traffic signal.	10	\$726,000
191	Orient Dr/267th Ave	Realign intersection and install traffic signal.	10	\$1,226,000
188	Butler Rd/209th Ave	Widen intersection to accommodate left turn lanes.	10	\$848,000
182	Glisan St/192nd Ave	Replace signal and reconstruct ADA ramp at each corner.	10	\$276,000

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Signal/Intersection Category				
186	Division Dr/Troutdale Rd	Realign intersection, eliminating NE leg, producing a 4-way intersection. Replace 3 existing culverts identified as fish barriers.	5	\$3,985,000
147	Corbett Hill Rd: Historic Col. River Hwy	Improve intersection alignment by making stops at right angle.	5	\$1,124,000
705	282nd Ave/Stone Rd	Widen 282nd Ave to create left turn pockets to Stone Rd. Widen Stone Rd to reduce offset of east and west legs to remove hazardous conditions. Project includes replacement of fish passage culvert on Johnson Creek.	5	\$891,000
704	302nd Ave/Lusted Rd	Realign Lusted Rd and Pipeline Rd to create perpendicular intersection with 302nd Ave, add left turn lane to each leg of intersection.	5	\$920,000
703	Orient Dr/Dodge Park Blvd	Widen Orient Dr to create eastbound left turn lane.	5	\$102,000
707	Oxbow Dr/Altman Rd	Widen Oxbow Dr to create westbound left turn lane to Altman Rd, realign intersection to a perpendicular intersection.	5	\$225,000
706	Orient Dr/Bluff Rd	Widen Orient Dr to create eastbound left turn lane to Bluff Rd, realign Bluff Rd and Teton Rd to create perpendicular intersection.	5	\$174,000
748	257th Ave/Hensley Rd Intersection Improvement	Install new traffic signal as part of project agreement at intersection.		\$255,000

Signal/Intersection Category Cost \$17,454,000

CIP Score Ranking Report

Road Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
Street Design Concept Category				
201	Stark St Boulevard Design: 181st Ave--197th Ave	Construct Stark St to regional boulevard standards	60	\$2,715,000
97	257th Ave: Median Improvements	Construct median improvements to enhance pedestrian safety. Includes signal improvements, U-turn lane at Cherry Park Rd (North).	45	\$660,000
206	257th Ave/Cherry Park Ped Plaza	Construct pedestrian plaza as street design concept.	45	\$82,000
204	257th Ave Pedestrian Lighting	Add pedestrian lighting as part of street design concept.	45	\$164,000
203	257th Ave Sidewalk Improvements	Widen Sidewalks as part of street design concept.	40	\$300,000
169	257th Ave /Cherry Park Rd (north)	Signal improvements at Cherry Park Rd (north), add "U" turn lane at Cherry Park Rd and add landscape median from Cherry Park Rd to Stark St.	40	\$664,000
205	257th Dr Pedestrian Crossing	Add pedestrian crossing at Livingston Place as street design concept	25	\$71,000
207	257th Ave Utility Undergrounding	Underground Utilities	25	\$348,000
208	257th Ave Street Trees	Street Trees	20	\$15,000

Street Design Concept Category Cost \$5,019,000

BIKEWAY CAPITAL IMPROVEMENT PLAN

Multnomah County Bikeway Program FY 2005-2009 Capital Improvement Plan

The Multnomah County Land Use and Transportation Program has undertaken a long-term program to develop a balanced transportation system which includes bike lanes on urban arterials, major collectors and shoulder bikeways on rural roads. The Land Use and Transportation Program spends more than the one percent minimum of its Motor Vehicle Fuel Tax on bikeway (or pedestrian) projects. These expenditures comply with ORS 366.514, which mandates expenditures of a minimum of one percent of state receipts on bicycle and pedestrian facilities.

Pursuant to an Intergovernmental Agreement between the city of Portland and Multnomah County, a portion of the Motor Vehicle Fees received by Multnomah County is transferred to Portland. Funds transferred include a portion of the mandated one percent from bike and pedestrian facilities which Portland is responsible to use within the 10-year period prescribed by statute.

The Multnomah County bikeway system includes 144 miles of bikeways in the urban and rural areas. The county has developed nearly 39 miles, including bike lanes, shared lanes and shoulder bikeways. Of the remaining 105 miles to be developed (Table 3), 9 miles require only enhancements such as striping, signing and parking removal.

Multnomah County evaluates both previously identified unbuilt projects, and proposed new projects, to set the Capital Project priorities for its Bikeway Capital Improvement Plan (BCIP). The Bikeway Capital Improvement Plan (BCIP) update process has re-evaluated planned projects from the FY 2003-2007 BCIP to determine Capital Project priorities. Policies for the Bicycle Master Plan and the BCIP are established in the Multnomah County Comprehensive Framework Plan.

Capital improvements to the roadway for needs other than bikeways are scheduled in the Roadway Capital Improvement Program (RCIP). If a RCIP project is designated as a planned bikeway, then the bikeway improvement is constructed as part of the roadway construction project. The BCIP schedules improvements that have a high priority for implementation but are not scheduled for construction by the RCIP or other programs in the near future.

Selection Process for the FY 2005-2009 Bikeway CIP

Bikeway capital improvement projects are defined as bikeway projects that require new construction at substantial cost. Examples of such projects are separated bike paths in the road right-of-way, bicyclist activated traffic signals, major shoulder construction, and bridge modifications. Less costly bikeway improvement projects that can be accomplished by striping roads and posting signs (such as designating bicycle lanes or routes) are not funded by the Capital Improvement Program but by the Maintenance and Service Budget.

The Bicycle Capital Improvement Plan process identifies candidate projects and evaluates them according to an objective ranking system. Identified in the Bikeway Master Plan are 100 miles of proposed bikeways on Multnomah County roads. The cost of building these is estimated to be \$39.5 million as shown in Table 3.

In selecting bikeway capital improvements, the County uses a careful process of addressing the most critical needs and maximizing funding opportunities. The selection process described below determines the list of FY 2005-2009 candidate bikeway projects. The candidate projects are ranked according to objective criteria. The highest ranked projects without other development constraints are scheduled for implementation in the FY 2005-2009 Transportation Capital Improvement Program.

Information used in the selection process is described below:

- A. All unbuilt bikeways identified on the Bikeway Plan Map in the 1990 Bicycle Master Plan, are considered.
- B. Projects that have committed funding from other programs in the next five years or other constraints are eliminated.
- C. The remaining projects are evaluated by the County according to the following criteria (see Table 4).
 - 1) Cost Effectiveness
 - 2) Project Utility
 - 3) System Gap
 - 4) School Proximity
 - 5) Safety Improvement
 - 6) Compliments Other Projects
 - 7) Sole Solution
 - 8) Project Feasibility
 - 9) Bonus

Table 3

CIP Score Ranking Report

Bike Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
251	Division St: 174th Ave--195th Ave	Stripe bike lanes.	80	\$40,000
290	Stark St: 257th Ave--Troutdale Rd	Widen road, add bike lanes on both sides.	79	\$235,000
225	223rd Ave: RR Bridge@184--Halsey St	Widen road to add bike lanes.	78	\$194,000
229	257th Ave: Bull Run Rd--Powell Valley Rd	Widen road to add bikes lanes. Part of 40 Mile Loop. RCIP 60.	78	\$174,000
287	Skyline Blvd: Cornell Rd--Greenleaf Rd	Add shared lane bikeway.	78	\$368,000
738	POWELL VALLEY RD: Burnside - 282nd Ave	Bike lanes	77	\$0
257	Glisan St: 203rd Ave--207th Ave	Widen road to add bike lanes. RCIP 110.	77	\$102,000
260	Halsey St: 162nd Ave--183rd Ave	Widen road to add bike lanes.	74	\$613,000
285	Skyline Blvd: McNamee Rd--Cornelius Pass Rd	Add shoulder bikeway.	73	\$623,000
224	223rd Ave: Blue Lake Rd--RR Bridge@184	Widen shoulder to add bike lanes--RR overcrossing constraint	72	\$378,000
273	Orient Dr: Palmquist Rd--Salquist Rd	Add shoulder for bike lane. RCIP 98.	71	\$240,200
288	Springville Rd: Skyline Blvd--County Line	Add shoulder bikeway.	71	\$126,000
230	257th Ave: Division St--Bull Run Rd	Widen road to add bikes lanes. Part of 40 Mile Loop. RCIP 60.	71	\$220,000
228	242nd Ave: Glisan St--Stark St	Add bike lane on the West Side of the Road. RCIP 708	71	\$250,000
286	Skyline Blvd: Cornelius Pass Rd--Rocky Point Rd	Add shoulder bikeway.	70	\$3,269,000
256	Glisan St: 162nd Ave--203rd Ave	Widen road to add bike lanes, possibly through maintenance program.	69	\$879,000
238	Burnside Rd: 181st Ave--197th Ave	Corridor study to identify solution to Stark/Burnside/190th Intersection and lack of bike lanes on Burnside. RCIP.	69	\$378,000
231	257th Ave: Powell Valley Rd--Palmquist Rd	Add bike lanes on both sides of the road.	69	\$143,000
262	Hewitt Blvd: Humphrey Blvd--5200 W of Patton Rd	Add a shared lane bikeway.	69	\$255,000
218	201st Ave/202nd Ave: Halsey St--Glisan St	Add bicycle lanes. Corridor study needed for 202nd Ave	69	\$215,000
250	Division St: 195th Ave--212th Ave	Widen shoulders to add bike lanes. RCIP 119	68	\$154,000
249	Division St: 257th Ave--UGB	Widen road to allow for bike lanes. RCIP 115.	64	\$184,000
242	Cornelius Pass Rd: St Helens (old) Rd--MP2	Corridor study constraint. RCIP 389.	64	\$858,000
263	242nd Ave: Palmquist Rd--Springwater Trail	Widen road to add bike lanes. RCIP 709.	64	\$164,000
220	202nd Ave: Burnside Rd--Division St	Corridor Study of constraint--wetlands, trees and stream constraints	63	\$355,000
217	190th Ave: Highland Dr--Butler Rd	RCIP 105. Add bicycle lanes	63	\$327,000
264	242nd Ave: Springwater Trail--County Line	Add a shoulder bikeway.	63	\$450,000

CIP Score Ranking Report

Bike Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
226	223rd Ave: Marine Dr--Blue Lake Rd	Add bike lanes to both sides of the road. Could be completed as a part of maintenance program. RCIP 143.	60	\$87,000
227	223rd Ave: Marine Dr--1086' N of Marine Dr	Add sidewalks to both sides of the road. Could be completed as a part of maintenance program.	60	\$90,000
221	202nd Ave: Division St--Powell Blvd	Corridor Study of constraint--significant trees in corridor, typical cross section not possible.	58	\$220,000
247	Division Dr: UGB--Troutdale Rd	Widen to rural arterial standard, including shoulder for bikeway. RCIP 111.	58	\$153,000
254	Foster Rd;330' E of Jenne Rd--County Line	Widen road to add shoulder bikeway. RCIP 93.	58	\$480,000
246	Division Dr: Troutdale Rd--Oxbow Dr	Add shoulder for bike lane, possibly through maintenance program.	58	\$654,000
275	Orient Dr: Salquist Rd--Welch Rd	Widen road to add bike lanes.	57	\$266,000
294	TROUTDALE Rd: Chapman Av--Stark St	Widen road to add bike lanes.	57	\$337,000
295	Troutdale Rd: Stark st--Strebin Rd	Widen road to add bike lanes. RCIP 134.	57	\$347,000
269	Larch Mt Rd: HCRH--End of Road	Add shoulder bikeway	55	\$6,335,000
284	Shattuck Rd: Patton Rd--Windsor Ct	Add shared lane bikeway	55	\$102,000
239	Butler Rd: 190th Ave--Regner Rd	Add shoulder bikeway. RCIP 239.	55	\$797,000
281	Sauvie Island Rd: Reeder Rd--Ferry Rd	Corridor study. Shoulder bikeway	55	\$174,000
283	Scholls Ferry Rd: Hewitt Ave--County Line	Widen to add an uphill bicycle lane. RCIP 101.	53	\$572,000
274	Orient Dr: Welch Rd--Dodge Park Blvd	Add shoulder bikeway	53	\$450,000
222	202nd Ave: Glisan St--Stark St	Corridor Study of constraint--significant trees in corridor, typical cross section not possible. RCIP 138.	53	\$225,000
279	Patton Rd: Scholls Ferry Rd--Hewitt Ave	Shared lane bikeway	52	\$358,000
223	209th Ave: Binford Pkwy--Butler Rd	Add bike lanes to both sides of the road. RCIP 162.	52	\$301,000
236	Blue Lake Rd: 223rd Ave--Interlachen Lane	Add shoulders for bike lanes.	52	\$189,000
232	282nd Ave: Troutdale Rd--Orient Dr	Add shoulders for bike lanes. RCIP 154.	51	\$552,000
282	Sauvie Island Rd: Gillihan Rd--Reeder Rd	Widen road to rural collector standard. (Project would require work on the dike.)	51	\$725,000
233	302nd Ave: Division St--Bluff Rd	Construct a shoulder bikeway	50	\$909,000
712	Dodge Park Blvd: Orient Drive --County Line	Add shoulder bikeway.	50	\$1,788,000
267	Jenne Rd: Johnson Creek--McKinley Rd	Construct to rural arterial standards that will include bike lanes, new bridge at Johnson Creek and drainage improvements. RCIP 65.	48	\$368,000
266	Hurlburt Rd: HCRH--Littlepage Rd	Add shoulder for bikeway, possibly through maintenance program.	48	\$1,022,000
243	Cornell Rd: City Limits - NW 53rd DR	Add shoulder bikeway.	46	\$1,001,000
277	Oxbow Dr: Hosner Rd--Oxbow Park Rd	Add shoulder bikeway	46	\$521,000
296	Troutdale Rd: Strebin Rd--282nd Ave	Widen road to add bike lane.	45	\$593,000
253	Evans Rd: Hurlburt Rd--HCRH	Add shoulders for bikeway, possibly through maintenance program.	45	\$664,000
241	Buxton Rd: HCRH--Cherry Park Rd	Add striped bikelane, possibly through maintenance program.	45	\$204,000
278	Oxbow Park Rd: Oxbow Dr--End of Road	Add shoulder bikeway	44	\$572,000

CIP Score Ranking Report

Bike Fund Capital Projects

Project #	Project Name	Project Description	Score	Total Cost
276	Oxbow Dr: Division Dr--Hosner Rd	Add shoulder bikeway	43	\$971,000
268	Knieriem Rd: Littlepage Rd--HCRH	Add shoulder bikeway	43	\$1,492,000
292	Terwilliger Blvd: Northgate Rd--County line	Widen road, add bike lanes on both sides.	43	\$215,000
240	Butler Rd: Regner Rd--242nd Ave	Add shoulders for bikes lanes, possibly through maintenance program.	41	\$368,000
270	McKinley Rd: 174th Ave--182nd Ave	Add shoulder bikeway	40	\$215,000
291	Terwilliger Blvd: Powers Ct--Coronado St	Widen road, add bike lanes on both sides.	37	\$82,000
297	Woodard Rd: HCRH--Mershon Rd	Add shoulders for bikeway.	36	\$41,000
245	Cornell Rd: County Line-C.O.P. line	Add shoulder bikeway.	36	\$18,000
271	Mershon Rd: Ogden Rd--HCRH	Add shoulder bikeway	35	\$879,000
272	Ogden Rd: Mershon Rd--Woodard	Add shoulder bikeway	35	\$41,000
255	Gliese Rd: 182nd Ave-- 190th Ave	Add shoulder bikeway.	35	\$174,000
265	Humphrey Blvd: Patton Rd--Hewitt Blvd	Add a shared lane bikeway.	31	\$113,000
237	Blue Lake Rd ROW: 223rd Ave-- Interlachen Ln	Add shoulders for bike lanes.	28	\$41,000
711	Divison St SE: Kelly - 235th Ave	Widen road, add bike lanes on both sides.		\$0
717	162nd Ave NE: Halsey -- City Limits	Widen road, add bike lanes on both sides.		\$0
219	201st Ave: Halsey St--Sandy Blvd	RCIP 127. Corridor Study Constraint		\$347,000
737	Morrison Bridge Bicycle Facility	Existing sidewalk on bridge is narrow, not accessible to persons with disability and presents major obstacles to bicycle and pedestrian use. Project would provide a multi-use bicycle and pedestrian facility providing improved access for non-motorized travelers.		\$1,795,000

Bike CIP Cost \$39,042,200

Table 4
Criteria for Bicycle and Pedestrian Project Evaluation

Criteria	Criteria Explanation	Point Range
Cost Effectiveness	What is the cost/benefit of proposed project? Projects that provide the most new infrastructure for the least cost will receive the highest scores.	High – 15 Med – 8 Low – 0
Project Utility	Will the project serve a need/be well used once it is complete? Projects located in high or potentially high pedestrian/bicycle traffic areas will receive top scores.	High – 20 Med – 12 Low – 4
Closes Gap in System	Does the project complete a gap in the system? Does it compliment adjacent facilities? Does it significantly improve an existing facility that is well used? Projects that significantly help to complete a pedestrian or bicycle corridor will receive top scores.	<i>Completes gap:</i> High – 15, Med – 8, Low – 0 <i>Compliments other facilities:</i> 0 – 5 <i>Improves existing facilities:</i> 0 – 5
Proximity to Schools	Is a school adjacent to the project area? Project must be directly adjacent to a school to receive the points.	Yes – 5 No – 0
Safety Improvement	Will the project solve a safety problem once complete? Is there a history of accidents along the project site? Projects that will mitigate a hazard in locations with safety concerns will receive top scores.	<i>Accident history:</i> High – 15, Med – 8, Low – 0 <i>Solves problem:</i> High – 10, Med – 5, Low – 0
Compliment Recent or Future Project	Will the project compliment or enhance a recently complete or near-term future project? Projects located in close proximity to other recent or planned bicycle or pedestrian enhancements will receive top scores.	High – 10 Med – 5 Low – 0
No Other Project	Will another project address all or some of the problem? Projects will receive all 5 points if no other projects planned for the area will address bicycle or pedestrian concerns.	Yes – 5 No – 0
Feasibility	Are there factors within or outside the scope of the project that make it impractical? Projects will receive negative points if concerns about right-of-way, topography, construction timing, or public acceptance make them impractical.	<i>ROW/Topography issues:</i> -3 – 0 <i>Construction timing issues:</i> -3 – 0 <i>Public acceptance concerns:</i> -4 – 0
Bonus	Bonus points will be awarded for proximity to parks (0, 2), trails (0, 2), centers (0, 2), alternate sources of money (0, 2) and community support (0-2).	0 - 10

PEDESTRIAN CAPITAL IMPROVEMENT PLAN

Multnomah County Pedestrian Program FY 2005-2009 Capital Improvement Plan

Through its Multnomah County Land Use and Transportation Program, Multnomah County has undertaken a program to develop a balanced transportation system including sidewalks in the urban areas and shoulders on rural roads. Multnomah County spends much more than one percent of its Motor Vehicle Fuel Tax on pedestrian projects. These expenditures comply with ORS 366.514, which requires each county and city to expend a minimum of one percent of its annual state highway funds on bicycle and pedestrian footpath facilities. Alternatively, the jurisdiction may credit the funds each year to a reserve fund, for a period of not more than ten years.

A portion of Multnomah County's share of state highway funds is transferred to Portland pursuant to an IGA between Portland and the County. Funds transferred include the mandated one percent from bike and pedestrian facilities which Portland is responsible to use within the prescribed 10-year period.

The Pedestrian Capital Improvement Plan update process has evaluated the needed sidewalk projects using criteria developed by County staff to identify priorities. The Multnomah County Bicycle and Pedestrian Citizen Advisory Committee reviewed the criteria and points used to assign priorities to projects.

Policies for the Pedestrian Master Plan and the PCIP are established by Multnomah County in the Multnomah County Comprehensive Framework Plan. The PCIP is consistent with the Comprehensive Framework Plan policies for Capital Improvement (#32) and Bicycle/Pedestrian System (#33C).

Capital improvements to the roadway that address needs other than sidewalks are scheduled in the Roadway Capital Improvement Program (RCIP). If a RCIP project requires sidewalks as part of the project, then it is constructed as part of the roadway construction project. The PCIP schedules improvements that have a high priority for implementation but are not scheduled for construction by the RCIP or other programs in the near future.

Selection Process for the FY 2005-2009 Pedestrian CIP

The Pedestrian Capital Improvement Plan process identifies candidate projects and evaluates them according to an objective ranking system (see Table 4, Criteria for Bicycle and Pedestrian Project Evaluations). In selecting pedestrian capital improvements, the County uses a careful process of addressing the most critical needs and maximizing funding opportunities. The highest ranked projects are scheduled by the County for implementation in the FY 2005-2009 Pedestrian Capital Improvement Program. Table 5 provides the CIP Score Ranking Report for Pedestrian Fund Capital Projects.

Table 5

CIP Score Ranking Report

Pedestrian CIP

Project #	Project Name	Project Description	Score	Total Cost
333	Division St: 175th Ave--182nd Ave	Infill sidewalks on both sides of the road. 1203 feet	83	\$37,000
301	Highland Dr: Linneman Ave--11th Ave	Restripe road to allow for standard bike lanes, install pedestrian island refuge.	82	\$132,000
359	Stark St: 257th Ave-- Troutdale Rd	Add sidewalks to both sides of road.	82	\$1,500
344	Halsey St: 181st Ave--201st Ave	Infill sidewalks on both sides of the street. 1858 feet	81	\$74,000
351	Powell Valley Rd: 257th Ave--282nd Ave	Add sidewalks to both sides of the street. 518 feet	81	\$15,500
345	Halsey St: 162nd Ave--181st Ave	Add sidewalks to both sides of the road. 1483 feet	78	\$35,000
352	Powell Valley Rd: Burnside Rd--257th Ave	Add sidewalks to the South side of the road. 216 feet	78	\$6,500
328	Burnside Rd: 202nd Ave--Fariss Rd	Add sidewalk to the North side of the road. 3933 feet	76	\$156,000
358	Stark St: 201st Ave--206th Ave	Infill sidewalk on both sides of the road.	76	\$37,000
300	181st Ave: Halsey St--Sandy Blvd	Complete sidewalks on both sides of the road 3339 feet	75	\$76,000
335	Division St: 182nd Ave--202nd Ave	Infill sidewalks on both sides of the road.	74	\$100,000
354	Riverwood Rd: Riverside Dr--Military Rd	Add sidewalks to the West side of road.	74	\$12,000
310	223rd Ave: Sandy Blvd--Marine Dr	Add sidewalks to both sidewalks of the road. 638 feet	72	\$19,000
734	242ND / HOGAN DR: Stark to Glisan	Add sidewalks to the West side of road. 248 feet	71	\$0
311	242nd Ave: 2nd St--Powell Blvd	Add sidewalks to the West side of road. 148 feet	70	\$3,000
349	Orient Dr: 14th St--262nd Ave	Add sidewalks to the North side of road. 95 feet	69	\$3,000
313	257th Ave: Orient Dr--Powell Valley Rd	Add sidewalks to both sides of road. 327 feet	69	\$10,000
366	Troutdale Rd: Beaver Creek Ln--Chapman Ave	Add sidewalks to both sides of road.	68	\$5,500
357	Stark St: 216th Ave--223rd Ave	Add sidewalks to both sides of road.	67	\$31,000
302	201st Ave: Halsey St--Sandy Blvd	Add sidewalks to both sides of road, narrow RR overpass. 1456 feet	65	\$27,000
346	Hist Columbia River Hwy: 244th Ave--Halsey St	Add sidewalks to the North side of road. 1515 feet	65	\$47,000
367	Troutdale Rd: Sweetbriar Rd--Sweetbriar Ln	Add sidewalks to the East side of road. 21 feet	64	\$1,000
308	202nd Ave: Division St--14th St	Add sidewalks to Both sides of road. 476 feet	60	\$14,000
299	162nd Ave: Wasco St--Halsey St	Add sidewalks to the East side of road 227 feet	59	\$7,000
329	Butler Rd: Eastwood Pl--Rodlun Rd	Add sidewalks to the South side of road. 32 feet	59	\$1,000
330	Butler Rd: St Andrews--Augusta Loop	Add sidewalks to the North side of road. 174 feet	58	\$5,000
298	162nd Ave: Halsey St--Russell St	Add sidewalks to the East side of road 702 feet	58	\$22,000
307	202nd Ave: 5th St--Division St	Add sidewalks to Both sides of road. 1050 feet	56	\$33,000
304	202nd Ave: Burnside Rd--Stark St	Add sidewalks to both sides of road. 286 feet	56	\$9,000
309	209th Ave: 31st/Willow St--23rd St	Add sidewalks to the West side of road. 47 feet	55	\$1,400
347	Interlachen Ln: Marine Dr--Blue Lake Rd	Add sidewalks to both sides of road. 4203 feet	54	\$129,000

CIP Score Ranking Report

Pedestrian CIP

Project #	Project Name	Project Description	Score	Total Cost
306	202nd Ave: Stark St--Glisan St	Add sidewalks to Both sides of road. 412 feet	51	\$12,000
325	64th Pl: Bucharest Ct--Dead End	Add sidewalks to both sides of road. 670 feet	47	\$20,000
732	Canyon CT: Highland Rd--County Line	Add sidewalks to the North side of road. 2403 feet	47	\$74,000
326	Arata Rd: 223rd Ave--238th Ave	Add sidewalks to both sides of road. 344 feet	46	\$10,500
327	Bucharest Ct: Dead End--County Line	Add sidewalks to both sides of road. 1140 feet	45	\$35,000
340	Glisan St: 200th Ave--223rd Ave	Add Sidewalks to both sides of the road. 671 feet	43	\$20,000
314	48th Pl: Windsor Ct--Downsview Ct	Add sidewalks to both sides of road. 1658 feet	41	\$51,000
320	55th Dr: City Limit--Patton Rd	Add sidewalks to both sides of road. 4109 feet	40	\$126,000
338	Fairview Blvd: Knights Blvd--Kingston Ave	Add sidewalks to the South side of road. 322 feet	38	\$10,000
362	Sweetbriar Ct: 64th Pl--Scholls Ferry Rd	Add sidewalks to the North side of road. 813 feet	36	\$25,000
356	Scholls Ferry Ct: Scholls Ferry Rd--Dead End	Add sidewalks to both sides of road. 1004 feet	36	\$31,000
735	STARCK ST: Evans St to 35th Street	Add sidewalks to the South side of road. 116 feet	36	\$2,500
364	Thomas St: Shattuck Rd--Dead End	Add sidewalks to both sides of road. 1832 feet	35	\$56,000
337	Downsview Ct: 57th Ave--55th Dr	Add sidewalks to both sides of road.	35	\$37,000
369	Windsor Ct: 52nd Pl--Shattuck Rd	Add sidewalks to both sides of road. 2150 feet	35	\$66,000
368	Westdale Dr: 57th Ave--Dead End	Add sidewalks to both sides of road. 1499 feet	35	\$46,000
317	54th Pl: Thomas St--Dead End	Add sidewalks to both sides of road. 580 feet	34	\$17,000
318	55th Ave: Patton Rd--55th Dr	Add sidewalks to both sides of road. 1078 feet	33	\$33,000
319	55th Dr: 55th Ave--Dead End	Add sidewalks to both sides of road. 2924 feet	33	\$90,000
316	52nd Pl: Thomas St--Downsview Ct	Add sidewalks to both sides of road. 2729 feet	33	\$84,000
305	202nd Ave: Glisan St--Oregon St	Add sidewalks to the West side of road. 232 feet	32	\$7,000
343	Grover Ct: Dead End--55th Dr	Add sidewalks to both sides of road. 518 feet	32	\$15,500
322	57th ave: Westdale Dr--Patton Rd	Add sidewalks to both sides of road. 1019 feet	32	\$31,000
336	Downsview Ct: 52nd Pl--48th Pl	Add sidewalks to both sides of road. 1199 feet	32	\$37,000
361	SUNDIAL RD: Marine Dr -- Graham Ct	Add sidewalks to the West side of road. 396 feet	32	\$12,000
321	57th Ave: City Limit--Windsor Ct	Add sidewalks to both sides of road. 1816 feet	32	\$56,000
315	50th Ave: Windsor Ct--Downsview Ct	Add sidewalks to both sides of road. 1900 feet	31	\$58,000
371	Woods Ct: 55th Dr--Dead End	Add sidewalks to both sides of road. 888 feet	31	\$27,000
370	Windsor Ct: 54th Pl--Dead End	Add sidewalks to both sides of road. 1340 feet	31	\$41,000

Pedestrian CIP Cost

\$2,180,900

**FISH PASSAGE CULVERT
CAPITAL IMPROVEMENT PLAN**

Multnomah County Fish Passage Culvert Program FY 2005-2009 Capital Improvement Plan

The Endangered Species Act requires all responsible parties to correct problems that hinder listed fish species from traveling freely within their natural habitat. Multnomah County, with the Oregon Department of Fish and Wildlife (ODF&W), has identified 48 of the county's 1400 culverts that need improvement for fish passage. Characteristics of typical culvert failure to pass fish include outfall heights that are too high for the fish to jump, flat concrete box culvert bottoms that make the flows too shallow, or water flows that are too fast.

Fish Passage Culvert Assessment and Prioritization Scoring

The county formed an employee team of planners, engineers, maintenance supervisors, programmers, and inventory staff to review the initial ODF&W survey data and generated an objective means to evaluate and set priorities for the culverts. A scoring system was devised that incorporated five factors of analysis: 1) Environmental; 2) Fish Species Recovery; 3) Construction Cost; 4) Maintenance Schedule; and 5) Overall Project Impact. A formula was devised to score each culvert's attributes and rank them. (Table 6 outlines the rating and ranking criteria in detail.)

1) Environmental Evaluation:

Transportation staff and an Oregon State University Biologist Intern performed the Environmental Evaluation. Additional resources were also used, including a biological assessment of the watershed by a fish biologist, technical geographical data from ODFW, and Geographical Information Systems (GIS) mapping. There are eight areas that each culvert was assessed and scored with a maximum of 100 points awarded. The better the conditions for fish habit, the higher the number of points awarded.

2) Fish Species Recovery Factor:

The Fish Species Recovery factor is the evaluation of the three areas—upstream length recovered; upstream watershed area recovered; and, other in-stream barriers. The better the conditions to sustain fish habit, the higher the number of points awarded.

3) Construction Cost Factor:

A Construction Cost factor is determined by combining projected design and construction costs. The cost estimate includes land acquisitions. The higher the projected costs, the fewer points awarded.

4) Maintenance Replacement Schedule Factor:

A Maintenance Replacement Schedule factor is applied reflecting the culvert's scheduled replacement. If the culvert is in good to fair condition and is not scheduled for replacement, fewer points are awarded. Points are awarded based on culverts needing to be replaced within 3 years, or more than 3 years.

5) Projected Impact Factor:

The Projected Impact factor considers the positive impact on basin habitat in relation to amount of resources required.

100% = High Positive Impact (maximum factor points awarded)

75% = Medium Favorable Impact

50% = Low Overall Impact

Final Score

The Final Score is determined by multiplying each of the factors above (2-5) by the Environmental Evaluation. Total projected estimated cost at this date for the entire Fish Passage Plan of 48 culverts is \$19,025,783.

The "S Group" - Salmonoids

Once the score has been determined, the culverts that pass Anadromous ESA listings, Salmon and Steelhead, are segregated and ranked, and are designated as Group S. These 25 culverts are separated from the others because they are the highest priority culverts to fix in relation to the National Marine Fisheries rules. Total estimated projected cost at this date for the 25 Group S culverts is \$13,373,000.

The "A, B and C Groups"

The balance of the remaining 23 are ranked and divided into three groups for a total projected estimated cost of \$5,652,000.

Group A are the highest priority for a projected cost at this date of \$2,028,000.

Group B are the 2nd highest priority for a projected cost at this date of \$1,896,000.

Group C are the lowest priority group for a projected cost at this date of \$1,728,000.

Watershed Basins and Funding Needs

The County will need to partner with other public agencies and private entities to address the liability identified by the culvert inventory. Potential community and financial partners include the Governor's Fish Recovery Plan working with Oregon Watershed Enhancement Board (OWEB); ODF&W; other Oregon State agencies; Congressional Representatives; National Oceanic and Atmospheric Administration (NOAA); Army Corps of Engineers; Metro; private groups; and the local Watershed Councils.

The County understands that the fish culvert improvements need to be addressed in the context of the watershed basins they lie in. A multi-year plan needs to be devised to address liabilities totaling \$19 million. The fish passage culverts are located in following seven sub-basins:

1. Tualatin Watershed - a sub-basin of the Willamette River

There is one fish passage culvert in this basin with a current estimate of \$30,000 to correct. Multnomah County works with the Tualatin Basin on Total Maximum Daily Loads (TMDL).

2. Tributaries of the Willamette River - a sub-basin of the Columbia River
There are two fish passage culverts in the lower Willamette River for a total current estimate of \$360,000 to correct.
3. Johnson Creek Watershed - a sub-basin of the Willamette River
There are eight fish passage culverts in this basin for a total current estimate of \$1,873,000 to correct. The County participates with the Johnson Creek Watershed Technical team in presenting a whole basin approach in reviewing potential fixes. These partners include Clackamas County, Cities of Portland, Gresham and Milwaukie, and support information from ODOT.
4. Fairview Creek Watershed - a sub-basin of the Columbia Slough
There are five fish passage culverts in this basin for a total current estimate of \$1,800,000 to correct.
5. Beaver Creek Watershed - a sub-basin of the Sandy River
There are 19 fish passage culverts in this basin for a current estimate of \$9,951,000 to correct. Multnomah County, Metro, and the Sandy River Watershed has targeted this basin as having a great potential in species recovery. The Urban Growth Boundary is currently adjacent to the western watershed boundary

With its headwaters east of the City of Gresham, Beaver Creek flows northward through the City of Troutdale where it empties into the Sandy River. Mainstem Beaver Creek currently supports Winter Steelhead and Cutthroat Trout populations.

6. Sandy River Watershed (excluding the Beaver Creek Watershed)- a sub-basin of the Columbia River
Excluding the culverts in the Beaver Creek Watershed, there are nine fish passage culverts in this basin for a total current estimate of \$4,316,000 to correct. Metro Green Space has identified the Trout and Buck Creeks as highly important for recovery of fish habitat.
7. Tributaries of the Columbia River
There are two fish passage culverts in the lower Columbia River Gorge for a total current estimate of \$456,000 to correct. Another two culverts are on Arata Creek, a piped stream in the cities of Wood Village and Troutdale, for a total current estimate of \$240,000 to correct.

The County's Stream Passage Design

The County wants to forward solutions that minimize restrictions on streams by designing stream passage concepts. Current fish passage engineering calculations determine what the proper size, shape, baffles and gradient of a culvert need to be to pass fish according to seasonal hydrology. Innovative stream passage designs do not restrict the stream and its natural hydrology; rather they

accommodates the natural course of the waterway. The bottomless structure is usually 2 to 4 times wider than the normal local stream width. Design materials include prefabricated concrete or arched corrugated steel, which bridge the stream. With the larger and higher openings, natural light can enter, making it more suitable for fish navigation. The larger openings accommodate stream banks allowing passage for wildlife, and an enhancement for natural riparian development. If the stream changes its course in the future and takes a meandering path, the new wide berth structure will sustain it. By duplicating these solutions within the County's culvert improvement program, savings will be generated in design and construction cost. Implementing long-life stream passage structures will diminish maintenance costs. The reduction of normal culvert maintenance activities and in-stream work will aid fish habitat. At this time, potential bridge designs are also being forwarded for four of the crossings.

Table 6
Criteria for Fish Passage Culvert Evaluation

Fish Passage Culvert Assessment and Prioritization Scoring:

Environmental Evaluation - up to 100 points awarded by accumulation multiplied by
Fish Species Recovery factor - up to 100% awarded equals Environmental Rating multiplied
by
Construction Cost factor - up to 100% awarded multiplied by
Maintenance Replacement Schedule factor - up to 100% awarded Multiplied by
Project Impact factor - up to 100% awarded
equals Final Score segregated into 2 main groups:
- Group S - Listed ESA Species - Salmon and Steelhead
- Groups A, B & C - Non ESA Species - segregated into 3 groups

1. Environmental Evaluation

Riparian Vegetation (15 maximum points awarded) evaluated the quality of the stream's vegetation:
3 = Vegetation is sparse and entirely composed of exotic or invasive species
6 = Little native riparian vegetation is present, dominated by exotic or invasive species
9 = Vegetation is approximately half native riparian species and half exotic or invasive species
12 = Vegetation is dominated by native riparian species at various stages of growth
15 = Vegetation is dense and entirely composed of mature, native riparian trees and shrubs

Stream Shade Cover (10 maximum points awarded) evaluated the quality of shade and tree canopy:
2 = No shade over the creek
4 = Sparse or patchy shade over the creek
6 = Approximately 50% shade cover
8 = 75% shade cover over the creek
10 = Creek is 90% or more shaded

Channel Characteristics (15 maximum points awarded) evaluated the quality of streambed for fish habit and passage:

3 = There are no partial barriers, no meandering of the creek, no debris or in-stream refuge for fish
6 = There are very few partial barriers and pools, minimal in-stream fish refuge
9 = There is presence of in-stream debris to provide refuge for fish, pools & meanders are obvious
12 = There is good channel diversity, a good presence of in-stream boulders or woody debris
15 = The channel is very diverse, there are many partial stream barriers for pools, and the stream has a meandering course.

Overall Flow Quality (5 maximum points awarded) evaluated the quality of stream's flow rates. The culvert's water flows also were reviewed to determine if it match the natural gradient of the stream and ideal flow rates.

Bank Erosion and Stability of Slide Slopes (15 maximum points awarded) evaluated the quality of stream banks:

- 3 = Channelization, undercutting, and erosion of both banks is severe
- 6 = Some channelization, undercutting, or erosion is reduce to only one of the banks
- 9 = Moderate erosion or bank undercutting has occurred on either or both banks
- 12 = Minimal erosion or bank undercutting has occurred
- 15 = There is no undercutting or erosion of the banks

Buffer Zone (15 maximum points awarded) evaluated the quality of buffer zones on streams from development:

- 3 = Creek is surrounded on both sides by developed land with no buffers
- 6 = There is development near the creek but banks may be manicured or landscaped
- 9 = There is approximately a 50 foot buffer zone between the creek and any development
- 12 = There is approximately an 100 foot buffer zone between the creek and any development
- 15 = All development occurs outside a 200 foot buffer zone

Known Fish Species Present (15 maximum points awarded) reviewed the known presence of fish species:

- 0 = None known
- 6 = Cutthroat Trout
- 12 = Coho Salmon
- 15 = Chinook Salmon or Steelhead (ESA listings)

Stream Temperature (10 maximum points awarded) evaluated the water temperature of the stream. The more ideal the temperature for ESA listings, the higher the points awarded.

- 0 = Temperature is less than 38°F, or greater than 68°F
- 6 = Temperature is between 60°F & 68°F
- 8 = Temperature is between 38°F & 45°F
- 10 = Temperature is between 45°F & 60°F

After the field data is entered into the computer, the Environmental Evaluation score is calculated.

2. Fish Species Recovery Factor

Upstream Length Recovered is the passable length, from the culvert to next natural barrier (25% maximum factor points):

- 5% = 0.0 - 0.5 miles
- 10% = 0.5 - 1.0 miles
- 15% = 1.0 - 2.5 miles
- 20% = 2.5 - 5.0 miles
- 25% = over 5.0 miles (maximum factor points awarded)

Upstream Watershed Area Recovered is the watershed area recovered from the culvert to next natural barrier,(25% maximum factor points):

0% = 0 - 100 acres

5% = 100 - 500 acres

10% = 500 - 1,000 acres

15% = 1,000 - 2,000 acres

20% = 2,000 - 3,000 acres

25% = over 3,000 acres (maximum factor points awarded)

Barriers Downstream: takes in consideration of downstream barriers (50% maximum factor points):

0% = Natural barrier downstream

20% = Seasonal natural barrier downstream

30% = Artificial barrier downstream

40% = Restricted artificial barrier downstream

50% = No barrier downstream (maximum factor points awarded)

The three above scores are totaled, which represents the Fish Species Recovery percent factor.

Environmental Rating

This Fish Species Recovery percent total score is multiplied to the Environmental Evaluation score resulting into the Environmental Rating.

3. Construction Cost factor

100% = \$0 (maximum factor points awarded)

95% = \$5,000

85% = \$75,000

66% = \$1,000,000 or greater

4. Maintenance Replacement Schedule Factor

100% = Needs to be replaced within the next 3 years (maximum factor points awarded)

75% = Does not need to be replaced within 10 years

5. Projected Impact Factor

100% = High Positive Impact (maximum factor points awarded)

75% = Medium Favorable Impact

50% = Low Overall Impact

Final Score

The Final Score is determined by multiplying each of the factors above (2-5) to the Environmental Evaluation.

Table 7

Fish Passage Culvert Project Scores

Culvert	Basin/Creek	Stream MP	Road Road Name / Milepost	Enviro. Score	Recov. Score	Enviro. Rating	Project Cost	Cost Factor	Maint. Schedule	Project Impact	Total	Group
493-06	JC Johnson	3.5	282ND Av, SE - MP: 2.046	76	60%	46	\$325,000	79%	100%	100%	36	S
404-01	SR Beaver	2.4	Stark St, SE - MP: 1.129	60	90%	P? 54	\$1,300,000	66%	100%	100%	36	S
450-12	SR Beav.Trib	0.6	Division Dr, SE - MP: 0.881	77	55%	42	\$391,085	78%	100%	100%	33	S
450-17	SR Beaver	3.2	Division Dr, SE - MP: 2.109	61	80%	49	\$120,000	84%	75%	100%	31	S
466-02	SR Beav.Trib	1.4	Lusted Rd, SE - MP: 0.285	64	60%	38	\$335,786	79%	100%	100%	30	S
493-01	SR Beav.Trib	0.5	282ND Av, SE - MP: 0.031	85	50%	43	\$768,912	70%	100%	100%	30	S
450-15	SR Beaver	3.2	Division Dr, SE - MP: 1.763	56	80%	45	\$182,000	82%	75%	100%	28	S
506-10	SR Buck	4.0	Gordon Creek Rd, SE - MP: 1.271	90	55%	50	\$2,300,000	66%	100%	75%	25	S
493-05	JC N. Fork	0.8	282ND Av, SE - MP: 1.593	77	80%	62	\$360,000	79%	100%	50%	24	S
443-08	SR Kelly	1.0	257TH Av / Kane Dr, SE - MP: 2.79	75	80%	60	\$240,000	81%	100%	50%	24	S
143-18	TR Rock	5.7	Rock Creek Rd, NW - MP: 2.473	79	60%	47	\$30,000	91%	100%	50%	22	S
330-10	JC Unknown	1.0	Butler Rd, SE - MP: 2.443	92	55%	51	\$120,000	84%	100%	50%	21	S
447-07	JC N. Fork	0.1	Telford Rd, SE - MP: 0.682	75	70%	53	\$276,000	80%	100%	50%	21	S
330-02	JC Johnson	1.0	Butler Rd, SE - MP: 0.897	83	50%	42	\$120,000	84%	100%	50%	17	S
395-02	JC Kelly	1.4	190TH Dr, SE - MP: 1.18	77	65%	50	\$276,000	80%	75%	50%	15	S
445-01	JC N. Fork	2.0	262ND Av, SE - MP: 0.156	44	80%	35	\$276,000	80%	100%	50%	14	S
458-01	SR Beaver	3.3	Cochrane Rd, SE - MP: 0.044	68	40%	P? 27	\$1,000,000	66%	75%	100%	13	S
411-09	SR Beaver	6.1	302ND Av, SE - MP: 2.066	69	40%	P? 28	\$75,000	85%	75%	75%	13	S
402-01	SR Kelly	2.0	Division St, SE - MP: 0.482	64	75%	48	\$720,000	71%	75%	50%	13	S
489-12	SR Beaver	2.0	Troutdale Rd, SE - MP: 2.476	79	40%	P? 32	\$1,300,000	66%	75%	75%	12	S
452-18	SR Beaver	0.0	Oxbow Dr, SE - MP: 1.228	57	40%	P? 23	\$75,000	85%	75%	75%	11	S
452-22	SR Beaver	7.6	Oxbow Dr, SE - MP: 1.513	51	40%	P? 20	\$75,000	85%	75%	75%	10	S
466-13	SR Beaver	8.3	Lusted Rd, SE - MP: 3.015	45	40%	P? 18	\$75,000	85%	75%	75%	9	S
489-06	SR Beaver	4.6	Troutdale Rd, SE - MP: 0.615	57	40%	P? 23	\$1,733,000	66%	75%	75%	8	S
450-13	SR Beaver	4.6	Division Dr, SE - MP: 0.94	57	40%	P? 23	\$900,000	68%	75%	50%	6	S
Group S = Anadromous ESA Listings: Highest Priority							Sub Total =	\$13,373,783				
323-02	FC Fairview	1.1	223Rd Av, SE/NE - MP: 2.303	72	95%	68	\$120,000	84%	100%	100%	57	A
411-07	SR Beav.Trib	1.0	302ND Av, SE - MP: 1.492	87	75%	65	\$120,000	84%	100%	100%	55	A
503-08	SR Unknown	0.9	Littlepage Rd, SE - MP: 0.421	79	85%	67	\$276,000	80%	100%	100%	54	A
318-01	FC Fairview	2.1	Sandy Bl, NE - MP: 0.97	82	85%	70	\$600,000	74%	100%	100%	52	A
533-16	CR Young	1.6	Brower Rd, NE - MP: 2.838	83	75%	62	\$276,000	80%	100%	100%	50	A
505-11	SR Pounder	1.3	Pounder Rd, SE - MP: 0.018	87	70%	61	\$276,000	80%	100%	100%	49	A
291-02	WR Balch	1.0	Thompson Rd, NW - MP: 0.22	71	70%	50	\$180,000	82%	100%	100%	41	A
506-24	SR Trout	10.4	Gordon Creek Rd, SE - MP: 2.73	97	50%	NB 49	\$180,000	82%	100%	100%	40	A
Group A = High Priority							Sub Total =	\$2,028,000				
468-01	SR Beav.Trib	1.5	Pipeline Rd, SE - MP: 0.1	83	60%	50	\$360,000	79%	100%	100%	39	B
580-15	CR Latourell	2.6	Haines Rd, E - MP: 0.801	97	45%	NB 44	\$180,000	82%	100%	100%	36	B
304-01	FC Fairview	1.1	Stark St, SE - MP: 2.299	64	65%	42	\$120,000	84%	100%	100%	35	B
537-01	SR Smith	0.2	Christensen Rd, SE - MP: 0.745	74	55%	41	\$276,000	80%	100%	100%	33	B
275-04	WR Balch	0.2	Cornell Rd, NW - MP: 1.434	74	70%	52	\$180,000	82%	75%	100%	32	B
306-01	FC Fairview	0.5	Burnside Rd, E - MP: 2.498	63	65%	41	\$600,000	74%	100%	100%	30	B
493-04	SR Kelly	1.2	282ND Av, SE - MP: 0.84	57	60%	34	\$180,000	82%	100%	100%	28	B
Group B = Middle Priority							Sub Total =	\$1,896,000				
534-02	SR Buck	3.0	Deverell Rd, SE - MP: 1.879	97	35%	NB 34	\$276,000	80%	100%	100%	27	C
410-02	CR Arata	0.5	Halsey St, NE - MP: 0.236	70	45%	32	\$120,000	84%	75%	100%	20	C
397-01	FC Fairview	0.4	202ND Av, SE - MP: 0.825	53	60%	32	\$360,000	79%	75%	100%	19	C
534-11	SR Buck	1.0	Deverell Rd, SE - MP: 0.248	97	30%	NB 29	\$276,000	80%	100%	75%	17	C
535-01	SR Smith	0.3	Northway Rd, SE - MP: 0.262	69	30%	NB 21	\$276,000	80%	100%	100%	17	C
375-01	JC Unknown	0.5	Barbara Welch Rd, SE - MP: 0.35	37	50%	19	\$120,000	84%	100%	100%	16	C
520-03	SR Smith	1.9	Hurlburt Rd, SE - MP: 0.38	74	25%	NB 19	\$180,000	82%	100%	100%	15	C
439-01	CR Arata	0.2	244TH Av, NE - MP: 0.098	42	15%	NB 6	\$120,000	84%	100%	100%	5	C
Group C = Lowest Priority							Sub Total =	\$1,728,000				
							\$19,025,783 = Total Program Cost					

Basin Legend: CR = Columbia River, FC = Fairview Creek, JC = Johnson by ODFW Creek

SR = Sandy River, TR = Tualatin River, WR = Willamette

Environmental Score X Recovery Score = ENVIRONMENTAL RATING X Cost Factor X Replacement Schedule Factor X Project Impact Factor = FINAL SCORE Total

P? = Potential Partial Barrier not originally identified

NB = Year Round Downstream Natural Barrier

**ROADWAY, BIKEWAY, PEDESTRIAN
AND FISH PASSAGE CULVERT
CAPITAL IMPROVEMENT PROGRAM**

**MULTNOMAH COUNTY FY 2005-2009
ROADWAY, BIKEWAY, PEDESTRIAN AND FISH PASSAGE CULVERT
CAPITAL IMPROVEMENT PROGRAM**

INTRODUCTION

Multnomah County Transportation Division has established a Capital Improvement Plan (CIP) process. This process follows guidelines established in the County Comprehensive Framework Plan: Physical Support System Policies. The objective of the Capital Improvement Plan is to identify and set priorities for road and related improvements necessary to maintain and enhance the County transportation system.

The capital improvement process involves two major work elements: development of the Capital Improvement Plan (CIP), followed by development of the Transportation Capital Improvement Program (TCIP). The Capital Plan identifies capital needs for specific projects based on various information including traffic safety, road capacity and system deficiencies, economic development and community concerns. Once the inventory of capital needs has been identified, the Plan ranks the projects using objective criteria to determine the relative importance of future improvements.

Capital planning identifies segments of the county road system that have not been improved to County standards. The Capital Program implements the CIP by assigning available revenue to the highest ranked capital projects. Roadway, bikeway, pedestrian and fish passage culvert projects are ranked separately. A schedule is established of ranked projects for each year from FY 2005 to FY 2009.

Capital programming schedules resources over the five-year period to bring portions of each system up to standards. Future revenue is estimated and allocated to the highest ranked projects until estimated revenue is fully allocated. A number of constraints influence this schedule, which may change the order in which projects are constructed.

Capital Projects

Capital improvements are projects to improve county transportation facilities where either substantial reconstruction or new construction is required. Examples of capital projects include:

- Road reconstruction
- Extensive guardrail replacement
- Sidewalk construction
- Extensive drainage improvements
- New traffic signals and upgrades to existing traffic signals
- Intersection improvements
- Road widening and the construction of new roadways
- Bikeway construction
- Culvert replacement

Road maintenance projects such as crack sealing, striping and signing are not funded by the Transportation Capital Improvement Program. Maintenance is funded separately in the Division's Operations and Maintenance Budget. There are instances where roads that have been developed to current standards require major reconstruction. They are identified in the TCIP as capital preservation. The road overlay program is also funded through the capital program.

Transportation Funding Strategy

County Comprehensive Framework Plan: Policy #34: Transportation, provides guidance to the Division in developing the County transportation system.

The adopted County policy is to develop a safe and efficient trafficway system using the existing road network, and by:

- (1) Improving streets to the standards established by the road classification system;
- (2) Placing priority on maintaining existing trafficways; and
- (3) Making improvements to the existing system which maximizes its capacity rather than constructing new facilities.

This policy establishes the overall capital improvement funding strategy: to enhance the existing road system before constructing new facilities. Capital projects that are scheduled for construction address the most critical transportation needs based on the objective evaluation process.

TCIP Organization

The Transportation Capital Improvement Program summarizes in the following sections:

- Projects recommended for funding are determined in the Project Schedule section.
- Estimated costs and funding sources for each project.
- Scheduled project implementation and constraints to development.

The Capital Programming Process section describes in general terms the relationship between the Capital Plan and the Capital Program and describe the capital programming process in greater detail.

The Transportation Funding section discusses assumptions used to develop revenue forecasts, and provides a general description of revenue sources utilized by the Multnomah County Transportation Division to fund capital improvements.

The Conclusion section provides a summary of transportation capital needs and funding capabilities for roadway, bikeway and pedestrian capital projects.

The final Project Schedule section describes project categories and the capital improvement schedule. Project detail sheets describe each proposed improvement. This section represents the culmination of the CIP and TCIP processes.

THE CAPITAL PROGRAMMING PROCESS

The Transportation Capital Improvement Program implements necessary transportation improvements identified in the CIP. The CIP has identified the array of capital needs on the County system and established priorities among these future capital projects. The process developed to implement the CIP is illustrated in the Capital Improvement Plan and Program Flow Chart, Appendix II. Implementing the capital plan requires budgeting available revenue to the most critical and highest ranked transportation projects.

The first major step in this process is to prepare revenue forecasts. The revenue forecast is based on future projections regarding population growth trends, number of registered motor vehicles, road miles in the County system, gas tax revenue, and federal forest receipts. (See Transportation Funding section for a complete explanation of revenue sources.)

The next major step is to determine constraints to project development. CIP projects are compared with other public and private projects occurring in County road rights-of-way. This comparison will determine if a County CIP project will need to be coordinated with other non-CIP projects. Reviewing possible development constraints will: 1) establish the date that construction could begin for each CIP project; and, 2) coordinate development activities within road rights-of-way; and, 3) reduce the costs of implementing individual projects. Coordination of construction activities in road rights-of-way can reduce costs of individual projects, but may delay construction of the road project to accommodate the other projects. Development constraints reviewed include:

1. Local jurisdictions' capital programs for sanitary sewer, water, and storm sewer systems which may delay a road project.
2. Projects funded with outside revenue sources may require an environmental analysis, or other planning and decision processes that could delay a project.
3. Utility construction (water, power, sewers and communication) are coordinated with each city or utility district or utility company for each County project.
4. Right-of-way acquisition is assumed to require one year to complete.

After revenue forecasts are prepared and the earliest construction dates are identified, the next step is to schedule projects for construction. The highest ranked projects with the earliest start dates are assigned available revenue.

Two or more projects may be combined into a single project when convenient or economical. For example, a signal safety project may be incorporated with a road improvement when they coincide. However, where a priority intersection project would be significantly delayed by a road project, the intersection project will remain independent of the road project. Scheduling of County projects can also be effected by scheduling and funding of other related projects (such as drainage and culverts).

The Capital Plan and Program for Multnomah County roads, signals, bikeways, fish passage culverts, sidewalks and bridges are reviewed and approved at a public hearing before the Board of County Commissioners. Prior to public hearings, new projects were solicited at three public meetings held throughout the county.

East County cities had the opportunity to review draft plans and suggest changes or resolve differences. The East Multnomah County Transportation Committee has reviewed the recommended plan and program, and recommended approval to the Board of County Commissioners. Upon Board approval, the first year of the capital program will be budgeted in the Division's annual budget (Multnomah County Road Fund Budget). Projects scheduled for the second through the fifth years of the program may change as the result of the annual review of the CIP.

TRANSPORTATION FUNDING

Introduction

Multnomah County funds many of its transportation responsibilities through the Road Fund which is a dedicated revenue source comprised primarily of transportation user fees. State Highway Trust Funds, Federal Forest Receipts and County Gasoline Taxes are the primary sources of revenue. Road funds are restricted by county ordinance and the Oregon State Constitution for road purposes only. However, these sources can be used for planning, engineering, constructing and maintaining facilities within road rights-of-way.

For a variety of reasons as described in the introduction, funding for new capital construction is severely limited. Therefore, in an effort to construct as many projects as possible, effort is focused where limited county dollars are able to leverage other dollars.

The county has attempted to identify outside sources of funds that are likely candidates to match county funds. These sources include, but are not limited to, the Metropolitan Transportation Improvement Program (MTIP); State Transportation Improvement Program (STIP), private development (either through project agreements or construction permits); Oregon Transportation Investment Act (OTIA); or, Oregon Watershed Enhancement Board (OWEB).

The total capital need identified in the (Roadway) CIP is \$284 million. The funding capability forecasted in the County Transportation Capital Improvement Program for the five-year period is estimated at \$30.2 million, with most of the funds provided by outside sources (OTIA, MTIP, STIP, etc.). To construct the remaining projects in the Program, the County would need an additional \$600,000 in revenues to match \$6.1 million in other funds (MTIP, if funds are awarded). Limited revenue resources, environmental considerations, and additional requirements (i.e. permitting) do not allow all projects to be completed in an ideal timeframe. The capital program will need to be modified as revenue forecasts and capital needs change.

Revenue and cost estimates are based on historical records and the best available current information. Revenue forecasts were without factoring potential changes in state and federal sharing of transportation funding (i.e. no additional or reduced state and federal revenue).

The Transportation Funding section explains: 1) where road fund revenues (which pay for capital improvements) are derived, 2) what outside funds can be used for capital improvements, and 3) requirements of Multnomah County in allocating funds including: the Portland Intergovernmental Agreement (Portland Agreement), Willamette River Bridges requirements, road maintenance and the Bike Fund. Finally, assumptions used in developing the revenue forecasts for the CIP are discussed.

Revenue Sources

Road Fund Sources

Road fund revenues for Multnomah County are derived primarily from four sources:

1. **State Highway Trust Fund:** Revenue from this source include the State gasoline tax, weight/mile tax on trucks, and vehicle registration fees, which are each constitutionally dedicated to road-related uses. The State Highway Trust Fund is distributed to the State, counties and cities at a rate of 60%, 24% and 16% respectively, after funding the Department of Motor Vehicles. Multnomah County is expected to receive \$27 million in FY 05-06 in gross revenue (before distribution to the city of Portland per the 1983 Portland Intergovernmental Agreement). One percent is dedicated to bikeways and pedestrian facilities.
2. **Federal Forest Receipts:** These revenues derive from timber cut in National Forests within Multnomah County. Under Oregon Revised Statute (ORS) 294.060, the funds received under ORS 293.560 are allocated at a rate of 75% to the Road Fund and 25% to the School Fund. Annual revenue to the Road Fund is estimated at \$600,000.
3. **County Gasoline Tax:** Established under Multnomah County Code (MCC) 5.30.030 as a business license fee for Multnomah County, the one cent per gallon tax was imposed in 1977, and increased to three cents per gallon in 1981. Today, the three cents raises approximately \$7.8 million annually. See MCC 11.200.
4. **Oregon Transportation Investment Act (OTIA):**

Other revenue in the Road Fund includes service reimbursements including fees related to new development, and interest on investments.

Outside Funds

There are two primary sources of federal funds used by Multnomah County to fund road improvements: Surface Transportation Program (STP) funds and Highway Bridge Repair and Replacement (HBR) funds.

Congress passed the Transportation Equity Act for the 21st Century (TEA-21) in 1998. This act substantially modified the way federal transportation funds are used for transportation purposes. Congress created the broad and flexible STP revenue category to replace more restrictive road funding categories. A percentage of these funds is distributed to the metropolitan region by the state. These dollars are available competitively to Multnomah County and other agencies for alternative transportation projects, as well as road projects.

Federal bridge funds (HBR) are available to Oregon based upon a formula defining the relative condition of bridges throughout the state. This applies to the Willamette River Bridges for Multnomah County and provides \$6 million per year for capital.

State funds are also available for safety improvement projects which are deemed eligible based on historical crash data. The Division applies for those funds when specific projects qualify.

Revenue Requirements

Capital Program

Annual allocations are made from the Road Fund for the Portland Agreement and for Willamette River Bridges; the County Bike and Pedestrian Fund; agreements with the cities of Troutdale, Fairview and Gresham; and, road maintenance. Remaining funds are then allocated to road capital projects which may also include bikeways and pedestrians.

Portland Agreement

In 1984 the city of Portland and Multnomah County entered into an intergovernmental agreement to share revenues and road responsibilities related to the City's annexation of portions of unincorporated Multnomah County. County maintained roads within the city limits of Portland were transferred to the City in conjunction with a share of the County's Road Fund dollars. The formula for sharing County road funds with the City provided for an increased share of revenue based on miles of road transferred and population increases from annexation.

The 1984 Portland Agreement was amended in 1989 so that all user fee revenues received by the County and City are shared based solely on proportional road mileage of the City and County systems. County Road Fund revenue estimated to be transferred to the City of Portland in FY 05 \$21.1 million.

Transportation Initiatives Agreement

In FY 1995 Multnomah County reached an agreement to transfer roads and other resources to the cities of Fairview, Troutdale and Gresham. Included in the transfer is approximately 70 miles of local roads, along with revenue to maintain the roads. In FY '05 Multnomah County will transfer \$529,000 to these cities which is reflected in the projected revenues available for capital improvements. The amount is adjusted annually to reflect the Portland consumer price index, reducing the amount available for the county's capital projects.

Willamette River Bridges

The Portland Agreement specifies yearly allocations of funds for capital construction and maintenance on the six County-maintained Willamette River Bridges. These bridges are: the Sellwood, Hawthorne, Morrison, Burnside, Broadway, and Sauvie Island. A portion of this money is set aside (through the Portland Agreement) and reserved from the County road funds prior to administration of the sharing formula. Another portion is subtracted from the City's allocation. (Please refer to the City of Portland Intergovernmental Agreement, amended August 1989 for more detailed information.) Programming funds for capital construction of the Willamette River Bridges is done under the County's *Capital Improvement Plan and Program for the Willamette River Bridges* section of the Transportation Capital Improvement Program.

Road Maintenance

Historically, Multnomah County has put great emphasis on maintenance of its road system. Until recently, the maintenance programs for the County road network and bridge system were fully funded. However, as a result of stagnant funding levels, the County is deferring many maintenance activities and is accumulating an increasing maintenance backlog on the surface street system.

Bike Fund

Under ORS 366.514, one percent of the State Highway Trust funds received by the County is to be spent on bicycle facilities or footpaths. Multnomah County has established a separate fund for bicycle and pedestrian facility development. These resources are programmed under the Bicycle Capital Improvement Program section.

Revenue Forecast Assumptions

The following assumptions are used to develop revenue forecasts for the Transportation Capital Improvement Program.

- State Highway Trust Fund monies to be received by the County are forecast from a County model which assumes a base revenue, developed from historical data.
 1. The base revenue is shared with counties and cities at an average percentage rate of 24.38% and 15.57% respectively.
 2. Multnomah County's share of all counties' share of the State Highway Trust Fund is 16.82% (number of registered vehicles in Multnomah County/number of registered vehicles Statewide).
 3. Portland's share of State Highway Trust Fund monies is 24.85% of all cities' share which is based on a population formula.

- The Multnomah County gasoline tax raises about \$7.8 million annually.
- Willamette River Bridges maintenance costs and a portion of capital costs are subtracted from the County's share of the State Highway Trust Fund and County Gas Tax. Additional capital is taken from the City of Portland's share per the Portland Agreement.
 1. Willamette River Bridge maintenance costs (adjusted annually to reflect Portland CPI) are estimated to be \$5.3 million in FY '05.
 2. The annual bridge capital requirement is \$1,500,000; \$1,060,000 from the County's share, with the remainder from Federal Forest Receipts and the city of Portland.
- Federal Forest receipts are retained by the County and are not factored into the sharing formula for the Portland Agreement. Projected Federal Forest revenue is estimated at \$600,000 in FY '05.
- Total revenue for sharing with the City of Portland is comprised of:
 - State Highway Trust Fund to the County
 - County Gasoline Tax (less Willamette River Bridge allocations)
 - State Highway Trust Funds to the City.
 - Revenue is shared based on the percentage of city road miles and county road miles.
- County's gasoline tax allocation of the Road Fund includes:
 - County allocation of shared revenue
 - + Urban service and WRB set-asides from Portland
 - + Federal Forest receipts
 - + Funds taken off the top for WRB maintenance and capital.

Other Revenue

- County road receipts include other revenue in addition to user fees. These include: reimbursements, permits, interest and miscellaneous (excluding beginning working capital), which are expected to provide \$1.5 million per year.
- Other revenues are projected at a constant rate, with the exception of beginning working capital.
- Beginning working capital is comprised primarily of obligated funds not yet spent, and unaccounted revenue as a result of under-forecasting.

CONCLUSION

The Transportation Capital Improvement Program has been developed to implement the capital plan. The capital plan identifies projects of greatest need on the Multnomah County road system. The capital program identifies funding sources and schedules the projects for construction. Because of limited funding, projects selected for inclusion in the capital program are high priority and meet other transportation needs and values.

As funds are limited, efforts are made to leverage other funds whenever possible. Therefore, partially funded projects are those projects where some of the funds are available, but insufficient to complete the project without additional funds. The county has leveraged some capital funding sources by committing other capital funds to match these sources. Further, the county has identified and is pursuing other potential sources of funding.

The CIP identifies approximately 250 road, fish passage culvert, bicycle and pedestrian transportation (rural and urban) projects. Total estimated liability for all 250 projects is approximately \$304 million in 2004 dollars.

The capital planning and programming process is designed to ensure that limited resources for transportation capital projects will be allocated to the most critical transportation needs. Other competing needs for funding are safety projects and capital preservation projects. Project ranking and rating criteria places an emphasis on improving safety conditions where a known solution is possible.

Capital preservation is also important as funds for road overlays and upkeep has dwindled the past few years. While still relatively high, the pavement condition index (PCI) continues to decline and left unchecked, will result in higher maintenance costs in the future, thereby eroding the ability to fund new capital projects.

The priority ranking system developed in the Plan recognized 250 projects in all road categories. Twenty-six of these projects have been scheduled for development in this TCIP. In addition, funds are set aside to cover other expenses—remediating safety concerns, repairs, ADA improvements, leveraging private development activities, etc.

Constantly changing community needs will alter County transportation program priorities over time before all projects can be constructed. The Transportation Capital Improvement Program is reviewed by the Division on an annual basis, and fully revised including public input biennially. The current CIP is based on the best available revenue and cost information, and by clear and objective means, sets forth a strategy for addressing the highest priority transportation needs.

TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM

FY 2005-2009 TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM

The total capital need identified in the Transportation Capital Improvement Plan is \$304 million, for 250 candidate projects. Needed facility improvements are ranked by facility type and include:

- Arterial Streets
- Collector Streets
- Bridges (other than Willamette River Bridges)
- Signal/Intersections
- Street Design Concepts
- Bicycle
- Pedestrian
- Fish Passage Culvert
- Preservation and Safety

The transportation capital funding capability of Multnomah County for the next five-year period is approximately \$6 million (exclusive of carryover). Contrasted with approximately \$304 million in capital needs, projects with the most critical need and no development constraints are programmed for priority development.

Total cost of the projects included in the capital program is \$30.2 million. Therefore Multnomah County will need to come up with additional sources for leveraging \$24.2 million. Potential sources of the \$24.2 million include regional funds, private development, traffic impact fees and grants.

Of the 250 current CIP candidate projects, 26 new projects are scheduled in the Capital Improvement Program for development during FY 2005-2009. In addition, funds are also earmarked for annual allotments to address safety issues as needed, ADA compliance, road overlays and repairs.

**FY '05--'09 CAPITAL IMPROVEMENT PROGRAM
NEW CAPITAL ALLOCATION SUMMARY**

Category	Needs	Program FY '05--'09	
		Total Segment Cost	County Funds
Arterial	\$139,774,000	\$8,907,000	\$4,175,000
Collector	\$58,389,000	\$1,315,000	\$500,000
Bridges (non-Willamette River Bridge)	\$22,951,000	\$7,153,000	\$2,799,000
Signal/Intersection	\$17,454,000	\$862,000	\$862,000
Street Design Concept	\$5,019,000	\$0	\$0
Bicycle	\$39,042,000	\$40,000	\$40,000
Pedestrian	\$2,181,000	\$100,000	\$100,000
Fish Passage Culvert	\$19,026,000	\$4,870,000	\$0
Other*		\$6,642,000	\$5,946,000
Total	\$303,836,000	\$29,889,000	\$14,422,000

*Includes preservation and safety, ADA Compliance and debt service

Project Categories

The Roadway Capital Improvement Program consists of nine funding categories: Arterial, Collector, Signal/Intersection, Bridges, Street Design Concepts, Bicycle, Pedestrian, Fish Passage Culvert and other. A separate category, Carryover projects consists of projects that fall under one or more of these funding categories as previously allocated, but not completed, in the prior year.

Funding Category Definitions

Arterial Streets

Arterial streets carry the highest volumes of traffic on the county road system and are three to five lanes. Rural Arterial streets are two lanes. Arterial streets are the regional traffic arteries of the East County road system. Arterial streets continue to be the most critical need on the county road system.

Arterial streets carry traffic between cities and provide direct connection between regional activity centers. Development of a multi-modal arterial system not only insures an efficient transportation network, it also reduces the negative effects of through traffic using neighborhood streets. Consequently, the highest priority, aside from safety and maintaining the existing system, is to make necessary improvements to the arterial streets.

Collector Streets

Collector streets are the next highest priority and carry area traffic between neighborhoods and the arterial system. Collectors are not intended to serve through traffic.

Signal/Intersection

Traffic signals and turn lanes at intersections facilitate traffic flow and safety. Intersection and signal improvements can be developed independent of a road project. Improvement of intersection geometry, signal timing, or adding turn lanes at intersections can provide additional capacity and safety for an entire road segment.

Bridges

Bridges in this section, excluding Willamette River Bridges, are integral to the County road system and should be improved as roadways are improved. For example, five narrow railroad bridges over the existing county roads will need to be widened as the roads are improved. Willamette River Bridges under Multnomah County jurisdiction can be found in the *Capital Improvement Plan and Program for the Willamette River Bridges* section of this document.

Street Design Concepts

Street Design Concepts are intended to serve multiple modes of travel in a manner that supports the specific needs of the 2040 land-use components. One of the needs of the 2040 land-use components is to ensure the livability of the region. The street design concepts fall into four broad classifications for regional facilities:

1. Throughways that emphasize motor vehicle travel and connect major activity centers.
2. Boulevards that serve major centers of urban activity and emphasize public transportation, bicycle and pedestrian travel while balancing the many travel demands of intensely developed areas.
3. Streets that serve transit corridors, main streets and neighborhoods with designs that integrate many modes of travel and provide easy pedestrian, bicycle and public transportation travel.
4. Roads that are motor vehicle oriented with designs that integrate all modes but primarily serve motor vehicles.

Bicycle

Bicycle facilities are an integral component of Multnomah County's multi-modal transportation system. Multnomah County spends in excess of the mandated (ORS 356.514) 1% on bicycle facilities as they are included in all new road construction projects. The 1% allotted to bicycle facilities is typically for stand-alone facilities.

The total capital need identified in the Bikeway Capital Improvement Plan is \$39 million for 100 miles of bikeway facilities. In addition to providing 100 miles of bike lanes, paths and shoulder bikeways, there are 75 signalized intersections on the bikeway system where traffic signal detectors in the bike lanes would enhance the bike system.

Pedestrian

The Pedestrian Program is currently a sidewalk infill program including only urban streets that have curbs and drainage facilities in place. It is costly to develop sidewalks on urban streets without curbs due to the expense of installing drainage facilities. Curbed streets with drainage facilities significantly reduce sidewalk construction costs, making the PCIP a cost-effective sidewalk infill program. Multnomah County has developed a comprehensive inventory of sidewalks in the urban areas that have curbs but lack sidewalks.

Preservation and Safety Improvements

There are several components that comprise preservation and safety. First, for preservation there are 2 components. The first is the annual maintenance overlay program. The amount allotted to overlays has been reduced from over \$1 million annually to \$200,000 annually. The result is a deterioration in pavement conditions. While most county roads presently rate excellent to good, they are rapidly deteriorating and many roads will drop below the good rating. The second component is road reconstruction. At present 2 roads require reconstruction due to failing pavement conditions. This is where the road has been built to county standards and no new facilities are anticipated.

Monies are also set aside for unanticipated traffic hazards requiring immediate attention to protect the traveling public, e.g., to repair a washed out roadway, and are funded from this category.

Americans With Disabilities Act (ADA)

All new county facilities are constructed to comply with ADA requirements. The county sets aside an annual allotment of funds to address older county facilities that were constructed prior to current ADA standards that require modification to meet ADA.

Debt

To construct the improvements at 257th Ave and Orient Dr the county obtained a Certificate of Payment (COP) to fund the improvements. The amount identified under this category refers to the funds necessary to retire the debt. The payments run through 2015.

CIP Project Schedule

The five-year Capital Improvement Program schedule displays by year, monies allocated for each programmed project. A Project Detail Sheet provides greater information on the scope of each scheduled project.

Project Detail Sheets

Project Detail Sheets describe transportation projects scheduled for construction within the Capital Improvement Program for FY '05—'09. Project detail descriptions are organized by project ranking and category.

Information on the Project Detail Sheets include:

- Program
- Project Name (street name and from - to termini points);
- Project Number (a unique number assigned for cost accounting purposes for budgeted projects and mapping purposes);
- Project Description (brief description of the planned improvements);
- RTP number, if applicable;
- Traffic Impact Fee (TIF), if applicable;
- Score, project score as detailed in rating and ranking by category;
- IRIS road number and mile points;
- Project cost (ROW and construction, including engineering);
- Detail Map of Project Area (highlighting project location).
- Programmed Improvements are denoted in matrix, if applicable

Table 8

FY 2005--2009 ROADWAY CAPITAL IMPROVEMENT PROGRAM

PROJECT NAME (From/To; Proj. #)	FY 2005		FY 2006		FY 2007		FY 2008		FY 2009	
	Total Cost	County Funds	Total Cost	County Funds	Total Cost	County Funds	Total Cost	County Funds	Total Cost	County Funds
Category: Road Construction (Urban)										
Gilsan St: 202nd Ave--207th Ave (PA); #110	\$132,000	\$132,000	\$88,000	\$88,000						
Sandy Blvd: 162nd Ave--207th Ave (OTIA)	\$670,000	\$670,000	\$650,000	\$650,000						
257th Ave: Powell Vly Rd--Division St (STIP)							\$4,800,000	\$500,000		
Sandy Blvd: 207th Ave--238th Ave PE/ROW MTIP							\$939,000	\$309,000		
Wood Village Blvd: Arata Rd--Halsey St MTIP	\$2,366,000	\$2,366,000							\$1,315,000	\$500,000
257th @ Orient	\$3,168,000	\$3,168,000	\$738,000	\$738,000				\$809,000	\$1,315,000	\$500,000
Subtotal										
Category: Bridges (non-WRB)										
223rd Ave RR Overcrossing (at I-84) (MTIP); #198	\$546,000	\$276,000	\$3,676,000	\$162,000						
Corbett Hill Viaduct (OTIA); #723	\$690,000	\$690,000								
Beaver Creek Bridge (OTIA); #724	\$400,000	\$400,000	\$1,088,000	\$1,088,000						
Stark St Viaduct (HBRR); #736	\$753,000	\$183,000								
Subtotal	\$2,389,000	\$1,549,000	\$4,764,000	\$1,250,000						
Category: Signal/Intersection (Urban)										
223rd @ Sandy	\$432,000	\$432,000								
257th @ Hensley PA	\$255,000	\$255,000								
Phase 3A 3B Signal Optimz	\$75,000	\$75,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Subtotal	\$762,000	\$762,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Category: Signal/Intersection (Rural)										
Subtotal										
Category: Street Design/Concept										
Subtotal										
Category: Bicycle										
Division St: 174th Ave to 195th Ave. Stripe bicycle lanes	\$40,000	\$40,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Subtotal	\$40,000	\$40,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Category: Pedestrian										
Division St: 182nd Ave--202nd Ave	\$100,000	\$100,000								
Subtotal	\$100,000	\$100,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Category: Culvert (Including Fish Passage Culverts)										
Johnson Creek/282nd Ave MP 2.046 (RS/TP); Included in 282nd Ave/Stone Rd HEP										
NW Miller Road - Culvert	\$42,000	\$42,000								
NW Newberry Road - Culvert	\$168,000	\$168,000								
Beaver Creek Culverts-MTIP									\$4,870,000	\$4,870,000
Subtotal	\$210,000	\$210,000							\$4,870,000	\$4,870,000

FY '05—09 Project Detail Sheets* – Index

1. Glisan St: 202nd Ave—207th Ave
2. Sandy Blvd: 165th Ave—207th Ave (OTIA)
3. 257th Ave: Powell Valley Rd—Division St (OTIA)
4. Sandy Blvd: 207th Ave—238th Ave PE/ROW (MTIP)
5. Wood Village Blvd: Halsey St—Arata Rd (MTIP)
6. 257th Ave/Orient Dr/Palmquist Rd Intersection
7. 223rd Ave RR overcrossing at I-84 (MTIP)
8. Corbett Hill Viaduct (OTIA)
9. Beaver Creek Bridge (OTIA)
10. Stark St Viaduct (HBRR)
11. 223rd Ave/Sandy Blvd Intersection
12. 257th Ave/Hensley Rd Intersection
13. 282nd Ave/Stone Rd Intersection (HEP)
14. Division St: 174th Ave—195th Ave Bicycle Improvements
15. Division St: 182nd Ave—202nd Ave Pedestrian Improvements
16. Beaver Creek/Stark St Fish Passage Culvert
17. 238th Dr Safety Improvements
18. Marine Dr: 223rd Ave—I-84
19. Corbett Hill Slide Repair (RSTP)

* No detail sheets are provided for annual allotment projects, culvert repair (non-fish passage) or the overlay program.

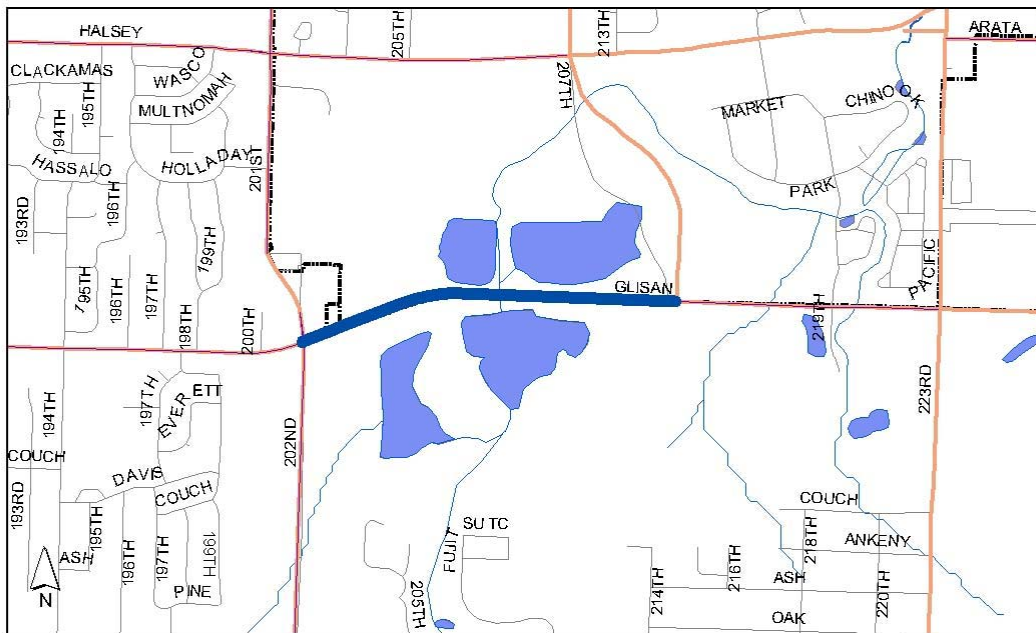
Road Fund Capital Projects

Project Name: Glisan St: 202nd Ave--207th Ave

Project #: 110 Category: Arterial Functional Class: Major Arterial

Project Description: Construct Glisan Street to arterial standards including bike lanes, sidewalks, two travel lanes in each direction, center turn lane/median and drainage improvements. Programmed project constructs half-street improvements on south side of Glisan St, adjacent to Microchip property for \$220,000

RTP No:	2109	IRIS # 308	ROW Cost:	\$0
TIF	<input type="checkbox"/>	From Mile Point: 2.035	Construction Cost:	\$1,640,000
Score:	35	To Mile Point: 2.665	Total Cost:	\$1,640,000



Map not to Scale

	Existing	New
Travel Lanes:	2	5
Sidewalks:	No	Yes
Bike Lanes:	No	Yes
Drainage:	Ditch	Storm
Illumination:	No	Yes
Turn Lanes:	No	Yes
Intersection:	No	Yes

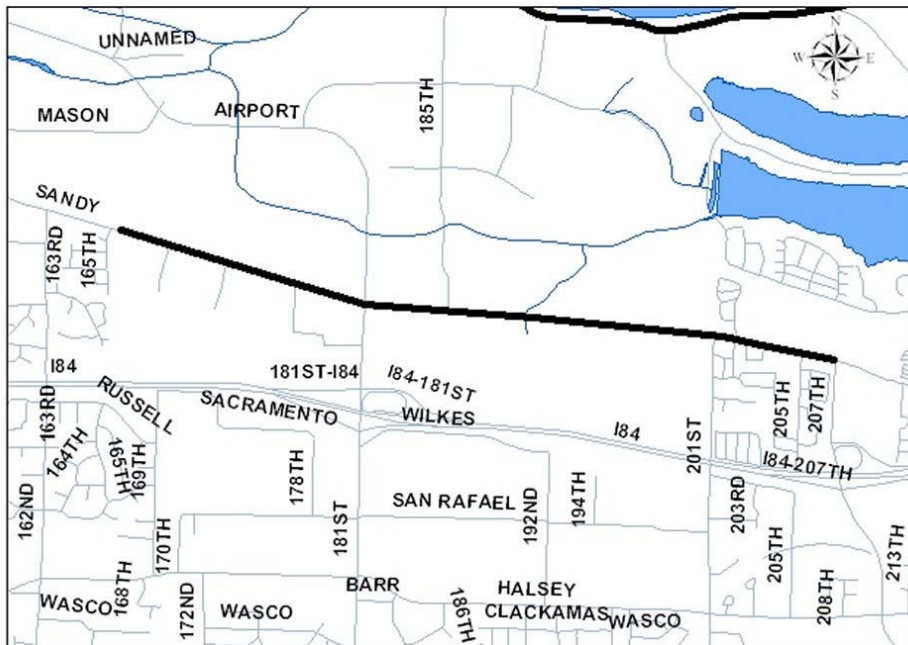
Road Fund Capital Projects

Project Nam Sandy Blvd.: 165th Ave to 207th Ave

Project #: 747 Category: Arterial Functional Class: Minor Arterial

Project Description: Widen Sandy Blvd to urban minor arterial standards. ODOT transferred segment to Multnomah County in 2005. OTIA funds of \$1,320,000 will be used to begin to bring road to current standards

RTP No:	2074	IRIS # 318	ROW Cost:	\$0
TIF	<input type="checkbox"/>	From Mile Point: 0.000	Construction Cost:	\$0
Score:	0	To Mile Point: 2.069	Total Cost:	\$0



Map not to Scale

	Existing	New
Travel Lanes:		
Sidewalks:		
Bike Lanes:		
Drainage:		
Illumination:		
Turn Lanes:		
Intersection:		

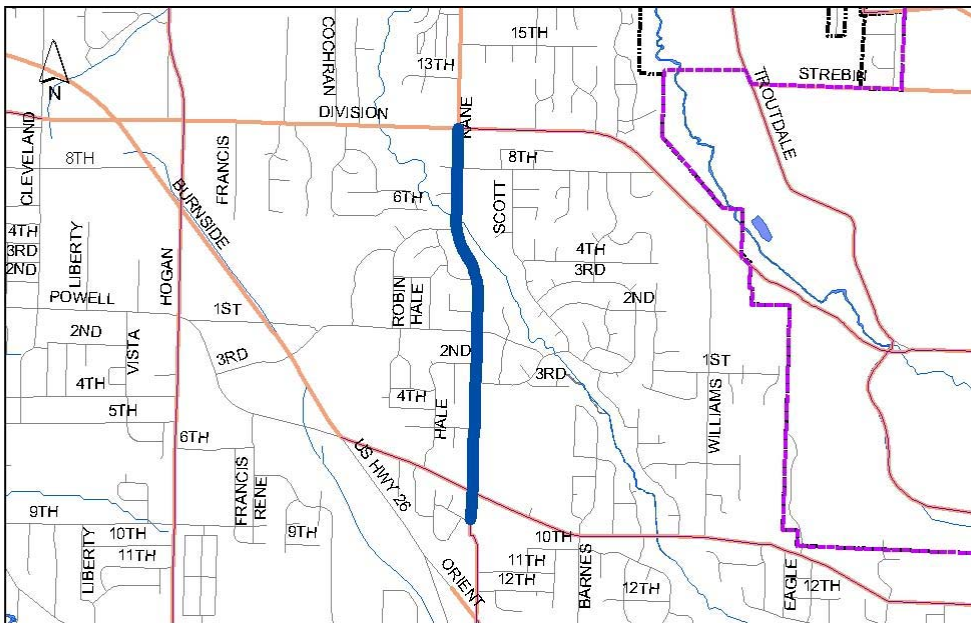
Road Fund Capital Projects

Project Nam 257th Ave:Division St--800' south of Powell Vly Rd

Project #: 60 Category: Arterial Functional Class: Major Arterial

Project Description: Construct 257th Ave to 5 lane major arterial standards with bike lanes, sidewalks and drainage improvements. Programmed project is in the draft ODOT State Transportation Improvement Program for FY '08.

RTP No:	2041	IRIS # 443	ROW Cost:	\$511,000
TIF	<input checked="" type="checkbox"/>	From Mile Point: 2.275	Construction Cost:	\$4,400,000
Score:	45	To Mile Point: 1.292	Total Cost:	\$4,911,000



Map not to Scale

	Existing	New
Travel Lanes:	2	5
Sidewalks:	No	Yes
Bike Lanes:	No	Yes
Drainage:	Ditch	Storm
Illumination:	No	Yes
Turn Lanes:	No	Yes
Intersection:	Yes	Yes

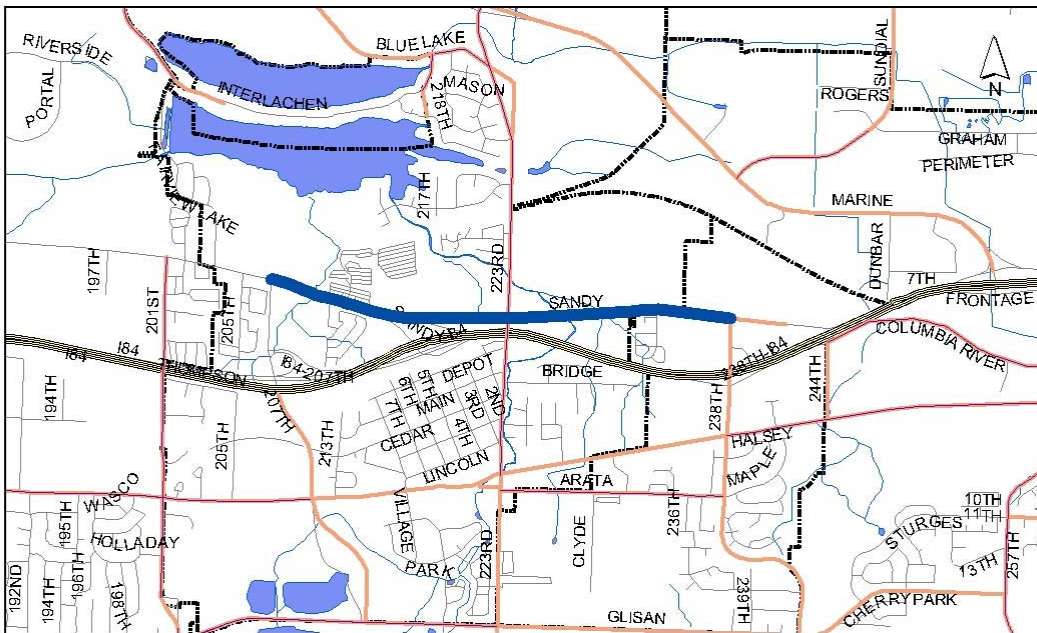
Road Fund Capital Projects

Project Nam Sandy Blvd: 207th Ave-- 238th Ave

Project #: 716 Category: Arterial Functional Class: Minor Arterial

Project Description: Construct to arterial standards with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Current project is seeking \$939,000 in MTIP funds to undertake PE and ROW for this segment of road.

RTP No:	2074	IRIS # 318	ROW Cost:	\$613,000
TIF	<input type="checkbox"/>	From Mile Point: 0.000	Construction Cost:	\$4,700,000
Score:	40	To Mile Point: 1.535	Total Cost:	\$5,313,000



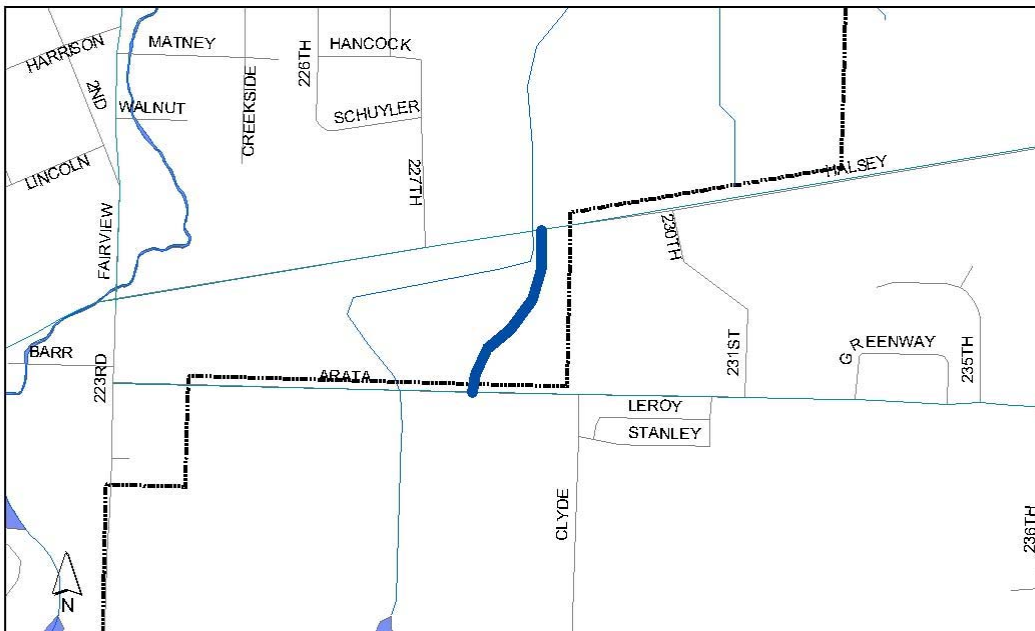
Road Fund Capital Projects

Project Nam Wood Village Blvd: Arata Rd--Halsey St

Project #: 710 Category: Collector Functional Class: Major Collector

Project Description: Construct new extension of Wood Village Blvd as a major collector with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Construction of improvements is dependent upon funding through MTIP.

RTP No:	2110	IRIS # 359	ROW Cost:	\$613,000
TIF	<input type="checkbox"/>	From Mile Point: 0.464	Construction Cost:	\$511,000
Score:	30	To Mile Point:	Total Cost:	\$1,124,000



Map not to Scale

	Existing	New
Travel Lanes:	0	3
Sidewalks:	No	Yes
Bike Lanes:	No	Yes
Drainage:		Storm
Illumination:	No	Yes
Turn Lanes:	No	Yes
Intersection:	No	Yes

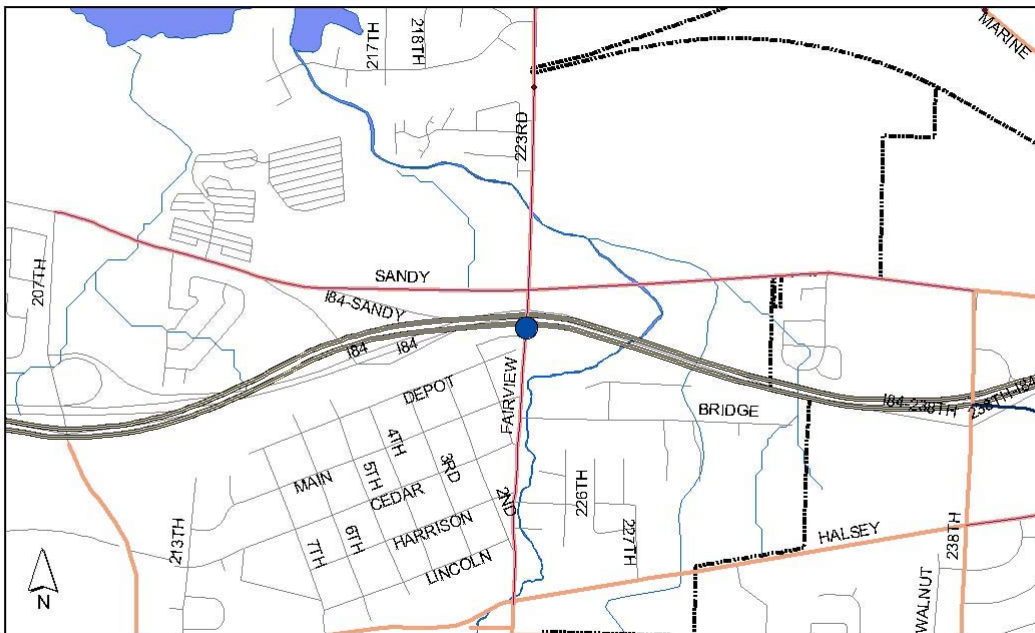
Road Fund Capital Projects

Project Nam 223rd Ave RR Undercrossing

Project #: 198 Category: Bridge Functional Class: Major Collector

Project Description: Construct new railroad bridge to accommodate 223rd Ave with bike lanes and sidewalks.

RTP No:	2081	IRIS #	323	Mile Point:	2.11	ROW Cost:	\$0
TIF	<input type="checkbox"/>					Construction Cost:	\$4,800,000
Score:	50					Total Cost:	\$4,800,000



Map not to Scale

	Existing	New
Travel Lanes:	2	3
Sidewalks:	No	Yes
Bike Lanes:	No	Yes
Drainage:	Ditch	Storm
Illumination:	No	Yes
Turn Lanes:	No	No
Intersection:	No	No

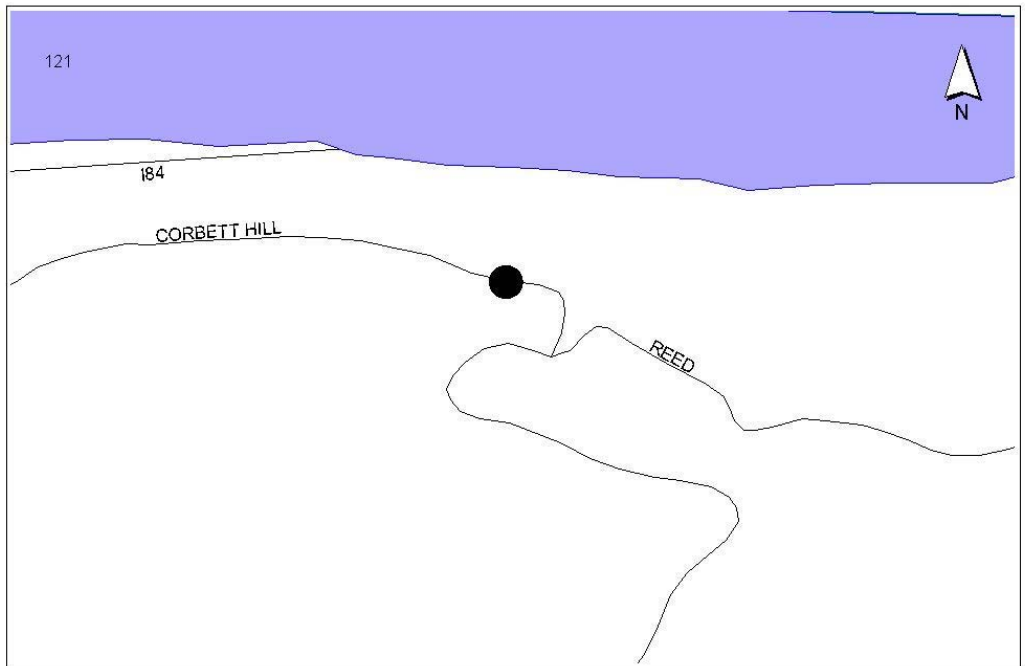
Road Fund Capital Projects

Project Nam Corbett Hill Viaduct

Project #: 723 Category: Bridge Functional Class: Rural Arterial

Project Description: Replace viaduct with OTIA funds. Shoulder repairs to Corbett Hill Road will be undertaken with viaduct replacement. Cost of shoulder repair is an additional \$628,000

RTP No:	IRIS # 569	Mile Point: 1.01	ROW Cost: \$0
TIF: <input type="checkbox"/>			Construction Cost: \$690,000
Score: 15			Total Cost: \$690,000



Map not to Scale

	Existing	New
Travel Lanes:	2	2
Sidewalks:		No
Bike Lanes:	No	No
Drainage:	Ditch	Ditch
Illumination:	No	No
Turn Lanes:	No	No
Intersection:	No	No

Road Fund Capital Projects

Project Nam Beaver Creek Bridge on Historic Columbia River Hwy
 Project #: 724 Category: Bridge Functional Class: Major Collector
 Project Restore Bridge
 Description:

RTP No: IRIS # 490 ROW Cost: \$60,000
 TIF Construction Cost: \$988,000
 Score: 30 Total Cost: \$1,048,000



Map not to Scale

	Existing	New
Travel Lanes:	2	2
Sidewalks:		Yes
Bike Lanes:	No	Yes
Drainage:	Storm	Storm
Illumination:	No	No
Turn Lanes:	No	No
Intersection:	Yes	No

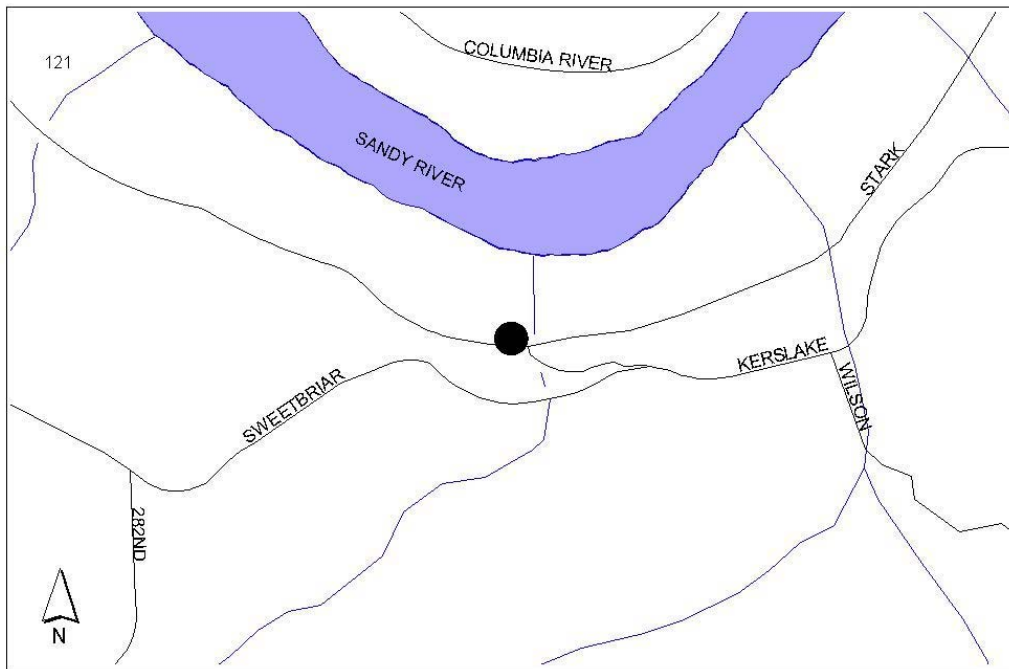
Road Fund Capital Projects

Project Nam Stark St Viaduct

Project #: 736 Category: Bridge Functional Class: Rural Arterial

Project Description: Reconstruct Stark St Viaduct

RTP No:	IRIS # 404	Mile Point: 2.64	ROW Cost: \$0
TIF <input type="checkbox"/>			Construction Cost: \$753,000
Score: 10			Total Cost: \$753,000



Map not to Scale

	Existing	New
Travel Lanes:	2	
Sidewalks:		
Bike Lanes:	No	No
Drainage:	Ditch	Ditch
Illumination:	No	No
Turn Lanes:	No	No
Intersection:	No	No

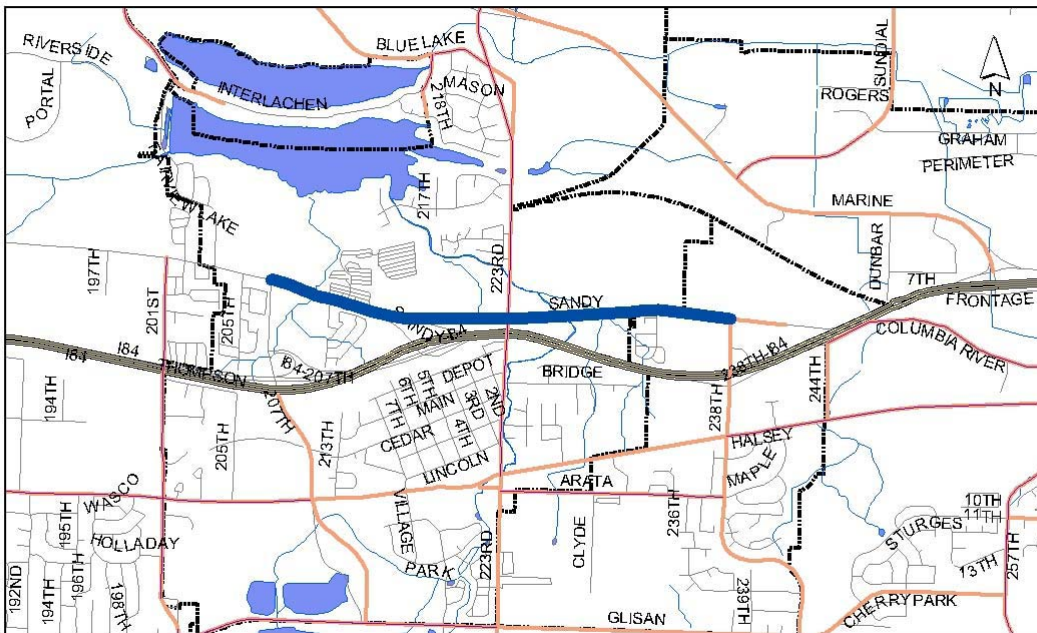
Road Fund Capital Projects

Project Nam Sandy Blvd: 207th Ave-- 238th Ave

Project #: 716 Category: Arterial Functional Class: Minor Arterial

Project Description: Construct interim intersection improvements at 223rd Ave and Sandy Blvd. Cost of improvements is \$432,000.

RTP No:	2074	IRIS # 318	ROW Cost:	\$613,000
TIF	<input type="checkbox"/>	From Mile Point: 0.000	Construction Cost:	\$4,700,000
Score:	40	To Mile Point: 1.535	Total Cost:	<u>\$5,313,000</u>



Map not to Scale

	Existing	New
Travel Lanes:	2	3
Sidewalks:	No	Yes
Bike Lanes:	No	Yes
Drainage:	Ditch	Storm
Illumination:	No	Yes
Turn Lanes:	No	Yes
Intersection:	No	Yes

Road Fund Capital Projects

Project Nam 257th Ave/Hensley Rd Intersection Improvement

Project #: 748 Category: Functional Class:

Project Description: Install new traffic signal as part of project agreement at intersection.

RTP No:	IRIS # 443	Mile Point: 3.76	ROW Cost: \$0
TIF	<input type="checkbox"/>		Construction Cost: \$255,000
Score:			Total Cost: \$255,000



Map not to Scale

	Existing	New
Travel Lanes:		
Sidewalks:		
Bike Lanes:		
Drainage:		
Illumination:		
Turn Lanes:		
Intersection:		

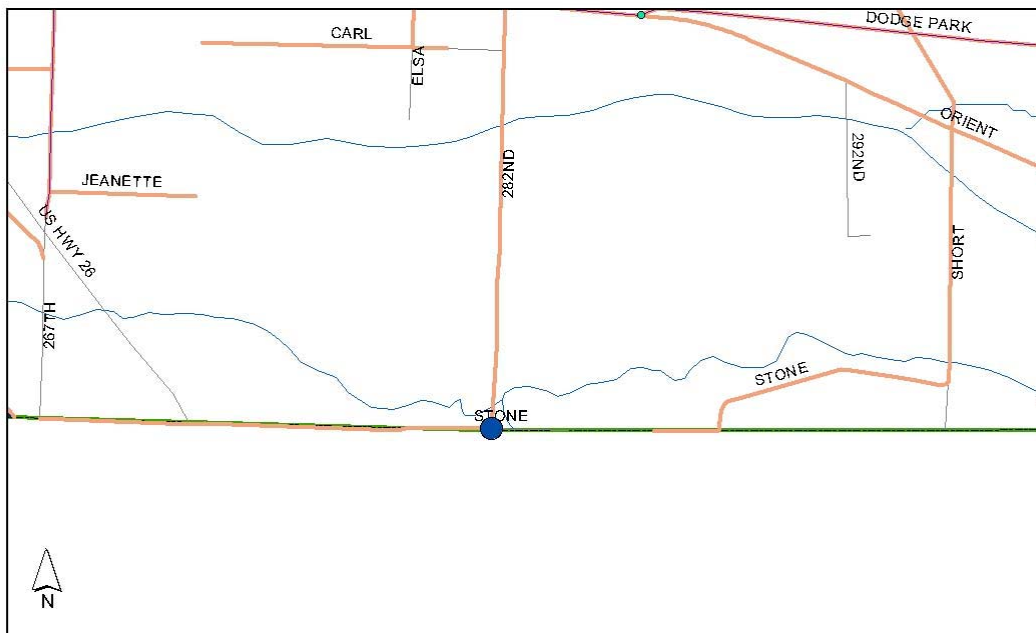
Road Fund Capital Projects

Project Nam 282nd Ave/Stone Rd

Project #: 705 Category: Signal/Intersection Functional Class: Rural Arterial

Project Description: Widen 282nd Ave to create left turn pockets to Stone Rd. Widen Stone Rd to reduce offset of east and west legs to remove hazardous conditions. Project includes replacement of fish passage culvert on Johnson Creek.

RTP No:	IRIS # 493	Mile Point: 2.09	ROW Cost: \$20,000
TIF	<input type="checkbox"/>		Construction Cost: \$871,000
Score:	5		Total Cost: \$891,000



Map not to Scale

	Existing	New
Travel Lanes:	2	3
Sidewalks:	No	No
Bike Lanes:	No	
Drainage:	Ditch	Ditch
Illumination:	No	No
Turn Lanes:	No	Yes
Intersection:	No	Yes

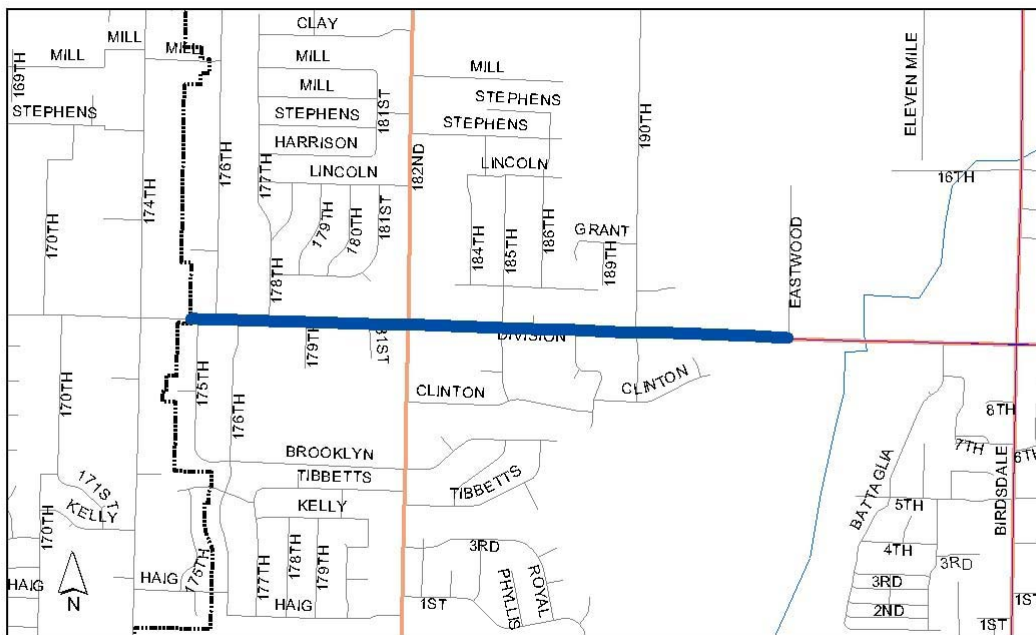
Bike Fund Capital Projects

Project Nam Division St: 174th Ave--195th Ave

Project #: 251 Category: Functional Class:

Project Description: Stripe bike lanes.

RTP No:	2056	IRIS # 302	ROW Cost:	\$0
TIF	<input type="checkbox"/>	From Mile Point: 0.000	Construction Cost:	\$40,000
Score:	80	To Mile Point: 0.988	Total Cost:	\$40,000



Map not to Scale

Pedestrian CIP

Project Name: Division St: 182nd Ave--202nd Ave

Project #: 335 Category: Functional Class:

Project Description: Infill sidewalks on both sides of the road.

RTP No:	IRIS # 302	ROW Cost:	\$0
TIF <input type="checkbox"/>	From Mile Point: 0.357	Construction Cost:	\$100,000
Score: 74	To Mile Point: 1.363	Total Cost:	\$100,000



Map not to Scale

Multnomah County - Fish Passage Culverts

Culvert # 404-01 Stark St, SE - # 1 - MP: 1.129 144 x 60 IRIS: 404 Stream: Beaver Creek Stream MP 2.4

0 Northing 0 Org. Basin Sandy River Watershed Owner Multnomah County USGS Quad Map Name Camas
 0 Easting 0 Sub-Basin Beaver Creek (E Mult Co)

IRIS	Material Type: CP	Inlet Treatment: O	Offset Distance:	Slope:	Rise Height: 144	Drainage Adequacy: A
Stats	Coating Type: C	Outlet Treatment: O	Cover Depth:	Skew:	Span Width: 96	Condition: G Road MP 1.129
Coho Salmon	Verified	Cutthroat Trout	None	Steelhead	None	Spring Chinook Verified
Chum Salmon	None	Rainbow Trout	None	Winter Steelhead Verified		Fall Chinook Unverified

Environmental Evaluation

Riparian Vegetation:

Vegetation is approximately half native riparian species and half exotic or invasive species

Stream Shade Cover: Approximately 50% shade cover over the creek

Channel Characteristics:

There is a fair presence of in-stream debris to provide refuge for fish, and, though few, pools and meanders are obvious

Overall Flow Quality: Fair flow quality

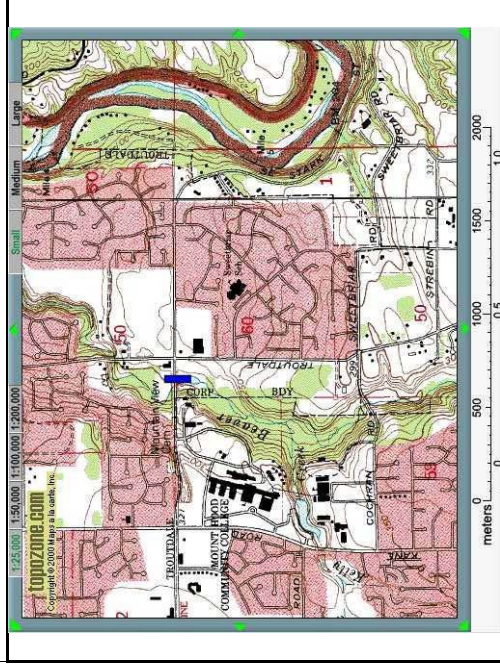
Bank Erosion / Stability: Minimal erosion or bank undercutting has occurred

Buffer Zone: There is development near the creek - banks may be manicured or landscaped, or a very narrow buffer zone may be present

Species Known: Chinook Salmon / Steelhead / Chum

Stream Temperature (Avg): (Min): (Max):

Environmental Score: **60**



Recovery Evaluation

Upstream Length Recovered (Miles): 14.8

Downstream Barriers to Fish Passage: Upstream Watershed Area (Acres): 5,700

Artificial Downstream Barrier - Partial, Restricted Passage

Recovery Evaluation Factor: **90%**

Environmental Rating: **54**

Construction Evaluation

Design Cost: \$100,000 Internal Contract

Construction Cost: \$1,200,000 Internal Contract

Total Project Cost: \$1,300,000 Construction Cost Rating: **66%**

Retrofit / Reconst. Maint. Schudle: N/A Retrofit

Replace 1-3yr Replace 3+ yr

Maint. Schedule Factor: **100%**

Project Impact Factor = High: **100%**

Group: **S** Total Score: **36**

ODFW Identified as Fish Passage Barrier

General Comments

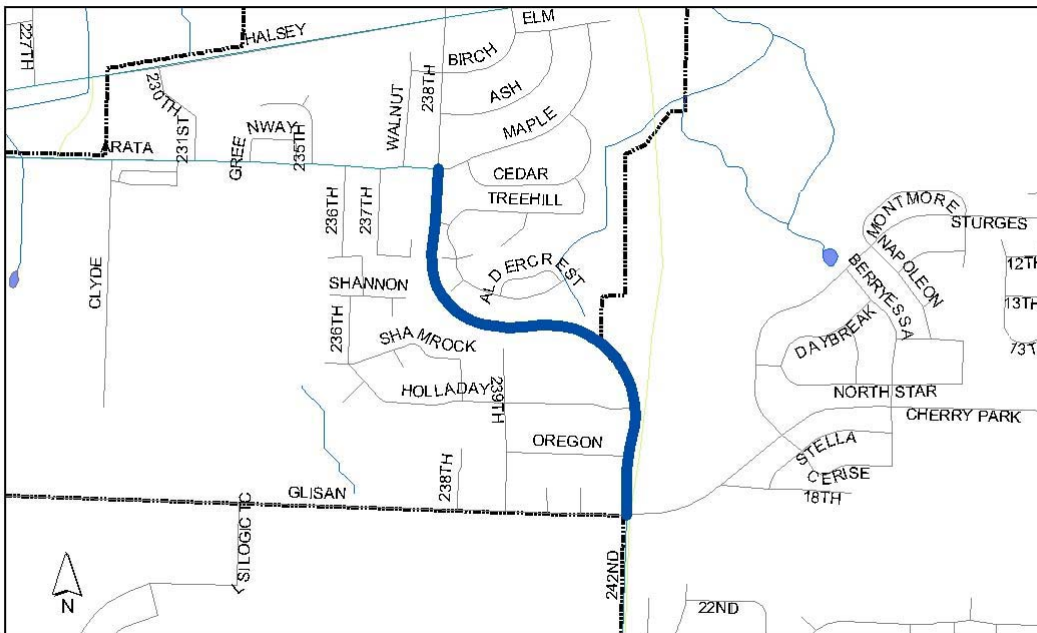
Road Fund Capital Projects

Project Name 238th Dr: Glisan St--Arata Rd Safety Improvements

Project #: 722 Category: Arterial Functional Class: Minor Arterial

Project Description: Construct safety improvements along 238th Dr.

RTP No:		IRIS # 403	ROW Cost:	\$0
TIF	<input type="checkbox"/>	From Mile Point: 0.000	Construction Cost:	\$323,000
Score:	20	To Mile Point: 0.641	Total Cost:	\$323,000



Map not to Scale

	Existing	New
Travel Lanes:	3	3
Sidewalks:	No	No
Bike Lanes:	No	No
Drainage:	Storm	Storm
Illumination:	Yes	Yes
Turn Lanes:	Yes	Yes
Intersection:	Yes	Yes

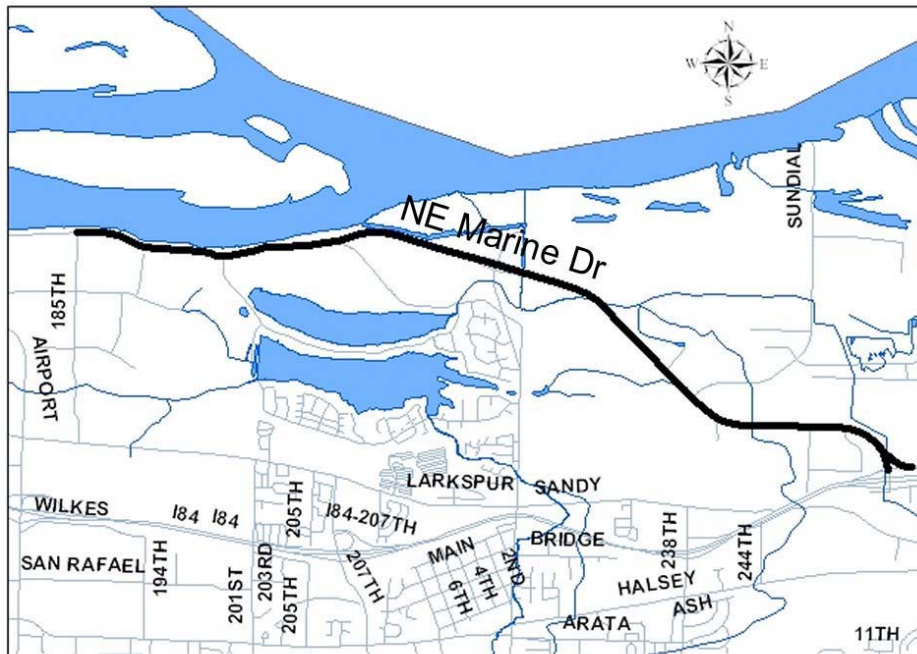
Road Fund Capital Projects

Project Nam Marine Drive Reconstruction

Project #: 745 Category: Collector Functional Class: Major Collector

Project Description: Reconstruct Marine Drive between 185th Ave. and the frontage roads in Troutdale.

RTP No:		IRIS # 412	ROW Cost:	\$0
TIF	<input type="checkbox"/>	From Mile Point: 0.000	Construction Cost:	\$10,000,000
Score:	20	To Mile Point: 2.612	Total Cost:	<u>\$10,000,000</u>



Map not to Scale

	Existing	New
Travel Lanes:		
Sidewalks:		
Bike Lanes:		
Drainage:		
Illumination:		
Turn Lanes:		
Intersection:		

CAPITAL IMPROVEMENT PLAN AND PROGRAM

for the

WILLAMETTE RIVER BRIDGES

**20 Year
Capital Improvement Plan and Program
for the
Willamette River Bridges
Fiscal Years 2005 -- 2024**

The Multnomah County Transportation Division has instituted a process for establishing capital improvement needs projected over the next 20 years. This process follows the policies established in the County Comprehensive Framework Plan. These policies are to plan and develop a timely and efficient arrangement of public facilities and services, and to maintain a safe, efficient and convenient public transportation system.

This plan and program is concerned specifically with capital needs of the six Willamette River Bridges: Sellwood, Hawthorne, Morrison, Burnside, Broadway and Sauvie Island.

The intent of the Capital Improvement Plan for the Willamette River Bridges is to recommend and prioritize improvements and alternate solutions for each improvement for each bridge and indicate specific repairs and replacement to insure safe and reliable operation. Cost estimates are allocated to a specific period; immediate to short range (0-4 years), intermediate (5-9 years), and long range (10-20 years) projects.

The intent of the Capital Improvement Program for the Willamette River Bridges is to assign revenue and to establish a schedule for the construction year of identified high priority projects. The Program is detailed for FY '05—'09 with annual allocations and the Plan identifies projects for the following 15 years, through FY '24.

In late 2001, unusual cracks were discovered in a couple of the concrete girders supporting the Sauvie Island Bridge. Although temporary repairs have been made to the Sauvie Island Bridge, it was determined that the bridge required replacement. The 2003 the Oregon State Legislature passed legislation (Oregon Transportation Investment Act—OTIA) which provides \$1.3 billion for the replacement and repair of bridges on state highways. Multnomah County was successful in applying for and receiving \$25 million of OTIA funds to replace the Sauvie Island Bridge. Engineering is currently underway and replacement of the Sauvie Island Bridge is scheduled to commence in 2006.

In early 2004 additional cracks were discovered in the Sellwood Bridge. Discovery of these cracks required Multnomah County to limit use of the bridge to vehicles weighing less than 10,000 lbs. Similarly, the cracks will require either the replacement of the Sellwood Bridge, or extensive rehabilitation. Multnomah County is presently in the process of securing funds to

undertake a Type, Size and Location study of the Sellwood Bridge, as well as necessary environmental work to begin the rehabilitation/replacement process. The estimated cost for replacement of the Sellwood Bridge is \$90 million. Multnomah County is exploring various funding scenarios to repair/replace the Sellwood Bridge.

Capital Project Identification

By agreement with the County, consultant services were employed to perform an in-depth inspection and prepare engineering reports on (1) the present condition and recommendation for repair and rehabilitation of each of the six Willamette River Bridge main structures, and (2) the results of a detailed field inspection and structural analysis of each of the approach ramps to four of the Willamette River Bridges: Hawthorne, Morrison, Burnside and Broadway.

Working with the County, Sverdrup & Parcel and Associates, (Consultants) performed complete field inspections of (1) bascule and vertical lift bridge mechanical systems, (2) bascule and vertical lift bridge electrical systems, and (3) bridge superstructure and substructure to the water level to detect any structural deficiencies of the main structures of the four Willamette River Movable Bridges: Hawthorne, Morrison, Burnside and Broadway.

The OBEC Consulting Engineers performed detailed field inspections and structural analysis on the Sellwood and Sauvie Island Bridges and on each of the approach ramps to the Sellwood, Hawthorne, Morrison, Burnside and Broadway Bridges.

Underwater foundation inspections and investigations were performed by the Oregon Department of Transportation (ODOT). Results were then provided to consultants and the County.

By agreement with the County, consultant services of W.L. Bangert, Structural Painting Coordinator (retired), ODOT, were employed to prepare engineering reports on the condition and recommendation for rehabilitation of corrosion protection systems (paint) on the Willamette River Bridge main structures and approach ramps.

In addition to identifying bridge, ramp, and paint improvement requirements, the aforementioned reports prioritized improvement needs. Prioritization is determined by means of an objective rating system (see Rating Criteria Section). Cost estimates, as recommended by the consultant, were also included in the reports but, they have proved to be unreasonably low and when combined with the many changes in procedures and product costs since the consultant reports were written, are no longer relevant. Final cost estimates in 2002 dollars shown in the "Plan and Program" section have been prepared by the Bridge Engineering Section.

Multnomah County Transportation Division, Bridge Capital Section, has identified 27 construction and corrosion protection (painting) projects in the 20-year plan ending in the year 2024. In updating this list for the present report, we have deleted the construction projects that have been completed along with those that are no longer applicable and have added new or revised projects to the list for a current total of 27 construction and corrosion protection projects.

In addition to the 27 specific projects, two general projects are included for seismic retrofitting and in-depth inspections which are not ranked on the prioritized list but do represent a cost requirement for the Capital Improvement Program. A third unranked project has been added for compliance with Oregon OSHA standards

Willamette River Bridges Accessibility Project

In 1994 Multnomah County completed the Willamette River Bridges Accessibility Project (WRBAP). Seven non-interstate bridges span the Willamette River in downtown Portland. Five of these bridges are the property of Multnomah County; the others are owned and operated by the Oregon Department of Transportation.

For several years the community had expressed concerns about poor access to the bridges for people using alternative modes of travel. In response to these concerns, Multnomah County developed WRBAP.

As part of the WRBAP study, alternative mode access to each bridge was carefully analyzed and possible improvements identified. The resulting project Accessibility Plans show 38 projects to improve access to and across the seven Willamette River bridges owned by Multnomah County and the State of Oregon.

Recommended projects include installation of more than 3 miles of bicycle ramps, 3,500 linear feet of sidewalks, more than 20 crosswalks, and almost 30 curb ramps. The total cost of the 38 projects is \$7.63 million (1995). When the projects are completed, four county bridges will be fully accessible to disabled persons, bicyclists, and pedestrians, and major multi-modal improvements will have been installed on the remaining three bridges.

Bicycle and pedestrian improvements to the Morrison Bridge, identified in WRBAP, were awarded Metropolitan Transportation Improvement Program funds for PE and construction. Construction of the \$2.5 million improvements is scheduled for 2005.

Project Evaluation

The framework used to evaluate, classify, and prioritize identified projects is a sophisticated rating system which relies heavily on component evaluation criteria. Five different criteria and some 45 or more pieces of information are required for each identified project. It should be noted here that pedestrian/bike accommodation is a possible 20-point consideration under the aforementioned "Component Evaluation Criteria." Multnomah County is committed to the Bicycle Master Plan developed by the Transportation and Land Use Planning Program and approved by the Board of County Commissioners as a component of the Master Transportation Plan and the Comprehensive Framework Plan. One objective of this plan is that the Willamette River Bridges under the jurisdiction of Multnomah County be made safe and accessible to bicyclists. In meeting this objective, advantage of every opportunity will be taken to provide for safe bicycling on any new or rehabilitated Willamette River Bridge or bridge ramp where

accommodation is a realistic possibility. Projects identified in the WRBAP Phase 1 Project implementation are included in the Willamette River Bridge Capital Improvement Plan and Program under a separate category.

In general, project rating criteria for the bridges and ramps include a national-standard bridge sufficiency rating, bridge historical significance, outside funding availability for each project, type of project, and time-line considerations. Project rating criteria for corrosion protection (painting) include, in general, existing corrosion damage, area rust breakthrough, quality of paint, weather exposure and visual considerations. (Refer to Criteria Rating Section for detailed project rating criteria and examples of painting review.)

Projects are classified by use of a point system. The point system used for bridge and ramp construction projects is necessarily distinct from that used for corrosion protection classification. A point score for each project is assigned to each significant criterion. Total criteria points are added to determine a total point rating for each project.

Projects designated with the highest total points are the most critical repair or rehabilitation projects. (See Plan Section Format for description of projects and point determination.) Bridge structural improvements are grouped as construction projects within the same project rating criteria framework. Corrosion control (paint) projects are grouped as painting needs within their distinct rating criteria framework.

For construction projects, in general, a rating of 95 or more points (out of a possible 135 point total) indicates attention within 0-4 years of the 20-year program period. Ratings of 75 and above indicate attention is needed within the first 10 years. Projects rated 60 to 74 are necessary during the 10-20 year period. Some project schedules are shifted slightly because of the need to effectively allocate and manage annual resources and to coordinate with maintenance scheduling.

Note: Seismic restrictions have been tightened considerably but retrofitting has not been added to the project rating criteria since the policy for inclusion is not yet finalized. Besides adding considerable cost to the construction of new bridges, seismic retrofitting will be required on existing bridges under a possible scenario as follows:

Of the 5 Willamette River bridges maintained by Multnomah County in the urban area of Portland, one bridge will be selected as the primary access across the river in the event of an earthquake and first priority for retro-fitting will be given this bridge and its approach structures. Priorities in order beyond this initial bridge and as funds become available would be the approach structures on the remaining four bridges in order of priority. Retrofitting all the approach structures plus one crossing structure is estimated, at a minimum, to cost \$20 million. Retrofitting the remaining crossing structures is estimated to cost an additional \$20 million, but is projected beyond the 20-year plan.

For paint projects, those with the highest rating are generally expected to be completed first. As

there is less of a cost spread for the paint projects, the estimated total painting cost can be more evenly distributed as an annual requirement.

Plan Report

The Report, "Willamette River Bridges 20-Year Capital Improvement Needs," has been prepared by the Multnomah County Transportation Division, Bridge Capital Section. This report is the 20-Year Capital Plan, listing bridge construction projects, including seismic retrofitting along with costs for in-depth and semi-in-depth inspections and corrosion protection projects in order of rank (high to low).

At the end of the report, the combined estimated costs for construction and corrosion protection projects are presented for each of four designated periods in the 20-year program. Figures are presented for the average annual need for the entire 20-year period. Estimated figures are presented for the grand total cost, and total County cost for the 20-year period.

The plan report represents the Transportation Division's recommendation for the 20-year Capital Improvements Program for Willamette River Bridges.

A description of the bridge and summary of the investigative engineering reports process for each of the six Willamette River Bridges (Hawthorne, Morrison, Burnside, Broadway, Sellwood, and Sauvie Island) can be found at the end of this chapter.

Capital Improvements Plan and Program Update Process for the Willamette River Bridges

As a necessary element of the safe and reliable public use of Willamette River Bridge structures, inspections and sufficiency ratings are routinely conducted by the County. Any changes in component need involving repair, scheduling and cost will be incorporated into the CIP 20-Year Plan Update Process. The Multnomah County Inspection policy is as follows:

In-Depth and Semi-In-Depth Inspections - These inspections will be conducted on a routinely regular basis, usually a 10-year frequency for the in-depth inspection and a 5-year maximum interval for the semi-in-depth inspection as dictated by Multnomah County Bridge inspection policy and the Willamette River Bridges Operation and Maintenance Manual. The in-depth inspection is a complete inspection and evaluation of all mechanical, electrical and structural elements involved for each individual bridge. From this inspection, a complete list of short term and long term needs can be established, along with identifying appropriate projects. The semi-in-depth inspection is a general inspection of all mechanical, electrical and structural components with special emphasis on confirmation and updating of needs and projects identified through the in-depth inspection. New projects may result from this inspection.

Inspection for Structure Inventory and Appraisal - Every 2 years - This inspection is a visual inspection of all elements of each bridge structural component. The result of this inspection is an overall condition rating for the bridge with related comments and possible recommendations for action required.

General Monitoring of all Bridge Components by Multnomah County Bridge Maintenance Crew - This monitoring includes specifically designed measurements taken to track the progress of any suspicious defect, crack or deviation in structural, mechanical or electrical operation along with visual observations by the maintenance crew in the course of their daily maintenance activities. Input from this monitoring can provide beneficial information in preparing reports on other inspections or may add short term maintenance projects to the agenda.

The Program itself will be reviewed on an annual basis by staff with a scheduled full update process involving all interested parties every two years. These reviews will ensure every consideration is made to appropriate funds for the wisest use of limited resources needed to carry out the 20-Year CIP.

As part of the update process, estimated costs will be re-evaluated every two years to take into consideration any changes in federal, state or local regulations regarding for example, pollution damage control restrictions which are expected to dramatically increase over the next few years.

**WILLAMETTE RIVER BRIDGES 20 - YEAR
CAPITAL IMPROVEMENT NEEDS**



20-YEAR CAPITAL IMPROVEMENT NEEDS FOR THE WILLAMETTE RIVER BRIDGES

Line Item Costs Include: PE, CE, Construction Contingencies

Construction and Paint Projects - Summary

Estimates in Thousands of 2004 Dollars

Rank	Bridge Name	MS	Bridge #	Cat	Project Description	Cost	Tot					16-20 yrs FY 20-21
							Pts	1-5 yrs FY 09-10	6-10 yrs FY 10-11	11-15 yrs FY 15-16	15-20 yrs FY 19-20	
1	Sauvie Island Bridge	MS	2641	S	Sauvie Island Bridge Replacement	\$37,973	125	\$37,973				
2	Broadway Bridge	MS	6757	S	Deck Rehabilitation and Painting	\$28,511	120	\$28,511				
3	Sellwood Bridge	MS	6879	S	Replace Structure	\$90,932	120	\$16,004	\$74,928			
4	Burnside Bridge	MS	0511	S	Deck Rehab and Microsilica Overlay	\$8,617	100	\$8,617				
5	Morrison Bridge	MS	2758	A	Bicycle and Pedestrian Improvements	\$2,515	80	\$2,515				
6	Broadway Bridge	MS	6757	EMS	Replace Centerlocks	\$889	100	\$889				
7	Broadway Bridge	MS	6757	P	Paint Above Deck Fixed Spans	\$9,017	100	\$9,017				
8	Hawthorne Bridge	MS	2757	M	Tower Trunnion Rehabilitation	\$1,524	100		\$1,524			
9	Burnside Bridge	MS	0511	P	Paint Steel Deck Truss/Bascule Entire Bridge	\$8,217	95		\$8,217			
10	Broadway Approach Ramp	R	6757A	S	Deck & Joint Rehabilitation	\$1,755	90		\$1,755			
11	Broadway Approach Ramp	R	6757A	P	Paint Steel Framing and Columns	\$6,224	90		\$6,224			
12	Broadway Bridge	MS	6757	M	Replace Equalizers	\$1,270	90		\$1,270			
13	Morrison Bridge	MS	2758	S	East Side Deck and Lift Span Grating Rehabilitation	\$10,059	80		\$10,059			
14	Morrison Bridge	MS	2758	E	Phase II: Replace Centerlocks	\$1,422	80		\$1,422			
15	Hawthorne Br. Hawthorne	R	2757A	RS	Rdwy Approach/Deck Overlay	\$4,534	80		\$4,534			
16	Morrison Br. Morrison St. Vi	R	8589	S	Bearing Repair	\$2,286	80		\$2,286			
17	Morrison Bridge	MS	2758	M	Gear Reducer Replacement	\$1,842	80		\$1,842			
18	Morrison Transition Structur	R	2758B	P	Paint Steel I-Beams	\$12,732	78		\$12,732			
19	Morrison Bridge	MS	2758	P	Paint Steel Deck Truss/Bascule	\$5,715	74		\$5,715			\$5,715
20	Burnside Bridge West Appr	R	0511A	ES	Rehabilitate/ Replace	\$6,350	65		\$6,350			
21	Broadway Bridge	MS	6757	M	Rail Wheel Rehabilitation	\$4,572	65		\$4,572			
22	Burnside Bridge	MS	0511	M	Main Trunnion Rehabilitation	\$5,080	65		\$5,080			
23	Hawthorne Br. Hawthorne	R	2757A	P	Paint Steel I-Beams	\$5,448	63		\$5,448			\$5,448
24	Broadway Bridge	MS	6757	EM	Emergency Drive System	\$1,524	60		\$1,524			\$1,524
25	Burnside Bridge	MS	0511	EM	Emergency Drive System	\$1,524	60		\$1,524			\$1,524
26	Morrison Bridge	MS	2758	EM	Emergency Drive System	\$1,016	50		\$1,016			\$1,016
27	Morrison Bridge	MS	2758	S	Fender Replacement	\$1,168	50		\$1,168			\$1,168
	Willamette River Bridges	R	WRB	A	Accessibility Improvements (Bike, Ped, Disabled)	\$1,905		\$672	\$715	\$424		\$94
	Willamette River Bridges	R	WRB	S	OR-OSHA Facility Compliance	\$2,959		\$1,242	\$1,115	\$527		\$75
	Willamette River Bridges	R	WRB	S	Seismic Retrofit - One Crossing and All Ramps	\$60,277		\$11,359	\$10,512	\$26,671		\$11,735
	Willamette River Bridges	R	WRB	S	In-Depth and Semi-In-Depth Inspections	\$2,540		\$1,016	\$254	\$254		\$1,016
ESTIMATED PROJECT COST						\$330,396	\$117,813	\$116,573	\$66,694	\$29,316		\$29,316
AVERAGE YEARLY PROJECT COST						\$16,520	\$23,563	\$23,315	\$13,339	\$5,863		\$5,863

Explanation of Tables

Data items described below are taken from the top margin of the Willamette River Bridges 20 Year Capital Improvement Needs Reports.

Table Code Term Explanation

Rank—The report ranks projects according to total criteria rating points received. Detail tables show constituent sub-projects of an overall project. Construction and painting projects are ranked together.

Bridge Name—The name of the structure impacted by the project,

MS—Main Structure (MS) or approach ramp (R)

Bridge #--The state and county designated identification number for the structure.

Cat—Category, the system identified for the work. E=Electrical, L=Lighting, M=Mechanical, P=Paint, R=Resurface, S=Structural.

Description—A brief description of the work.

Cost—Estimated costs represented in thousands of dollars. Construction line item costs include 28% construction contingency. Painting line item costs include 15% construction contingency.

Table Code Term Explanation

Out Fund—Outside funding, projects known to have outside funding (usually federal) available receive 10 points. Projects for which outside funding is anticipated receive 5 points, need in 6-10 years (30 points), need in 11-15 years (20 points), need in 15-

20 years (10 points).

Time Line—Completion dates as recommended by consultant or county engineering are assigned points. Need within 5 years (40 points), need in 6-10 years (30 points), need in 10-15 years (10 points).

Tot Pts—Total points, the sum of the criteria rating points. There are 135 points possible for construction or painting projects.

Construction Project Criteria

Suff Score—Sufficiency rating score based on the ODOT sufficiency rating system that evaluates structural adequacy, serviceability, functionality and essentially to the public. High scores on this rating result from low sufficiency ratings. 20 points possible.

Table Code Explanation

Hist Score—Historical Significance score. Bridges recognized as historically significant receive 5 points. The three historically significant bridges are the Broadway, Burnside and Hawthorne. Other bridges receive 0 points.

Comp Cri—Component Evaluation Criteria, evaluation for structural, mechanical, or electrical items. Depending on significance to safety, structural integrity, or operations, up to 60 points can be assigned. Higher numbers indicated a more significant member or subsystem or a greater perceived probability of failure.

Painting Project Criteria

Corr Dam—Corrosion damage, points assigned for existing or imminent corrosion damage to steel. More serious damage receives more points, up to 25 points.

Area Rst—Area of rust breakthrough. Up to 20 points are assigned depending on the actual area or degree of rust breakthrough. Higher numbers indicate heavier or more extensive rust.

Qlty Pnt—Quality of paint, the evaluated quality of the existing paint system based on surface preparation, type of paint and application quality. Poorer quality paint receives more points, up to 15 points.

<u>Table Code</u>	<u>Explanation</u>
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WethExp	Weather exposure to moisture (rain, leakage, drainage) and UV light were evaluated. Higher scores indicate a greater degree of exposure. Up to 15 points.
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Vis Exp	Visual (Public)Exposure, the overall appearance and exposure to public view varies for each structure. Considerations include structure location, traffic volume, surrounding population and whether traffic passes through, over or under the structure. Higher points indicate a greater visual and public exposure. Up to 15 points.
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WILLAMETTE RIVER BRIDGE

PROJECT RATING CRITERIA

A. CONSTRUCTION PROJECTS

B. CORROSION CONTROL (PAINT) PROJECTS

Construction Project Rating Criteria

A. Bridge Sufficiency Rating (20 points maximum)

<u>ODOT</u>	<u>County</u>
0 - 25	20 points
26 - 50	10 points
51 - 80	5 points
81 - 100	0 points

B. Bridge Historical Significance (5 points maximum).

Ranked on National and/or State Historic Registers

Significant	5 points	Broadway #6757
		Burnside #0511
		Hawthorne #2757

Not Ranked on Historic Register(s)

No Importance 0 points

C. Outside funding availability (10 points maximum).

Available	10 points
Anticipated	5 points
Not Available	0 points

D. Component Evaluation Criteria (60 points maximum).

Critical Item	60 points	
Structural Item	50 points	Primary 40 Secondary
Mechanical Item	50 points	Primary 40 Secondary
Electrical Item	50 points	Primary 40 Secondary
Deck	40 points	
Illumination	40 points	
Component Life		
Extension	35 points	
Traffic Control	20 points	
Pedestrian/Bike		
Accommodation	20 points	

E. Recommended Replacement/Repair Time-line (40 points maximum).

0 - 4 years	40 points
5 - 9 years	30 points
10 - 14 years	20 points
15 - 20 years	10 points

Summary of Bridge Sufficiency Rating Factors Used By ODOT

1. Structural Adequacy and Safety

$S_1 = 55\%$ Max.

- 59 Superstructure
- 60 Substructure
- 62 Culvert
- 66 Inventory Rating

2. Serviceability and Functional Obsolescence

$S_2 = 30\%$ Max.

- 12 Defense Highway
- 28 Lanes on Structure
- 29 ADT
- 32 Appr. Rdwy. Width
- 43 Structure Type
- 51 Bridge Rdwy. Width
- 53 VC over deck
- 58 Deck Condition
- 67 Structural Condition
- 68 Deck Geometry
- 69 Under-clearances
- 71 Waterway Adequacy
- 72 Appr. Rdwy. Align.

3. Essentially for Public Use

$S_3 = 15\%$ Max.

- 12 Defense Highway
- 19 Detour Length
- 29 ADT

4. Special Reductions

$$S_4 = 13\% \text{ Max.}$$

19 Detour Length

36 Traffic Safety Features

43 Structure Type, Main

$$\text{SUFFICIENCY RATING} = S_1 + S_2 + S_3 - S_4$$

Sufficiency Rating shall not be <0 nor> 100

Corrosion Control (Paint) Rating Project Criteria

PROJECT RATING CRITERIA EXAMPLE

CORROSION CONTROL (PAINT) PROJECTS

BR. NO. 6879 NAME Sellwood Bridge COUNTY Multnomah

LOCATION FAU 9704 INSP. BY Bangert Davis DATE 9/29/87

STRUCT. DESCRIPTION 2 - 245'6" & 2 - 300' steel deck trusses

STEEL SPANS Wt. est. by Co. 10-87

WT. STRUCT. STEEL 1,060 tons EST. AREA STEEL 318,000 sq. ft.

EXIST. PAINT TYPE: LAST PAINTED 1962 BY J I Hass 1400-G-63

Prime: Red Lead

Int.: Red Lead

Top: Alkyd

	Severe	Moderate	Light	None	
Corrosion Damage	4	3	2	1	=4
Area Rust Breakthrough	Heavy 4	Moderate 3	Scattered 2	None 1	=3
Quality of Paint	Loose 3	Dead 2	Moderate 1	Live 0	=2
Weather Exposure	Wet 3	Moderate 2	Dry 1		=2
Visual (Pub, Exposure)	High 2	Low 1	None 0		=2
(Rate) Total					<u>=13</u>

Span 20 and one panel of span 19 were painted in 1984 by County maintenance forces. Although

much old paint remains, the overall condition is good and should last several years without

serious failure. The remaining steel is sustaining serious corrosion damage and should

be repainted within the next two or three years. There are structures under both ends of the

bridge which will require protection. Blast clean to steel and repaint 1988-1989 seasons.

BRIDGE SUMMARIES

SELLWOOD BRIDGE

HAWTHORNE BRIDGE

MORRISON BRIDGE

BURNSIDE BRIDGE

BROADWAY BRIDGE

SAUVIE ISLAND BRIDGE



Sellwood Bridge

The Sellwood Bridge was the first fixed-span bridge on the lower Willamette River and a pioneer in area bridge technology. Until 1925, all major Portland bridges across the Willamette had movable lift or swing spans. Sellwood is a rare four-span continuous truss and one of only three pre-1941 continuous trusses in Oregon.

Sellwood's designer was Gustav Lindenthal, renowned late 19th/early 20th century bridge engineer. Lindenthal was New York Commissioner of Bridges, and designer for New York City's Hell Gate and Queensboro bridges, and many other bridges. Sellwood is one of four Portland bridges that Lindenthal worked on in the mid-1920s, the last bridge projects in the master engineer's long career. The bridge was constructed by the Gilpin Construction Co. of Portland. Judson Manufacturing Co. fabricated the steel.

It opened in 1925 as a local community connector, tying Sellwood, Eastmoreland, Westmoreland and Milwaukie to Downtown Portland, three miles downriver. Now an intercounty bridge that serves Multnomah and Clackamas counties, Sellwood Bridge also is a primary connector for eastside residents headed for I-5 and Washington County. In the bridge's 75 years of existence, traffic has steadily increased to a daily volume of over 30,000 vehicles.

The Sellwood Bridge consists of three distinct units: the east approach, the main river spans and the west approach. It has an overall length of 1,971 feet and provides a 24-foot roadway and one 4'-3" sidewalk on the downstream side.

The east approach, with an overall length of 586 feet, has 16 spans consisting of one steel girder span and 15 concrete spans. The girders are set on pairs of concrete columns. Originally built over a sawmill, the east approach now spans across an office building, railroad tracks and a large parking lot.

The main river spans consist of a 1,092 foot, four-span continuous steel Warren Deck truss. The two interior spans of 300 feet each, and the two ends spans of 246 feet each, carry a 6 ½" thick concrete deck. The truss is supported on 5 major concrete piers and footings.

The west approach, as originally built, was 269 feet in length and consists of one steel girder span and seven continuous concrete girders. In 1961, a 25-foot prestressed concrete girder span was added, making the west approach 294 feet long. The girders sit on pairs of concrete columns. In the years prior to 1961, the west approach settled and moved toward the river 33". New columns and foundations were needed at three locations.



Hawthorne Bridge

The Hawthorne Bridge is one of the eight major bridges that connect east and west Portland and one of the six major bridges owned by Multnomah County. Originally constructed in 1910 to carry streetcars, wagons and early motor vehicles, the Hawthorne Bridge presently accommodates only highway traffic with approximately 30,000 vehicles crossing daily on four lanes. Vertical clearance for river traffic is limited and approximately 200 openings per month are required for this vertical lift bridge.

When first constructed, the bridge connected Water Avenue on the east side with Front Avenue on the west. Major reconstruction of the east and west approaches was done in 1956 and 1958, resulting in the addition of approach ramps connecting Grand Avenue on the east with the downtown business district.

The six main spans of the Hawthorne Bridge are steel through trusses which carry two inboard traffic lanes and one outboard lane on each side. The overall length of the bridge spans is 1383 feet. There are three spans east of the lift span section, each 209' - 3" long. The lift span section of the bridge consists of the vertical lift span flanked by two tower spans each 244' - 3 1/2" long. The two towers rise 165 feet above the bridge deck and support two counterweights, each weighing 850 tons.

The lift span is of the span drive type and both machinery and operator's houses are located on the lift span above the roadway. The operating machinery consists mostly of open gearing of original installation. The electrical power and control systems are modern and were installed in 1975. These systems were further upgraded in 1999.

The east approach to the Hawthorne Bridge consists of three separate ramps: the Madison Street Viaduct, the Hawthorne Street Viaduct and the Water Avenue Ramp. The Madison Street Viaduct is 1,290 feet long, carries two lanes of westbound traffic toward the bridge and is constructed of simple-span steel girders supporting a concrete deck on reinforced concrete columns and caps. The Hawthorne Street Viaduct is 1,250 feet long, has construction similar to the Madison Street Viaduct and carries two lanes of eastbound traffic away from the bridge. The Water Avenue Ramp is a two-lane, two-way ramp that allows eastbound traffic to exit the bridge to Water Avenue, and allows westbound traffic access to the bridge from Water Avenue. The Water Avenue Ramp is part of a new concrete Transition Structure built in 1992 to replace an old timber structure. It is approximately 549 feet long and connects the two-eastside viaducts with the bridge.

The west approach to the bridge is a combination of short ramps that connect the bridge with SW Naito Parkway and SW 1st Avenue. The structure is approximately 330 feet long and is constructed of reinforced concrete columns and caps supporting a concrete deck and prestressed concrete beams. During the 1999 rehabilitation project, sidewalks and ramps were added to the west side approach to improve access for the handicapped, pedestrians and cyclists.

When combined, the overall length of the bridge and ramps connecting SE Grand Avenue with SW 1st Avenue is approximately 3,552 feet.

Major structural modifications on the truss spans have included removal of the original timber deck and sidewalk and installation of open steel grating deck and concrete and aluminum sidewalks. The sidewalks were recently widened from 6 feet to 10 feet to allow greater room for pedestrians and cyclists. This resulted in the overall deck width extending out to 72 feet.

The Hawthorne Bridge was designed by Waddell and Harrington, Consulting Engineers from Kansas City, MO and constructed by the Pennsylvania Steel Co and United Engineering and Construction. and Robert Wakefield. It opened to traffic on December 19, 1910.



Morrison Bridge

The Morrison Bridge is an important link to the inner city network of highways and bridges. This spot on the Willamette River always has been an important crossing. Strategically located as a gateway to Downtown Portland, two other Morrison bridges--built in 1887 and 1905--preceded the current six-lane structure. Completed in May of 1958, the bridge was originally designed to link Morrison Street, Belmont Street and Water Avenue on the east side to Washington, Alder and Front Streets on the west. In 1961, a series of ramps were added to connect Interstates 5 and 84 to the bridge, making it a major transportation corridor.

Sleek in design--"minimalist architecture," some say-- the 48-year-old Morrison Bridge marked the advent of freeways and faster cars in the Portland area. Today, Morrison is a busy bridge. Situated at the intersection of two Interstate freeways, the Morrison carries 50,000 vehicles daily. Imagine nearly 25 percent more traffic by 2015.



The Morrison Bridge main river structure consists of two 237'-9" steel deck truss side spans and a 284'-6" double-leaf Chicago type bascule draw span, for a total bridge length of 760 feet. The bridge accommodates six lanes of traffic. Vertical clearance of the closed bascule span is adequate for the majority of river traffic, with openings necessary only about 30 times per month. The only major modifications to the bridge have been to rebuild the main pier fendering system in 1965 and 1997, a complete deck replacement on the east side span in 1980 and west approach deck rehab in 1994.

The east approach is primarily two one-directional traffic viaducts serving Morrison and Belmont Streets, which merge near the river. Each structure carries three lanes of traffic on a reinforced concrete deck and steel girder superstructure. The Morrison Street Viaduct is approximately 1,580 feet long and the Belmont Street Viaduct is approximately 1,650 feet long.

Also on the east side is the Water Avenue Ramp. This ramp was part of the original project in 1958, but was reconstructed in 1961 when Interstate 5 was built. The eastbound off-ramp is approximately 324 feet long and has both steel and concrete deck girders supported by concrete columns.

The west approach consists of four ramps which merge over three spans to meet the bridge. The approaches have concrete decks with steel girders supported by reinforced concrete columns and caps. The combined length of the ramps is 1,290 feet.

The Morrison Bridge was designed by Sverdrup/Parcel of St Louis, MO and Moffatt, Nichol and Taylor of Portland, OR. The main river truss spans and draw spans were constructed by the American Bridge Division of the U.S. Steel Co. Manson Construction and Engineering built the substructure.



Burnside Bridge

One of four Willamette River crossings built in Portland during the "Roaring Twenties," Burnside Bridge, stands in age right behind the County's Hawthorne and Broadway bridges.

This 1926 structure is located on one of the longest and busiest streets in the Portland area. The five-lane Burnside is a direct connection between downtown Portland, Beaverton to the west and Gresham to the east. Last year, about 40,000 vehicles a day used it. So did more than 1,000 pedestrians and bicyclists each day.

In addition to its important daily work load, Burnside plays a key role during emergencies. Burnside Street and bridge are designated as an official emergency transportation route. The bridge, as part of this "lifeline corridor," is the one non-freeway river crossing which emergency vehicles and suppliers are asked to use.

BURNSIDE'S ARTISTIC SIDE. The three-span Burnside is a historically significant structure. It is the only Willamette River bridge in Portland designed with the help of an architect, a result of the early 20th century



City Beautiful Movement that called for adding architectural ornamentation to engineering designs. The bridge's distinctive Italian Renaissance towers reflect the trend. Burnside is eligible for the National Register of Historic Places and protected by preservation laws. Originally designed by the firm of Hedrick and Kremers, Burnside was completed by



Gustav Lindenthal (1850-1935). Burnside's opening mechanism, or bascule, was designed by Joseph Strauss (1870-1938), whose Golden Gate suspension bridge would open 11 years after Burnside.

The Burnside Bridge main river structure consists of two 268-foot side span steel deck truss side spans and a 252-foot double-leaf Strauss trunnion bascule draw span. The bridge originally had six lanes of traffic, but in 1995 the City of Portland requested that bike lanes be added to the bridge, so one lane of traffic was converted into two bike lanes. There are sidewalks on both sides of the bridge. The overall width of the structure is 86 feet. Vertical clearance of the closed bascule span is adequate for the majority of river traffic, with openings necessary only about 40 times per month.

Only minor modifications have been made to the bridge since its construction. Electric street car rails were removed in the late 1940's, lighting and traffic control devices were updated in the late 1950's, automobile traffic gates were installed in 1971 and the bascule pier fenders were replaced in 1983. Several deck resurfacing projects and expansion joint repairs have also taken place.

The east approach to the bridge is approximately 849 feet long and has two distinct types of construction. The first eight spans consist of steel plate girder spans ranging from 75 feet to 106 feet in length. The steel girders and steel interior floor beams are completely encased in concrete. A concrete deck spans the floorbeams. The next seven spans are composed of concrete stringers spanning continuously over concrete columns and floorbeams. Six of these spans are 22 feet long and one is 40 feet long.

The west approach is approximately 604 feet long and consists of 19 reinforced concrete spans ranging in length from 22 feet to 62 feet. The first 13 spans average 22 feet and consist of reinforced concrete stringers acting continuously over concrete columns and floorbeams. The next three spans average 40 feet in length and are of similar construction. The last four spans are 62 feet long and consist of four main simple span concrete girders that carry interior concrete floor beams and stringers. A concrete deck is cast with the girders, stringers and floorbeams.



Broadway Bridge

The Broadway Bridge structure totals 1,613 feet in length and consists of three westerly approach Pennsylvania-Petit Through truss spans of 267 feet, 282 feet and 295 feet, a 278-foot double-leaf Rall bascule main channel draw span, and one Pennsylvania-Petit Through truss of 295 feet and one Warren Through truss of 180 feet on the eastern approach. The bridge was constructed in 1911 and 1912. The bridge currently carries four lanes of traffic with an average daily volume of 30,000 vehicles. The overall width of the structure is 70 feet. Vertical clearance of the closed bascule span is adequate for the majority of river traffic, with openings necessary about 25 times per month, primarily to accommodate grain terminal ships.

The Broadway approach ramp on the west side is a combination of structures built in 1911 and 1927. The first 456 feet is a concrete roadway slab with retaining walls, originally 67 feet wide but later widened to 85 feet in 1927. The next 331 feet consists of six spans made up of a concrete deck supported by steel girders, floorbeams, stringers and columns. This section is connected to a steel Viaduct Intersection, which is 282 feet long, has four variable length steel girder spans, and connects the approach to the bridge structure. The Lovejoy Street approach ramp was constructed in 1927. Beginning at the Viaduct Intersection and running west, the first 274 feet were three spans of concrete deck on steel girders, floorbeams, stringers and columns. The next 391 feet consisted of eight spans of concrete deck, girders and floorbeams continuous over two spans. This approach was recently torn down by the City of Portland and will be rebuilt as a shorter approach in order to allow for development of the new River District residential area.

The east approach to the bridge is a two-span continuous concrete deck girder bridge 84 feet long crossing over Interstate Avenue. The end abutment walls are approximately 20 feet high.

Commuters sitting in traffic complain that Broadway openings take longer than other movable bridges. They're right. Average opening times for Morrison, Burnside and Hawthorne bridges run from five to eight minutes. On the Broadway, openings can take 20 minutes and longer. One reason for the delays is that Broadway is a very complicated drawbridge. Called a double-leaf bascule (means seesaw in French), the weight of the deck, or leaf, is balanced by a counterweight. Portland's two other bascules, Morrison and Burnside, have counterweights hidden out of sight inside their piers. Not the Broadway, however. Broadway's two

counterweights are located above the bridge's deck. The Broadway bascule span is an unusual Rall-type bascule, invented by Theodore Rall. On this bridge, each leaf and its counterweight roll back and forth on giant bull wheels to allow maximum river clearance. Only three Rall-bascule highway bridges still exist in the U.S., the other two being much smaller than the Broadway. The bridge's draw span is unusually long. Each leaf measures about 140 feet, weighing more than 2,000 tons, making Broadway the seventh longest bascule bridge in the world.

The overall Broadway Bridge was designed by Ralph Modjeski of Chicago, IL. The bascule span was designed by the Strobel Engineering Company of Chicago, holder of the Rall patent. The Union Bridge and Construction Co. of Kansas City, MO constructed the substructure and the Pennsylvania Steel Co. of Steelton, PA fabricated and erected the steel and bascule spans. In 1927, another famous bridge engineer, Gustav Lindenthal of New York, designed part of the Lovejoy Street ramp as well as modifications to the truss spans.

Sauvie Island Bridge



Sauvie Island Bridge was designed by the Oregon State Highway Commission and built by the Gilpin Construction Co. The bridge opened December 30, 1950, retiring the Sauvie Island Ferry. Jurisdiction for the bridge was transferred to Multnomah County on August 9, 1951.

The bridge is 1,198 feet long and consists of two different types of construction. The first six spans from the west side total 272 feet and are reinforced concrete deck girders set on concrete piers. The next three spans are steel riveted trusses each 200 feet long set on concrete piers. The first and third spans of this set are deck trusses and the main span is a through-truss. The next five spans totaling 326 feet are reinforced concrete deck girders designed as two continuous units. The bridge has a roadway width of 26 feet and carries two lanes of traffic with sidewalks on each side. The overall width of the structure is 35 feet over most of its length.

Multnomah County has undertaken a Tier I Bridge Siting Study to identify, develop and evaluate potential bridge crossing corridors between Sauvie Island and the mainland. The existing bridge to the island was built in 1950 and has reached the end of its service life. Recently completed repairs on the bridge have stabilized cracks found after an inspection in December 2001. The bridge is also functionally obsolete because it does not meet current design standards. The study is the first of many steps that must be taken before a new bridge is built. Study objectives are to identify possible corridors for a new bridge; research advantages, disadvantages, and significant issues for each corridor; develop conceptual bridge designs and planning level cost estimates to build each alternative. Using the study results, county staff have recommended that a new Sauvie Island bridge be built in the existing bridge corridor.

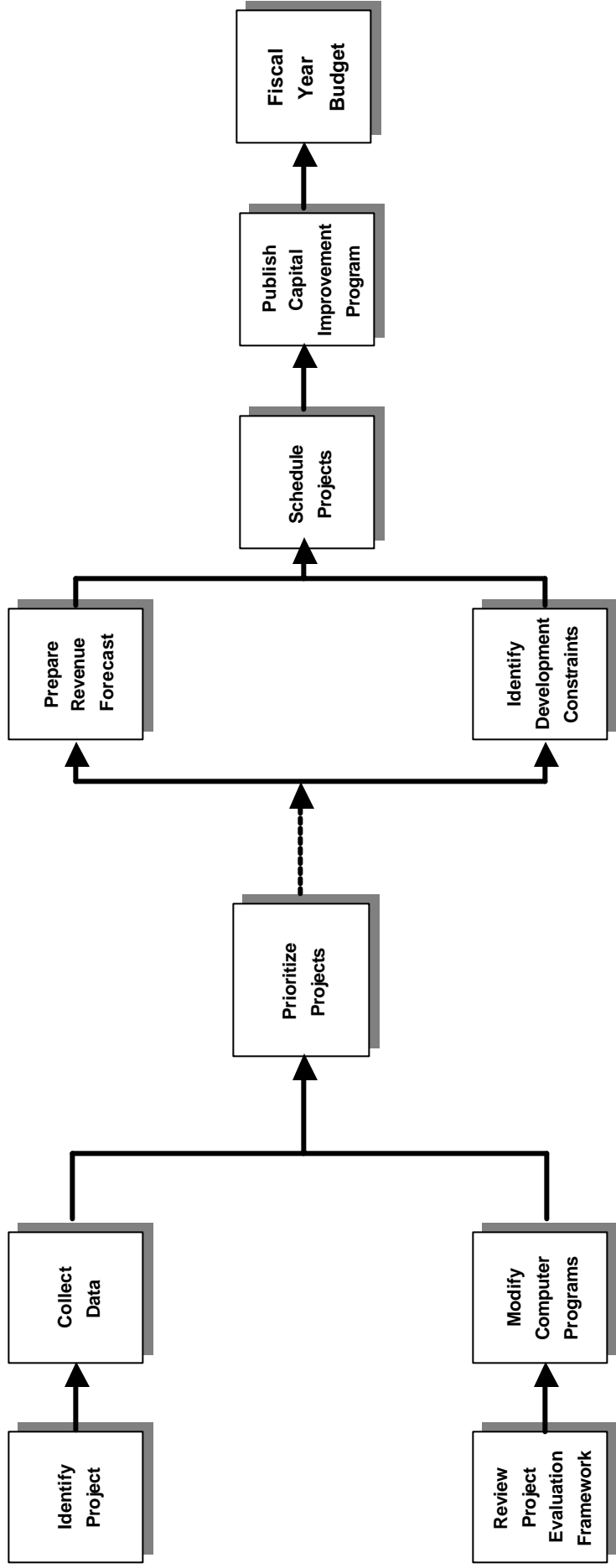
A new bridge would have two travel lanes 12-feet wide, two bike lanes/shoulders 6-feet wide, and two sidewalks 6-feet wide. It would be built to current seismic codes and would have a maximum grade of 6% (slightly less steep than current bridge).

APPENDICES

Capital Improvement Plan Process
Project Location Maps

Capital Improvement Plan & Program

Flow Chart



Capital Improvement Plan

Capital Improvement Program

FY 2005-2009 CAPITAL IMPROVEMENT PLAN AND PROGRAM

PROJECT LOCATION MAP
DEPT OF BUSINESS AND COMMUNITY SERVICES
Land Use and Transportation Program



LEGEND

- cip-noniris-pnt-050602
- cip-line-noniris
- 020731-bicycle-ped-cip
- 020710-cip-pnts

