

BEFORE THE BOARD OF COUNTY COMMISSIONERS  
FOR MULTNOMAH COUNTY, OREGON

**RESOLUTION NO. 02-098**

Approval of the *Multnomah County 2002-2006 Transportation Capital Improvement Plan and Program*

**The Multnomah County Board of Commissioners Finds:**

- a. The need to maintain and preserve the County roadways, Willamette River Bridges, bikeways, pedestrianways, and related structures so as to promote the safe and efficient movement of people and commerce throughout the County; and
- b. The preservation and improvement of County roadways, Willamette River Bridges, bikeways, pedestrianways, and related structures is vital to an orderly and balanced transportation system; and
- c. A unified approach to long-range facilities planning and capital investment programming is a County goal; and
- d. Extensive and timely analysis and evaluation of County roadways, Willamette River Bridges, bikeways, pedestrianways, and related structures has been undertaken; and
- e. The Multnomah County Land Use and Transportation Division Capital Improvement Plan specified a process to establish priorities for capital improvement needs which will maximize the use of resources which is the *Multnomah County 2002-2006 Transportation Capital Improvement Plan and Program*; and
- f. The Multnomah County Transportation Capital Improvement Plan and Program will be updated every two years as a necessary element of the safe and reliable public use of the County roadways, Willamette River Bridges, bikeways, pedestrianways, and related structures; and
- g. Four public meetings were held to solicit public input on the Transportation Capital Improvement Plan; and

- h. At its June 3, 2002 meeting the East Multnomah County Transportation Committee considered and recommended approval of the *Multnomah County 2002-2006 Transportation Capital Improvement Plan and Program*.

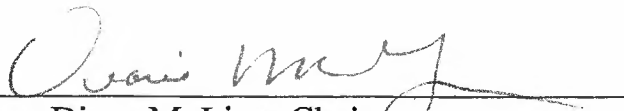
**The Multnomah County Board of Commissioners Resolves:**

The *Multnomah County 2002-2006 Transportation Capital Improvement Plan and Program* is hereby approved.

ADOPTED this 27th day of June, 2002.

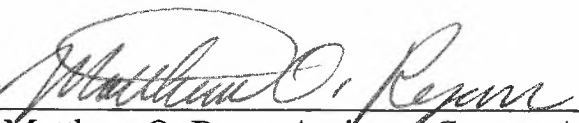


BOARD OF COUNTY COMMISSIONERS  
FOR MULTNOMAH COUNTY, OREGON

  
Diane M. Linn, Chair

REVIEWED:

THOMAS SPONSLER, COUNTY ATTORNEY  
FOR MULTNOMAH COUNTY, OREGON

By   
Matthew O. Ryan, Assistant County Attorney



**Multnomah County**

**Department of Business and Community Services**

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**Multnomah County  
2002-2006 Transportation  
Capital Improvement Plan  
and  
Program**

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May 2002

Prepared by  
Multnomah County  
Land Use Planning and Transportation Division

# **Multnomah County 2002-2006 Transportation Capital Improvement Plan and Program**

## **Preface**

Multnomah County Transportation Division (Division) has instituted a Capital Improvement Plan (CIP) process. This process follows the guidelines established in the 1983 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) and bridge projects, and related improvements necessary to maintain and enhance the County transportation system. The Transportation Capital Improvement Program (TCIP) implements the CIP by assigning available revenue to the highest ranked capital projects. A schedule is established of ranked projects for each fiscal year for funding.

The format for the 2002-2006 TCIP is to evaluate transportation needs for each of the five categories, as follows:

1. 2002-2006 Roadway Capital Improvement
2. 2002-2006 Bikeway Capital Improvement Plan
3. 2002-2006 Pedestrian Capital Improvement Plan
4. 2002-2006 Fish Passage Culvert Capital Improvement Plan
5. 2002-2006 Roadway Capital Improvement Program
6. 20 Year 2002-2021 Capital Improvement Plan and Program for the Willamette River Bridges

1995 marked a significant milestone for the Division. In 1995, Multnomah County completed negotiations with the cities of Fairview, Troutdale and Gresham to transfer many local roads to the cities. Multnomah County has retained the regional road network outside of Portland.

The 2001 Oregon State Legislature took up the issue of transportation financing. For the first time since 1989, the legislature was able to pass legislation to increase transportation financing. HB 2142, the 2001 Oregon Transportation Investment Act that authorizes \$400 million in highway user tax bonds over the next three biennia for bridge repair, pavement preservation, modernization and safety projects.

The Oregon Transportation Commission (OTC) allocated at least 50 percent (\$200 million) to bridge and preservation projects and up to 50 percent (\$200 million) to modernization projects. The OTC allocated the remaining \$200 million for modernization projects among the 5 ODOT

regions. Region 1 (including Multnomah County is earmarked for up to \$70 million). The \$200 million for bridge and preservation projects allocate \$100 million for bridge projects; \$50 million for either bridge or preservation projects; and, \$50 million for preservation projects. However, the funds may be used only for bridges or ODOT district highways.

Although the 2001 legislature passed HB 2142, they still did not address the issue of passing 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 the 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 capital funds with private development, traffic impact fees, regional funding (Metropolitan Transportation Improvement Program), OTIA, etc.

### **Comprehensive Project Delivery System**

Subsequent to the publication of the 1998-2002 Transportation Capital Improvement Plan and Program, the County undertook an internal audit of the capital planning process. A major outcome of the audit has resulted in the preparation of the (Draft) Comprehensive Project Delivery System Manual (CPDS). The CPDS manual has recently been completed, and many of the recommendations of the audit and systems identified in the manual are being implemented with the update of this Capital Improvement Plan and Program (CIPP).

The CPDS is being implemented to better identify and track projects from inception to completion. Implementing the CPDS will provide enhanced:

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

This current CIPP is the first step in beginning implementation of the CPDS and is an on-going process. Further improvements will be implemented as the CIPP is completed and the CPDS process is integrated into it.

To begin implementation of, and integration of the CIPP with the CPDS, a new project database has been established. The new database includes the information gathered for each project (description, costs, attributes, etc.). Each project is also identified with the Integrated Road Information Systems (IRIS) road number and milepost. This identification method allows the project manager/engineer to access each project and update it comprehensively.

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.

Because the county now has the ability to gather and display more data for each project, the 2002-2006 TCIP is presented in 2 documents. The first document is the Multnomah County 2002-2006 Transportation Capital Improvement Plan and Program (TCIP). The second document is a supplement to the TCIP known as Multnomah County 2002-2006 Transportation Capital Improvement Plan and Program Project Supplement (Supplement).

The TCIP contains descriptions of each of the CIPP categories, project listing and rankings, and the capital improvement program. The Supplement contains project descriptions of each project including location map. The CIPP will have full project descriptions and maps of only those projects included in the capital program.

**Multnomah County  
2002—2006 Transportation  
Capital Improvement Plan and Program**

**TABLE OF CONTENTS**

<u>SECTION</u>	<u>PAGE</u>
PREFACE	i
LIST OF TABLES	vi
ROADWAY CAPITAL IMPROVEMENT PLAN	1
BIKEWAY CAPITAL IMPROVEMENT PLAN	19
PEDESTRIAN CAPITAL IMPROVEMENT PLAN	29
FISH PASSAGE CULVERT CAPITAL IMPROVEMENT PLAN	37
ROADWAY, BIKEWAY, PEDESTRIAN AND FISH PASSAGE CULVERT CAPITAL IMPROVEMENT PROGRAM	49
CAPITAL IMPROVEMENT PLAN AND PROGRAM FOR THE WILLAMETTE RIVER BRIDGES	103
WILLAMETTE RIVER BRIDGES 20 – YEAR CAPITAL NEEDS	111
WILLAMETTE RIVER BRIDGES PROJECT RATING CRITERIA	117
BRIDGE SUMMARIES	123
WILLAMETTE RIVER BRIDGES ACCESSIBILITY PROJECT	137
APPENDICES (Not Included in draft document)	
I.    Project Constraints	
II.   Capital Improvement Plan Process	
III.  Project Location Map	

## LIST OF TABLES

<u>TABLE</u>		<u>PAGE</u>
1.	ROAD FUND CAPITAL PROJECTS RANKING CRITERIA	3
2.	CIP SCORE RANKING REPORT (Roads)	9
3.	CIP RANKING REPORT (Bikes)	21
4.	CRITERIA FOR BIKEWAY PROJECT EVALUATION	24
5.	CIP SCORE RANKING REPORT (Pedestrians)	31
6.	CRITERIA FOR PEDESTRIAN PROJECT EVALUATION	33
7.	CRITERIA FOR FISH PASSAGE CULVERT EVALUATION	41
8.	FISH PASSAGE CULVERT SCORES	45
9.	20-YEAR CAPITAL IMPROVEMENT NEEDS FOR THE WILLAMETTE RIVER BRIDGES	111



# **ROADWAY CAPITAL IMPROVEMENT PLAN**

# **ROADWAY CAPITAL IMPROVEMENT PLAN**

## **Multnomah County 2002-2006 Roadway Capital Improvement Plan**

Multnomah County Transportation and Land Use Planning Division 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 Plan 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 (CIPP) which allocates revenue by priority of need. The CIPP uses objective criteria to evaluate and give priority to road, bike, bridge and pedestrian improvements from the array of potential projects. The CIPP implements the CIP by assigning available revenues to the highest ranked projects. The CIPP 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) high accident locations, (2) the Pavement Management Program, and (3) the Transportation System Plan. These sources identify road segments, intersections, and structures on the County road system that are hazardous or congested, or in need of reconstruction.

The following external sources were consulted to identify potential projects:

- Input from concerned citizens, neighborhood and community associations was heard at four public meetings.
- Two meetings were held in east Multnomah County, in the cities of Wood Village and Gresham, primarily to gather input concerning urban areas.
- Two meetings were held in rural areas of Multnomah County (Corbett and Sauvie Island).
- Each city in the county was asked to consider and identify potential projects in county road rights-of-way.

Other sources of information included:

- The 1998-2002 Capital Improvement Plan and Program;
- The Functional Classification of Trafficways;
- Multnomah County Master Road List;
- Metro's Traffic Forecast Model;
- Regional Transportation Plan;
- Transportation System Plans;
- Input from utilities and other users of the county right of way; and,
- Trafficway Plan and Impact Fee Study.

### **Road Fund Capital Projects Ranking Criteria**

The 2002-2006 TCIP used new project evaluation criteria for road fund capital projects. The new criteria is based upon project selection criteria used by Metro for funding regional projects. The reason for this shift was brought about 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**

Safety Priority Indexing System (SPIS) maximum 20 points

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

Multi-modal benefit maximum 15 points

- 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

2040 Focus Areas (land use) maximum 15 points

- 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

Non-county funding secured maximum 10 points

- Has project secured 50 – 100% of funding from non-county source 10
- Has project secured less than 50% from a non-county source 5

Project support maximum 15 points

- 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

Completion of corridor maximum 5 points

- Will the project complete a gap in a corridor (i.e. is the roadway on either end of segment constructed to county standards) 5

Perceived safety factor administrative criteria

- 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

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

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, 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 an 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. 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. However the Gresham City Council has not yet approved the new projects or fee structure.

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.

In 1997 the City of Gresham and Multnomah County entered into an Intergovernmental Agreement that identified the TIF projects and allows for the transfer of funds to undertake

project development of the TIF projects. The City of Gresham and Multnomah County will meet on an annual basis to update the TIF project program for the coming fiscal year. Those TIF projects to be constructed either as stand-alone projects, or in conjunction with other CIP projects will be identified in the Roadway Capital Improvement Program section of this document.

### **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 will be 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.)

\* Non-Willamette River Bridges

\*\* 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 reconstruction projects employ Regional Street Design Concepts and will be noted as *Street Design Concepts* in the CIP

## 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 and Street Design Concepts. 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 (2001 dollars) for each project that includes right-of-way and construction cost estimate.

The TCIP Supplement contains additional information about each project including:

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 Number - A 3-digit number was assigned to each project. Refer to the CIP map for the location of each project which is referenced by a map number.

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.

Score – Rating and ranking score of project.

Right-of-Way Cost - The estimated cost for the purchase of required additional right-of-way (2001 \$s).

Construction Cost – The sum of estimated project construction (budgetary) cost (2001 \$s)

Total Cost – The sum of estimated Right-of-Way and Construction Costs.

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    Arterial Category**

Project #	Project Name	Project Description	Score	Total Cost
62	257th Ave/Orient Dr/Palmquist Rd	Realign intersection of Orient Dr, Palmquist Rd and 257th Ave and install new signal. Project also to include Orient Dr/257th Ave intersection project. Construct new 11th Ave between 257th Ave and US 26	50	\$3,800,000
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. Does not include signal at 242nd Ave/23rd St that is separate project.	50	\$1,000,000
730	223rd Ave: Stark St--Fariss Rd	Reconstruct roadway, capital preservation project.	45	\$800,000
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	45	\$4,800,000
729	Burnside Rd: 242nd Ave--Powell Blvd	Reconstruct road--capital preservation project.	40	\$750,000
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	\$2,200,000
123	242nd Ave Southern Connector	Construct new road to principal arterial standards with 4 travel lanes, center turn lane/median, sidewalk, bicycle lanes	40	\$17,700,000
98	Orient Dr: 257th Ave--267h Ave	Construct Orient Dr to 5 lanes including center turn lane/median, sidewalks and bicycle lanes	40	\$2,300,000
107	Halsey St: 238th Dr--HCRH	Widen Halsey St to 3 lane arterial with center turn lane/median, sidewalk and bicycle	35	\$2,500,000
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.	35	\$1,600,000
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	\$24,000,000
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	\$2,400,000
121	Cornelius Pass Rd: Skyline Blvd--Wash Co Line	Widen Cornelius Pass Rd to rural arterial standards, including bicycle lanes.	30	\$2,200,000
119	Division St: 198th Ave--202nd Ave	Construct to arterial standards with sidewalks, bicycle lanes, 4 travel lanes and center turn lane/median.	25	\$464,000

## **CIP Score Ranking Report    Arterial Category** (Continued)

Project #	Project Name	Project Description	Score	Total Cost
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	\$2,200,000
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	\$2,500,000
722	238th Dr: Glisan St--Arata Rd Safety Improvements	Widen existing pavement near entrance to Tree Hill Condominiums, and install signal ahead sign with beacons.	20	\$125,000
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	\$590,000
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	\$2,500,000
68	162nd Ave: Halsey St--Glisan St	Construct 162nd Ave to 5 lane minor arterial standards with bike lanes and sidewalks.	20	\$1,700,000
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	\$4,700,000
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	\$2,000,000
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	\$1,900,000
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	\$1,300,000
101	Scholls Ferry Rd: US 26--Wash Co Line	Widen roadway to add 4th lane for turns and uphill bicycle lanes.	15	\$2,300,000
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	\$1,200,000
115	Division St: 257th Ave--268th Ave	Widen to 3 lane minor arterial standards including sidewalks, bicycle lanes, drainage and illumination.	15	\$2,300,000
109	Orient Dr.: 267th Ave--Gresham City	Improve Orient Dr to arterial standards with sidewalks and bicycle lanes.	10	\$735,000
103	Cornelius Pass Rd: MP 2--MP 3	Widen and realign Cornelius Pass Rd, including new box culvert and passing lane.	10	\$7,300,000
389	Cornelius Pass Rd: US 30--MP 2	Reconstruct Cornelius Pass Road including passing lane, safety, shoulder and drainage improvements.	10	\$18,900,000
66	Corbett Hill Rd: 1200' s of I-84	Widen and realign road to meet rural arterial standards.	5	\$2,100,000
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	\$2,300,000
<b>Arterial Category Cost</b>				<b>\$123,364,000</b>

# CIP Score Ranking Report      Collector Category

Project #	Project Name	Project Description	Score	Total Cost
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	\$940,000
129	Arata Rd: 223rd Ave--238th Dr	Construct to 3 lane collector standards with center turn lane/median, sidewalks, bicycle lanes.	45	\$1,600,000
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	\$1,500,000
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	\$640,000
716	Sandy Blvd: 207th Ave-- 238th Ave	Construct to arterial standards with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Could include future improvements described in Sandy Blvd TGM Study.	30	\$5,200,000
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.	30	\$1,100,000
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	\$780,000
153	202nd Ave: Stark St--Division St	Reconstruct to major collector standards with 2 travel lanes, sidewalks and bicycle	25	\$2,400,000
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	\$2,800,000
151	Hist Columbia River Hwy: 244th Ave--Halsey St	Reconstruct to major 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	\$4,300,000
134	Troutdale Rd: Strebin 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	\$1,200,000
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	\$1,000,000
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	\$1,200,000
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	\$3,600,000

# CIP Score Ranking Report

## Collector Category (Continued)

Project #	Project Name	Project Description	Score	Total Cost
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	\$3,100,000
159	Sauvie Island Rd: Bridge--Reeder Rd	Widen road to rural collector standards with 2 travel lanes. Requires working on dike.	20	\$1,400,000
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	\$1,700,000
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	\$1,600,000
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	\$4,100,000
145	Cochran Dr: Troutdale Rd--W'Iy 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	\$1,200,000
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	\$400,000
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	\$480,000
162	209th Ave: Butler Rd--Heiney Rd	Widen to major collector standards with 2 travel lanes and sidewalks.	10	\$2,200,000
149	Sweetbriar Rd: Troutdale Rd--E City Limit	Widen to neighborhood collector standards with 2 travel lanes, sidewalk and bicycle	10	\$550,000
125	Powell Vly Rd: Barnes Rd--Troutdale Rd	Construct Powell Valley Rd to major collector standards with bike lanes, sidewalks and drainage improvements.	10	\$2,800,000
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	\$1,350,000
156	267th Ave: Gresham City Limit--County Line	Widen to rural collector standards. Requires replacement of 2 culverts	5	\$1,300,000
726	Germantown Rd/Old Germantown Rd	Widen Germantown Rd to create left turn pocket and improve sight distance.	5	\$150,000
157	Barbara Welch Rd: City Limits--County	Widen road to rural collector standards.	0	\$500,000
713	190th Ave: Division St--Yeon Complex	Construct to collector standards. (Gresham IGA requirement.)	0	\$750,000
164	Clatsop St: Barbara Welch Rd--162nd Ave	Widen to rural collector standards adding storm drain inlets and drainage.	0	\$730,000
<b>Collector Category Cost</b>				<b>\$52,570,000</b>

## ***CIP Score Ranking Report    Bridge Category***

Project #	Project Name	Project Description	Score	Total Cost
198	223rd Ave RR Overcrossing	Construct new railroad bridge to accommodate 223rd Ave with bike lanes and sidewalks.	50	\$3,800,000
724	Beaver Creek Bridge on Historic Columbia River Hwy	Replace Bridge	30	\$1,047,000
197	223rd Ave RR Overcrossing	Reconstruct railroad bridge on 223rd Ave, 2000' north of I-84 to accommodate wider travel lanes, sidewalks and bike lanes.	30	\$3,800,000
199	Hist Col River Hwy RR Overcrossing	Replace RR over crossing.	20	\$2,900,000
723	Corbett Hill Viaduct	Replace viaduct	15	\$1,047,000
196	201st Ave RR Overcrossing	Reconstruct railroad bridge at 201st Ave and I-84 to accommodate wider travel lanes, sidewalks and bike lanes.	15	\$3,800,000
195	162nd Ave RR Overcrossing	Reconstruct railroad bridge at 162nd Ave and I-84 to accommodate 4 travel lanes, sidewalks and bike lanes.	15	\$3,800,000
			<b><i>Bridge Category Cost</i></b>	<b><i>\$20,194,000</i></b>

## **CIP Score Ranking Report    Signal/Intersection Category** (Continued)

Project #	Project Name	Project Description	Score	Total Cost
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	\$625,000
168	182nd Ave/Division St	Upgrade traffic signal and add southbound right turn lane.	45	\$330,000
175	Orient Dr/257th Ave/Palmquist Rd	Realign intersection at SE Orient Dr., Palmquist Rd. and 257th Ave. and install new	45	\$756,000
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	\$281,000
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	\$220,000
727	Burnside Rd/Division Intersection	Add exclusive 200' eastbound right turn lane.	40	\$392,000
183	257th Ave/Bull Run Rd	Replace signal.	35	\$190,000
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	\$410,000
171	Glisan St/172nd Ave	Replace traffic signal, reconstruct ADA ramps at each corner	30	\$270,000
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	\$570,000
177	257th Ave/Powell Valley Rd	Construct intersection improvements with turn lanes, traffic signal, bike lanes and	30	\$399,000
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	\$530,000
193	Cornelius Pass Rd/US 30	Widen pavement to allow for north bound left turn lane, right turn lane and bicycle lanes.	20	\$520,000
181	Glisan St/188th Ave	Replace signal, reconstruct ADA ramps at each corner.	20	\$270,000
184	257th Ave/26th St	Install traffic signal and replace all ADA ramps.	20	\$300,000
187	Marine Dr/Sundial Rd	Install traffic signal.	20	\$310,000
190	Halsey St/172nd Ave	Replace signal and reconstruct ADA ramp on each corner.	20	\$230,000
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	\$390,000
173	Burnside Rd/3rd St	Replace existing signal and reconstruct ADA ramps.	10	\$270,000
192	Butler Rd/Rodlin Rd	Realign intersection, add left turn lane and install traffic signal.	10	\$710,000
191	Orient Dr/267th Ave	Realign intersection and install traffic signal.	10	\$1,200,000
182	Glisan St/192nd Ave	Replace signal and reconstruct ADA ramp at each corner.	10	\$270,000
188	Butler Rd/209th Ave	Widen intersection to accommodate left turn lanes.	10	\$830,000
194	Butler Rd/Regner Rd	Realign intersection, install signal and add left turn lanes.	10	\$530,000

## **CIP Score Ranking Report    Signal/Intersection Category** (Continued)

Project #	Project Name	Project Description	Score	Total Cost
186	Division Dr/Troutdale Rd	Realign intersection, eliminating NE leg, producing a 4-way intersection. Replace 3 existing culverts identified as fish barriers.	5	\$3,900,000
147	Corbett Hill Rd: Historic Col. River Hwy	Improve intersection alignment by making stops at right angle.	5	\$1,100,000
707	Oxbow Dr/Altman Rd	Widen Oxbow Dr to create westbound left turn lane to Altman Rd, realign intersection to a perpendicular intersection.	5	\$220,000
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	\$170,000
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.	5	\$170,000
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	\$900,000
703	Orient Dr/Dodge Park Blvd	Widen Orient Dr to create eastbound left turn lane.	5	\$100,000
			<b>Signal/Intersection Category Cost</b>	<b>\$17,363,000</b>

## ***CIP Score Ranking Report      Street Design Concept Category***

Project #	Project Name	Project Description	Score	Total Cost
201	Stark St Boulevard Design: 181st Ave--197th Ave	Construct Stark St to regional boulevard standards	60	\$2,715,000
200	Division St Boulevard Design: 202nd Ave--235th Ave	Construct Division St to regional boulevard standards.	50	\$5,211,000
204	257th Ave Pedestrian Lighting	Add pedestrian lighting as part of street design concept	45	\$160,000
206	257th Ave/Cherry Park Ped Plaza	Construct pedestrian plaza as street design concept.	45	\$80,000
97	257th Ave: Median Improvements	Construct median improvements to enhance pedestrian safety. Includes signal improvements, U-turn land at Cherry Park Rd (North).	45	\$650,000
203	257th Ave Sidewalk Improvements	Widen Sidewalks as part of street design concept.	40	\$293,000
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	\$650,000
207	257th Ave Utility Undergrounding	Underground Utilities	25	\$341,000
205	257th Dr Pedestrian Crossing	Add pedestrian crossing at Livingston Place as street design concept	25	\$69,000
208	257th Ave Street Trees	Street Trees	20	\$15,000
<b><i>Street Design Concept Category Cost</i></b>				<b>\$10,184,000</b>



## **BIKEWAY CAPITAL IMPROVEMENT PLAN**

## **Multnomah County Bikeway Program 2002-2006 Capital Improvement Plan**

The Multnomah County Transportation Division has undertaken a long-term program to develop a balanced transportation system including provision of bike lanes on urban arterials and shoulder bikeways on rural roads. The Division spends more than the one percent minimum of its Motor Vehicle Fuel Tax on bikeway projects. These expenditures comply with ORS 356.514, which mandates expenditures of a minimum of one percent of state receipts on bicycle and pedestrian facilities.

A portion of Multnomah County's share of Motor Vehicle Fees is transferred to Portland. 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 bikeway system includes 140 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.

The Bicycle Capital Improvement Plan (BCIP) update process has re-evaluated unbuilt projects from the 1998-2002 BCIP to determine Capital Project priorities. Policies for the Bicycle Master Plan and the BCIP are established in the 1983 Multnomah County Comprehensive Framework Plan. The BCIP is consistent with the Comprehensive Framework Plan policies for Capital Improvement (#32) and Bicycle/Pedestrian System (#33C).

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 2002-2006 Bikeway CIP**

Bikeway capital improvement projects are defined as 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 of the Bicycle Program.

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 unbuilt bikeways on Multnomah County roads. The cost of building these is estimated to be \$38.5 million as shown in Table 3. Selection of bikeway capital improvements is a careful

process of addressing the most critical needs and maximizing funding opportunities.

The selection process described below determines the list of 2002-2006 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 2002-2006 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 by other programs in the next five years or other constraints are eliminated.
  - 1) Bikeway projects that will be implemented in the 2002-2006 Roadway CIP are eliminated.
  - 2) The County received a \$1 million Congestion Management/Air Quality grant for implementation of Willamette River Bridge Accessibility Projects (WRBAP). See WRBAP section for details on these projects.
  - 3) Some projects are eliminated due to pending corridor studies or physical constraints such as railroad bridges.
  - 4) Projects that require small capital amounts (such as striping and signing bike lanes on built roads) are referred to the Bicycle Maintenance budget.
  - 5) Shoulder bikeways that can be added through the annual Paving Program are eliminated.
- C. The remaining projects are evaluated according to the following criteria (see Table 4).
  - 1) Hazard Reduction
  - 2) Potential Use
  - 3) Outside Funding Opportunities
  - 4) Bikeway System Enhancement

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	Maintenance Program	25	\$460,000
290	Stark St: 257th Ave--Troutdale Rd	RCIP 57. Bike lane.	23	\$230,000
261	Halsey St: 190th Pl--207th Ave	RCIP 59	22	\$400,000
256	Glisan St: 162nd Ave--203rd Ave	Maintenance Program. Bike lane	22	\$860,000
238	Burnside Rd: 181st Ave--197th Ave	RCIP. Corridor study constraint.	21	\$370,000
230	257th Ave: Division St--Bull Run Rd	RCIP 60. Part of 40 Mile Loop.	20	\$215,000
260	Halsey St: 162nd Ave--190th Ave	Maintenance Program	20	\$600,000
263	242nd Ave: Palmquist Rd--Springwater	RCIP 709	19	\$160,000
257	Glisan St: 203rd Ave--207th Ave	RCIP 110	19	\$100,000
221	202nd Ave: Division St--Powell Blvd	Corridor Study Constraint	19	\$215,000
228	242nd Ave: Glisan St--Stark St	RCIP 708	19	\$245,000
247	Division Dr: UGB--Troutdale Rd	RCIP 111. Shoulder bikeway	18	\$150,000
249	Division St: 257th Ave--UGB	RCIP 115. Bike lane. Identified on 2 project descriptions, continued on Division Dr: Centurion Dr--UGB	18	\$180,000
231	257th Ave: Powell Valley Rd--Palmquist	Bike lane	18	\$140,000
222	202nd Ave: Glisan St--Stark St	RCIP 138. Corridor Study Constraint	17	\$220,000
229	257th Ave: Bull Run Rd--Powell Valley Rd	RCIP 60. Part of 40 Mile Loop.	17	\$170,000
226	223rd Ave: Marine Dr--Blue Lake Rd	RCIP 143. Maintenance Program	16	\$85,000
225	223rd Ave: RR Bridge@I84--Halsey St	RCIP 135	16	\$190,000
224	223rd Ave: Blue Lake Rd--RR Bridge@I84	RR constraint	16	\$370,000
295	Troutdale Rd: Stark St--Strebin Rd	RCIP 134. Bike Lane	16	\$340,000
241	Buxton Rd: HCRH--Cherry Park Rd	Maintenance Program	16	\$200,000
236	Blue Lake Rd: 223rd Ave--Interlachen	BCIP	16	\$185,000
273	Orient Dr: Palmquist Rd--Salquist Rd	RCIP 98. Bike lane	15	\$240,000
242	Cornelius Pass Rd: St Helens (old) Rd--MP2	RCIP 389. Corridor study constraint	15	\$840,000
232	282nd Ave: Troutdale Rd--Orient Dr	RCIP 154. Bike Lane	14	\$540,000
217	190th Ave: Highland Dr--Butler Rd	RCIP 105. Add bicycle lanes	13	\$320,000
227	223rd Ave: Marine Dr--1086' N of Marine	Maintenance Program	13	\$88,000
223	209th Ave: Binford Pkwy--Butler Rd	RCIP 162. Add bicycle lanes	13	\$295,000
264	242nd Ave: Springwater Trail--County Line	Shoulder bikeway	12	\$440,000
220	202nd Ave: Burnside Rd--Division St	Corridor Study Constraint	12	\$310,000
262	Hewitt Blvd: Humphrey Blvd--5200 W of Patton Rd	Shared Lane Bikeway	12	\$250,000

## **CIP Score Ranking Report    Bike Fund Capital Projects** (Continued)

Project #	Project Name	Project Description	Score	Total Cost
286	Skyline Blvd: Cornelius Pass Rd--Rocky Point Rd	Shoulder bikeway.	10	\$3,200,000
282	Sauvie Island Rd: Gillihan Rd--Reeder Rd	RCIP 159. Corridor Study Constraint. Bike path.	10	\$710,000
281	Sauvie Island Rd: Reeder Rd--Ferry Rd	Corridor Study Constraint. Shoulder bikeway	10	\$170,000
283	Scholls Ferry Rd: Hewitt Ave--County	RCIP 101. Bike Lane	10	\$560,000
218	201st Ave/202nd Ave: Halsey St--Glisan	Add bicycle lanes. Corridor study needed for 202nd Ave	9	\$210,000
287	Skyline Blvd: Cornell Rd--Greenleaf Rd	Shared Lane Bikeway	9	\$360,000
285	Skyline Blvd: McNamee Rd--Cornelius Pass Rd	Shoulder bikeway.	9	\$610,000
297	Woodard Rd: HCRH--Mershon Rd	Shoulder bikeway	8	\$40,000
271	Mershon Rd: Ogden Rd--HCRH	Shoulder bikeway	8	\$860,000
254	Foster Rd;330' E of Jenne Rd--County	RCIP 93. Shoulder Bikeway	7	\$470,000
275	Orient Dr: Salquist Rd--Welch Rd	Bike Lane	7	\$260,000
269	Larch Mt Rd: HCRH--End of Road	Shoulder bikeway	7	\$6,200,000
274	Orient Dr: Welch Rd--Dodge Park Blvd	Shoulder bikeway	6	\$440,000
219	201st Ave: Halsey St--Sandy Blvd	RCIP 127. Corridor Study Constraint	6	\$340,000
243	Cornell Rd: Skyline Blvd- Thompson Rd	Shoulder Bikeway	6	\$620,000
233	302nd Ave: Division St--Bluff Rd	Shoulder bikeway	5	\$890,000
239	Butler Rd: 190th Ave--Regner Rd	RCIP 239. Shoulder bikeway	5	\$780,000
284	Shattuck Rd: Patton Rd--Windsor Ct	Shared Lane Bikeway	5	\$100,000
279	Patton Rd: Scholls Ferry Rd--Hewitt Ave	Shared Lane Bikeway	5	\$350,000
253	Evans Rd: Hurlburt Rd--HCRH	Paving Program	5	\$650,000
296	Troutdale Rd: Strebin Rd--282nd Ave	Bike lane.	5	\$580,000
276	Oxbow Dr: Division Dr--Hosner Rd	Shoulder bikeway	5	\$950,000
270	McKinley Rd: 174th Ave--182nd Ave	Shoulder bikeway	5	\$210,000
255	Giese Rd: 182nd Ave-- 190th Ave	Shoulder bikeway	5	\$170,000
266	Hurlburt Rd: HCRH--Littlepage Rd	Paving Program. Shoulder bikeway.	5	\$1,000,000
267	Jenne Rd: Johnson Creek--McKinley Rd	RCIP 65. Shoulder bikeway	4	\$360,000
288	Springville Rd: Skyline Blvd--County Line	Shoulder bikeway.	4	\$122,496
278	Oxbow Park Rd: Oxbow Dr--End of Road	Shoulder bikeway	4	\$560,000
277	Oxbow Dr: Hosner Rd--Oxbow Park Rd	Shoulder bikeway	4	\$510,000
272	Ogden Rd: Mershon Rd--Woodard	Shoulder bikeway	4	\$40,000
268	Knieriem Rd: Littlepage Rd--HCRH	Shoulder bikeway	4	\$1,460,000
246	Division Dr: Troutdale Rd--Oxbow Dr	Paving Program. Bike lane.	4	\$640,000
265	Humphrey Blvd: Patton Rd--Hewitt Blvd	Shared Lane Bikeway	3	\$110,000

## **CIP Score Ranking Report    Bike Fund Capital Projects** (Continued)

Project #	Project Name	Project Description	Score	Total Cost
712	Dodge Park Blvd: 302nd Ave--County	Shoulder bikeway, from Orient Dr to County Line.	3	\$1,750,000
240	Butler Rd: Regner Rd--242nd Ave	Maintenance Program	2	\$360,000
293	TROUTDALE - 40 Mile Loop: Cherry Park Rd--Chapman	BCIP. Bike lane		\$80,000
292	Terwilliger Blvd: Northgate Rd--County	Bike Lane		\$210,000
291	Terwilliger Blvd: Powers Ct--Coronado St	Bike lane.		\$80,000
294	TROUTDALE Rd- Chapman Av--Stark St	Private Development. Bike lane 40 Mile Loop		\$330,000
289	Springwater Trail: County Line--Gresham City Limit	Grant Possibility. Bike Path		\$540,000
244	Cornell Rd: Thompson Rd--53rd Dr	Shoulder bikeway		\$360,000
250	Division St: 195th Ave--202nd Ave	RCIP 119. Corridor Study Constraint		\$133,400
717	Ogden Rd: Woodard Rd--Mershon Rd	Shoulder bikeway.		\$20,000
711	Division Dr: Centurion Dr--UGB	Bike lane.		\$180,000
237	Blue Lake Rd ROW: 223rd Ave--Interlachen Ln	BCIP		\$40,000
235	49th Ave: McNary--County Line	Bike Lane		\$70,000
245	Cornell Rd: County Line-C.O.P. line	Shoulder bikeway		\$17,000

**Bike CIP Cost                      \$38,110,896**

**Table 4**  
**Criteria for Bicycle Project Evaluation**

Criteria	Points
<b>Hazard Reduction</b>	
<u>Accidents</u>	
More than 8 during the last three years	5
More than 6 during the last three years	4
More than 4 during the last three years	3
More than 2 during the last three years	2
More than 1 during the last three years	1
Public report of hazard or public request for facility	4
<u>Traffic Condition</u>	
Average Daily Traffic (ADT) more than 10,000	2
Average Daily Traffic (ADT) more than 5,000	1
Lane width less than 12 ft. and available shoulder width less than 4 ft.	2
Posted speed greater than 30 mph	2
<b>Potential Use</b>	
<u>Current bicycle use</u>	
High (e.g. Sauvie Island Rd., Hawthorne Bridge, Marine Dr.)	5
Medium (e.g. Division St., Burnside Rd.)	3
<u>Logical destinations</u> e.g. recreation areas, work sites, schools, community service buildings	
High (8 or more destinations)	5
Medium (4 or more destinations)	3
Low (2 or more destinations)	1

### Outside Funding Opportunities

If 100 percent of funding is available from a source other than the Bicycle Fund, the project will not be considered for Bicycle Program funding.

10

80-99 percent funding available from outside sources

1 point per 10%  
funding

Less than 80 percent funding available from outside sources

### Bikeway System Enhancement

Provides connections to:

2 or more bikeway facilities

10

1 bikeway facility

8

Provides a needed bikeway in an area without any

5



## **PEDESTRIAN CAPITAL IMPROVEMENT PLAN**

## **Multnomah County Pedestrian Program 2002-2006 Capital Improvement Plan**

The Multnomah County Transportation Division has undertaken a program to develop a balanced transportation system including provision of sidewalks in the urban areas and shoulders on rural roads. The Division spends much more than one percent of its Motor Vehicle Fuel Tax on pedestrian projects. These expenditures comply with ORS 356.514, which mandates expenditure of a minimum of one percent of state receipts on bicycle and pedestrian facilities.

A portion of Multnomah County's share of Motor Vehicle Fees is transferred to Portland. 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 (PCIP) 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.

The sidewalk inventory identifies 161 miles of missing sidewalks in the urban areas. Of the 161 miles of needed sidewalks, 18 miles have storm drainage and curbs in place and need only sidewalks. The 18 miles of sidewalks where storm drainage and curbs are in place comprise the list of eligible projects for the Pedestrian Capital Improvement Plan. The Pedestrian CIP Ranking Report lists the eligible projects and the funding or constraint that eliminates the project from further evaluation.

The Pedestrian Capital Improvement Plan update process has evaluated the needed sidewalk projects using criteria developed in the Pedestrian Master Plan to identify priorities. The Multnomah County Pedestrian Citizen Task Force reviewed the criteria and points used to assign priorities to projects.

Policies for the Pedestrian Master Plan and the PCIP are established in the 1983 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 for 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 2002-2006 Pedestrian CIP

The Pedestrian Capital Improvement Plan process identifies candidate projects and evaluates them according to an objective ranking system. Identified in the PCIP are 18 miles of missing sidewalks on Multnomah County roads where storm drainage and curbs are in place. The cost of building these is estimated to be \$2.1 million as shown in Pedestrian CIP Ranking Report (Table 5). Selection of pedestrian capital improvements is a careful process of addressing the most critical needs and maximizing funding opportunities.

The selection process described below determines the list of 2002-2006 candidate sidewalk projects. The candidate projects are ranked according to objective criteria. The highest ranked projects without other development constraints are scheduled for implementation in the 2002-2006 Pedestrian Capital Improvement Program.

Information used in the selection process is described below:

- A. Missing sidewalk segments that have curbs and drainage in place are identified from the 1995 sidewalk inventory.
- B. Projects that have committed funding by other programs in the next five years or other constraints are eliminated including pedestrian projects that will be implemented in the 2002-2006 Roadway CIP.
- C. The remaining projects are evaluated according to the Criteria for Pedestrian Project Evaluation (Table 6).

Table 5

## ***CIP Score Ranking Report Pedestrian CIP***

Project #	Project Name	Project Description	Score	Total Cost
358	Stark St: 201st Ave--206th Ave	Both sides of road.	16	\$36,500
333	Division St: 175th Ave--182nd Ave	Both sides of road. 1203 feet	15	\$36,000
335	Division St: 182nd Ave--202nd Ave	Both sides of road. Large trees need to be removed, and large cutbanks added. 4366	14	\$120,000
351	Powell Valley Rd: 257th Ave--282nd Ave	Both sides of road. 518 feet	13	\$15,500
344	Halsey St: 181st Ave--201st Ave	Both sides of road. 1858 feet	13	\$72,500
311	242nd Ave: 2nd St--Powell Blvd	West side of road. 148 feet	12	\$0
345	Halsey St: 162nd Ave--181st Ave	Both sides of road. 1483 feet	12	\$34,500
359	Stark St: 257th Ave--Troutdale Rd	Both sides of road.	12	\$1,500
313	257th Ave: Orient Dr--Powell Valley Rd	Both sides of road. 327 feet	10	\$10,000
340	Glisan St: 200th Ave--223rd Ave	Both sides of street. 671 feet	10	\$20,000
352	Powell Valley Rd: Burnside Rd--257th Ave	South side of road. 216 feet	9	\$6,500
366	Troutdale Rd: Beaver Creek Ln--Chapman Ave	Both sides of road.	9	\$5,500
300	181st Ave: Halsey St--Sandy Blvd	Both sides of road. 3339 feet	9	\$74,000
301	Highland Dr: Linneman Ave--11th Ave	West of road. Narrow bridge.	9	\$75,000
302	201st Ave: Halsey St--Sandy Blvd	Both sides of road, narrow RR overpass. 1456 feet	9	\$26,000
326	Arata Rd: 223rd Ave--238th Ave	Both sides of road. 344 feet	8	\$10,500
299	162nd Ave: Wasco St--Halsey St	East side of road. 227 feet	8	\$7,000
309	209th Ave: 31st/Willow St--23rd St	West side of road. 47 feet	8	\$1,400
298	162nd Ave: Halsey St--Russell St	East side of road. 702 feet	8	\$21,000
349	Orient Dr: 14th St--262nd Ave	North side of road. 95 feet	7	\$3,000
346	Hist Columbia River Hwy: 244th Ave--Halsey St	North side of road. 1515 feet	7	\$45,500
305	202nd Ave: Glisan St--Oregon St	West side of road. 232 feet	7	\$7,000
306	202nd Ave: Stark St--Glisan St	Both sides of road. 412 feet	7	\$12,000
304	202nd Ave: Burnside Rd--Stark St	Both sides of road. 286 feet	7	\$9,000
367	Troutdale Rd: Sweetbriar Rd--Sweetbriar	East side of road. 21 feet	7	\$1,000
354	Riverwood Rd: Riverside Dr--Military Rd	West side of road.	6	\$12,000
307	202nd Ave: 5th St--Division St	Both sides of road. 1050 feet	6	\$32,000
732	Canyon CT: Highland Rd--County Line	North side of road. 2403 feet	6	\$72,000
325	64th Pl: Bucharest Ct--Dead End	Both sides of road. 670 feet	6	\$20,000
327	Bucharest Ct: Dead End--County Line	Both sides of road. 1140 feet	6	\$34,000
308	202nd Ave: Division St--14th St	Both sides of road. 476 feet	5	\$14,000
328	Burnside Rd: 202nd Ave--Fariss Rd	North side of Road. 3933 feet	5	\$153,000

# **CIP Score Ranking Report      Pedestrian CIP** (Continued)

Project #	Project Name	Project Description	Score	Total Cost
310	223rd Ave: Sandy Blvd--Marine Dr	Both sides of road. 638 feet	5	\$19,000
329	Butler Rd: Eastwood Pl--Rodlun Rd	South side of road. 32 feet	5	\$1,000
347	Interlachen Ln: Marine Dr--Blue Lake Rd	Both sides of road. 4203 feet	5	\$126,000
338	Fairview Blvd: Knights Blvd--Kingston	South side of road. 322 feet	5	\$10,000
330	Butler Rd: St Andrews--Augusta Loop	North side of road. 174 feet	5	\$5,000
314	48th Pl: Windsor Ct--Downsview Ct	Both sides of road. 1658 feet	4	\$50,000
370	Windsor Ct: 54th Pl--Dead End	Both sides of road. 1340 feet	4	\$40,000
369	Windsor Ct: 52nd Pl--Shattuck Rd	Both sides of road. 2150 feet	4	\$64,500
368	Westdale Dr: 57th Ave--Dead End	Both sides of road. 1499 feet	4	\$45,000
364	Thomas St: Shattuck Rd--Dead End	Both sides of road. 1832 feet	4	\$55,000
362	Sweetbriar Ct: 64th Pl--Scholls Ferry Rd	North side of road. 813 feet	4	\$24,500
356	Scholls Ferry Ct: Scholls Ferry Rd--Dead End	Both sides of road. 1004 feet	4	\$30,000
343	Grover Ct: Dead End--55th Dr	Both sides of road. 518 feet	4	\$15,500
336	Downsview Ct: 52nd Pl--48th Pl	Both sides of road. 1199 feet	4	\$36,000
315	50th Ave: Windsor Ct--Downsview Ct	Both sides of road. 1900 feet	4	\$57,000
316	52nd Pl: Thomas St--Downsview Ct	Both sides of road. 2729 feet	4	\$82,000
317	54th Pl: Thomas St--Dead End	Both sides of road. 580 feet	4	\$17,000
318	55th Ave: Patton Rd--55th Dr	Both sides of road. 1078 feet	4	\$32,000
319	55th Dr: 55th Ave--Dead End	Both sides of road. 2924 feet	4	\$88,000
320	55th Dr: City Limit--Patton Rd	Both sides of road. 4109 feet	4	\$123,000
321	57th Ave: City Limit--Windsor Ct	Both sides of road. 1816 feet	4	\$54,500
322	57th Ave: Westdale Dr--Patton Rd	Both sides of road. 1019 feet	4	\$30,500
371	Woods Ct: 55th Dr--Dead End	Both sides of road. 888 feet	4	\$26,500
337	Downsview Ct: 57th Ave--55th Dr	Both sides of road.	4	\$36,000
361	SUNDIAL RD: Marine Dr -- Graham Rd	West side of road. 396 feet	3	\$12,000
734	242ND / HOGAN DR: Stark to Glisan	West side of road. 248 feet		\$0
357	Stark St: 216th Ave--223rd Ave	Both sides of road.		\$30,000
735	STARK ST: Evans to 35th Street	South side of road. 116 feet		\$0

**Pedestrian CIP Cost**

**\$2,097,900**

**Table 6**  
**Criteria for Pedestrian Project Evaluation**

Safety	Have pedestrian accidents occurred at location of project?	3
	Will barriers be mitigated or eliminated? (railroad tracks, waterways, highways, signs, fire hydrants, telephone poles)	2
	Does the project replace a substandard condition, (Existing conditions do not meet ADA, AASHTO, MUTCD or walkway is in disrepair.)	1
	Does the project increase visibility for pedestrians or of pedestrians? (lighting)	1
Land Use (within 1/4 Mile)	Regional/Town or Rural Centers	2
	✦ Schools	2
	✦ Parks	1
	✦ Main Street (2040 designation)	1
	✦ Community buildings (libraries, health clinics, post offices, government buildings)	1
Transit	✦ Headways less than or equal to 20 minutes	2
	✦ Headways more than 20 minutes	1
	✦ Within 1/4 mile of transit corridor	2
	✦ School bus routes	2
	✦ Within 1/4 mile of a MAX station	2
Connectivity	✦ Does the project complete a missing segment?	2
	✦ Is the project an extension of an existing facility?	1
Public Input	✦ Is the project supported by a group, neighborhood organization or homeowners' association?	2
	✦ Is the project supported by an individual's concern?	1
Aesthetics	✦ Does the project increase the appeal of a pedestrian facility or increase the perceived safety of pedestrians?	1
Functional Classification	✦ What is the functional classification of the adjacent roadway? Arterial Collector	

**FISH PASSAGE CULVERT  
CAPITAL IMPROVEMENT PLAN**

## **Multnomah County Fish Passage Culvert Program 2002-2006 Capital Improvement Plan**

The Endangered Species Act required all responsible parties to correct problems that hinder listed fish species to travel freely within their natural habitat. Multnomah County with Oregon Department of Fish and Wildlife (ODF&W) has identified 48 of the county's 1400 culverts that need improvement for fish passage. Some characteristics of a typical culvert failure to pass fish include outfall heights that are too high for the fish the jump, flat concrete box culverts 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 prioritized the culverts. All field data and assessments was collected and stored on a shared user database. A scoring system was devised that incorporated five major areas of analysis and factors: 1) Environmental; 2) Fish Species Recovery; 3) Construction Cost; 4) Maintenance Schedule; and 5) Overall Project Impact. A formula was devised to score the crossings' attributes and rank them. (Table 7 outlines the rating and ranking criteria in detail.)

#### **1) Environmental Evaluation:**

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 were assessed and scored with a maximum of 100 points awarded. The better the conditions are for fish habit, the higher the number of points are awarded.

#### **2) Fish Species Recovery Factor:**

The Environmental Evaluation score is multiplied by the Fish Species Recovery percent factor, which is the evaluation of the three areas. Geographical Information Systems (GIS) mapping and field surveys determined stream length, watershed areas and other in-stream barriers. Again, the better the conditions to sustain fish habit, the higher the number of factor points are awarded.

#### **3) Construction Cost Factor:**

A Construction Cost factor is determined by combining projected design & construction total costs. This would included land acquisitions. The higher the projected costs, the fewer factor points are awarded.

#### **4) Maintenance Replacement Schedule Factor:**

A Maintenance Replacement Schedule factor is applied reflecting when the culvert is schedule for replacement. If the culvert is in good to fair condition and is not scheduled for replacement, fewer factor points are awarded. The culvert is scored in one of two maintenance scheduled groups:



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

75% = Scheduled to be replace longer than 3 years

5) Projected Impact Factor:

The Projected Impact factor takes in consideration if the project makes sense and has a positive impact on basin habit in relation to amount 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) to the Environmental Evaluation. Total projected estimated cost at this date for entire Fish Passage Plan of the 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 other 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 is \$2,028,000.

Group B are the 2<sup>nd</sup> highest priority for a projected cost at this date is \$1,896,000.

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

An automatic computer slide show has been prepared that explains the Fish Passage Culvert Assessment and Prioritization Scoring program. Further design solutions for each crossing with estimate costs are being developed. The Fish Passage database is maintained by the county.

**Watershed Basins and Funding Needs**

Potential community and financial partners must be recognized. These would include the Governor's Fish Recovery Plan working with Oregon Watershed Enhancement Board (OWEB); ODF&W; other Oregon State agencies; Congressional Representatives; Metro; private groups; and the local Watershed Councils.

The County understands that the fish culverts fixes need to be identified in the context of the watershed basins they lie in. A multi-year plan needs to be devised to address \$19 million liabilities. 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 for 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 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 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. In 2000, the County made public presentations of its program to the Fairview Creek and Columbia Slough Watershed Councils.

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 has having a great potential in species recovery. The Urban Growth Boundary currently meanders on its western watershed boundary. In 2000, the County made public presentations of its program to the Friends of Beaver Creek and the Sandy River Watershed Council. The City of Gresham has identified the need to address fish culverts (3) in the Kelly Creek basin, a sub-basin of the Beaver Creek basin.

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. As explained below, ODFW has identified the County's three culverts as blocking Winter Steelhead. In addition to the Sandy River Basin Watershed Council, Friends of Beaver Creek, a local citizen's group, volunteer for restoration activities and basin improvements since 1986. Students and faculty of Sam Barlow High School and Mount Hood Community College participate in monitoring work within the basin area.

6. Sandy River Watershed (excluding the Beaver Creek Basin)- a sub-basin of the Columbia River

Excluding the Beaver Creek Basin's culverts, 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 high importance for fish habitat recoverability.

7. Tributaries of the Columbia River

There are two fish passage culverts in the lower Columbia 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 it 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 (Conspans) 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 replacement 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 forward for four of the crossings.

**Table 7**  
**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

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's 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 a buffer zones of stream 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 presents 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.

#### 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.

#### Construction Cost factor

100% = \$0 (maximum factor points awarded)  
95% = \$5,000  
85% = \$75,000  
66% = \$1,000,000 or greater

#### Maintenance Replacement Schedule Factor

100% = Needed to be replace within the next 3 years (maximum factor points awarded)  
75% = Scheduled to be replace longer than 3 years

### 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 8

# Fish Passage Culvert Project Scores

Culvert	Basin/Creek	Stream MP	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?	\$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?	\$1,000,000	66%	75%	100%	13	S
411-09	SR Beaver	6.1	302ND Av, SE - MP: 2.066	69	40%	P?	\$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?	\$1,300,000	66%	75%	75%	12	S
452-18	SR Beaver	0.0	Oxbow Dr, SE - MP: 1.228	57	40%	P?	\$75,000	85%	75%	75%	11	S
452-22	SR Beaver	7.6	Oxbow Dr, SE - MP: 1.513	51	40%	P?	\$75,000	85%	75%	75%	10	S
466-13	SR Beaver	8.3	Lusted Rd, SE - MP: 3.015	45	40%	P?	\$75,000	85%	75%	75%	9	S
489-06	SR Beaver	4.6	Troutdale Rd, SE - MP: 0.615	57	40%	P?	\$1,733,000	66%	75%	75%	8	S
450-13	SR Beaver	4.6	Division Dr, SE - MP: 0.94	57	40%	P?	\$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	\$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	\$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	\$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	\$276,000	80%	100%	75%	17	C
535-01	SR Smith	0.3	Northway Rd, SE - MP: 0.262	69	30%	NB	\$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	\$180,000	82%	100%	100%	15	C
439-01	CR Arata	0.2	244TH Av, NE - MP: 0.098	42	15%	NB	\$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 2002-2006  
ROADWAY, BIKEWAY, PEDESTRIAN AND FISH PASSAGE CULVERT  
CAPITAL IMPROVEMENT PROGRAM**

**INTRODUCTION**

Multnomah County Transportation Division has instituted a Capital Improvement Plan (CIP) process. This process follows guidelines established in the 1983 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 2002 to 2006 (FY 2003—2007).

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. (See Development Constraints, Appendix I.)

**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

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 Plan 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 Plan 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 from 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.

The Development Constraints schedule (Appendix I) indicates the earliest date to begin project construction. Project dates take into account all of the known development constraints.

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, sidewalks and bridges (other than Willamette River Bridges) are reviewed and approved at a public hearing before the Board of County Commissioners. Prior to public hearings, new projects were solicited at four public meetings held throughout the county.

Traffic capacity improvements funded by the City of Gresham/Multnomah County Traffic Impact Fee (TIF) are included in the TCIP. Projects included in the TIF program were identified in the *Trafficway Plan and Impact Fee Study* prepared in 1993. The TIF projects are independent of the TCIP itself, however many of the capacity improvements may be constructed in conjunction with other capital improvements in an effort to reduce the overall cost of a project.

Sufficient TIF funds have been accumulated to begin construction of TIF projects. Included in the TCIP is section addressing the programming of TIF project improvements. Priorities for construction of TIF projects will be set by representatives of the City of Gresham and Multnomah County, as identified in an intergovernmental agreement.

East County cities had the opportunity to review draft plans and suggest changes or resolve differences. The East Multnomah County Transportation Committee will review the recommended plan and program, and make its recommendation to County Commissioners. Upon Board approval, the first two years of the capital program will be budgeted in the Division's annual budget (Multnomah County Road Fund Budget). Projects scheduled for the third 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 are 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 or 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. Funds are so limited, that the capital program identifies projects as either funded or partially funded. 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); 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 CIP is \$283 million. The funding capability forecasted in the County Transportation Capital Improvement Program for the five-year period is estimated at \$8.5 million. 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 \$25.5 million in FY 02-03 in gross revenue (before distribution to the city of Portland per the 1983 Portland 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) 293.560, the funds received 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 \$600,700.
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 \$7.84 million annually.

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 (HBRR) funds.

Congress passed the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) in 1998. This act substantially modifies 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 (HBRR) 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 accident 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, and road maintenance. Remaining funds are then allocated to road capital projects which may also include bikeways and pedestrians.

Fiscal Year '03 projects include carryover projects, outside funded projects, and \$1.8 million for new capital projects allocated from the Road Fund. New revenue available for capital projects in FY '04, '05, '06 and '07 is estimated to average \$1.5 million each year. Projects not completed in prior years will modify total capital outlay each year by the amount of carryover.

### **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 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 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 2002-03 is \$19.05 million (approximately 54% of the County's transportation budget).

### 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 subtracted 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.

### 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 '03 Multnomah County will transfer \$523,000 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.

### Traffic Impact Fee

The Traffic Impact Fee (TIF) was initiated by the City of Gresham in 1993 with the purpose of collecting a systems development charge to fund transportation/traffic capacity improvements as Gresham grows in the future. Multnomah County joined the City of Gresham in this effort as most of the traffic capacity improvements are needed on County roadways within the City of Gresham. Implementation of the TIF is important for several reasons, including:

- To ensure continued development of a balanced transportation system along with new development.

- To ensure timely implementation of improvements which serve new development before the system degrades to unacceptable operating conditions.
- Identify needed future capacity-related improvements and initiate a prioritization of improvements.
- To establish a set of guidelines for developers in East Multnomah County which define level of transportation system improvements and the charges for those improvements.

The TIF plan has identified over 20 capital improvements, estimated to cost \$17.5 million that are needed to mitigate the effects of new development with traffic capacity improvements. Sufficient TIF funds have been collected by the City of Gresham to commence programming and constructing necessary improvements. The City of Gresham has identified in their Capital Improvement Program those projects that require TIF funds to undertake. Similarly, Multnomah County identifies those TIF projects that it recommends for construction during the term of the five-year capital improvement program. The City of Gresham updated the TIF Study in 2001, however the City Council has not yet adopted the recommendations included in the update.

### **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 are estimated to be \$2,216,000 in FY '03.
  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 city of Portland.

- Federal Forest receipts are retained by the County and are not factored into the sharing formula for the Portland Agreement. Projected revenue is estimated at \$600,700 in FY '03.
- 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.
- Subtracted from the City's allocation of shared revenue is a portion of Willamette River Bridges (WRB) capital budget. This revenue is dedicated to WRB.
- 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 over 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. This includes projects that meet safety needs,

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 identified potential sources of leverage and has committed capital funds to match other funds.

The CIP schedules approximately 250 road, bicycle and pedestrian transportation projects. Total estimated liability for all 250 projects is approximately \$280 million in 2002 dollars. Anticipated revenue in FY '03—'07 is \$8.2 million

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. Thirty-three of these projects have been scheduled for development in this TCIP. In addition, funds are set aside to cover unexpected expenses—remediating safety concerns, repairs, ADA improvements 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**

## **2002-2006 TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM**

The total capital need identified in the Transportation Capital Improvement Plan is \$280 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 \$13.9 million. Contrasted with approximately \$280 million in capital needs, projects with the most critical need and no development constraints are programmed for priority development.

Of the 250 current CIP candidate projects, 33 new projects are scheduled in the Capital Improvement Program for development during 2002-2006. In addition, funds are also earmarked for annual allotments to address safety issues as needed, ADA compliance, road overlays and repairs.



## FY '03--'07 CAPITAL IMPROVEMENT PROGRAM NEW CAPITAL ALLOCATION SUMMARY

Category	Needs	Program FY '03--'07	
		Total Segment Cost	County Funds
Arterial	\$123,164,000	\$8,345,000	\$5,173,000
Collector	\$52,570,000		
Bridges (non-Willamette River Bridge)	\$20,194,000	\$7,940,000	\$1,133,000
Signal/Intersection	\$17,363,000	\$4,791,000	\$2,163,000
Street Design Concept	\$10,184,000	\$7,111,000	\$428,000
Bicycle	\$38,111,000	\$1,948,000	\$381,000
Pedestrian	\$2,098,000	\$150,000	\$115,000
Fish Passage Culvert	\$19,026,000	\$435,000	\$183,000
Other*			\$4,148,000
Total	\$282,710,000	\$30,720,000	\$13,724,000

\*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 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 2 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 \$38 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 257<sup>th</sup> 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.

### **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 '03—'07. 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

# **FY 2003--2007 ROADWAY CAPITAL IMPROVEMENT PROGRAM**

PROJECT NAME (From/To; Proj. #)	FY 2003		FY 2004		FY 2005		FY 2006		FY 2007	
	Total Cost	County Funds	Total Cost	County Funds	Total Cost	County Funds	Total Cost	County Funds	Total Cost+J5	County Funds
Category: Arterial Streets (Urban)										
257th Ave/Orient Dr/Palmquist Rd; #62	\$3,800,000	\$1,700,000								
242nd Ave: Stark St--Glisan St (MTIP); #708							\$1,090,000	\$545,000		
257th Ave: Powell Vly Rd--800' south (PA); #60	\$1,100,000	\$770,000								
Stark St: 257th Ave--Troutdale Rd (MTIP); #57									\$2,486,000	\$1,243,000
Glisan St: 202nd Ave--207th Ave (PA); #110					\$238,500	\$238,500				
207th Ave: I-84--Ankeny St	\$10,000	\$10,000	\$10,000	\$10,000						
Subtotal	\$4,910,000	\$2,480,000	\$10,000	\$10,000	\$238,500	\$238,500	\$1,090,000	\$545,000	\$2,486,000	\$1,243,000
Category: Bridges (non-WRB)										
223rd Ave RR Overcrossing (at I-84); #198	\$681,000	\$181,000			\$4,028,000	\$400,000				
Corbett Hill Viaduct (OTIA); #723					\$1,047,000	\$240,000				
Beaver Creek Bridge (OTIA); #724					\$1,733,000	\$245,000				
Stark St Viaduct (HBRR); #736	\$679,000	\$67,000								
Subtotal	\$1,360,000	\$248,000			\$6,808,000	\$885,000				
Category: Signal/Intersection (Urban)										
257th Ave/Stark St (TIF)			\$625,000							
182nd Ave/Division St (TIF)			\$330,000							
181st Ave/Burnside Rd (TIF)			\$281,000							
242nd Ave/23rd St; #172							\$239,800	\$239,800		
257th Ave/Bull Run; #183					\$201,400	\$201,400				
257th Ave/Powell Valley Rd; #177			\$410,970	\$410,970						
Glisan St/172nd Ave; #171	\$226,000	\$226,000								
181st Ave/Glisan St (TIF)					\$570,000					
162nd Ave/Stark St (TIF)			\$323,000							
Subtotal	\$226,000	\$226,000	\$1,969,970	\$410,970	\$771,400	\$201,400	\$239,800	\$239,800		
Category: Signal/Intersection (Rural)										
Cornelius Pass Rd/US 30 (RSTP); #193							\$566,800	\$283,400		
172nd Ave/Foster Rd (RSTP); #178									\$598,900	\$598,900
282nd Ave/Stone Rd (RSTP); #705	\$20,000	\$20,000	\$154,500	\$103,000						
Orient Dr/Dodge Park Rd (RSTP); #703	\$80,000	\$80,000								
Subtotal	\$100,000	\$100,000	\$154,500	\$103,000			\$566,800	\$283,400	\$598,900	\$598,900
Category: Street Design/Concept										
Stark St Blvd: 181st Ave--197th Ave; #201			\$2,362,000	\$30,900						
Division St Blvd: 202nd Ave--235th Ave; #200	\$4,038,000	\$30,000								
257th Ave Median Improvements (MTIP); #97									\$734,500	\$367,250
Subtotal	\$4,038,000	\$30,000	\$2,362,000	\$30,900					\$734,500	\$367,250
Category: Bicycle										
Division St: 195th Ave--202nd Ave; #250									\$150,290	\$84,750
Morrison Bridge (WRBAP)/(MTIP); #737	\$250,000	\$75,000	\$1,545,000	\$200,850						
Misc. Bike and Pedestrian Projects	\$20,000	\$20,000								
Subtotal	\$270,000	\$95,000	\$1,545,000	\$200,850					\$150,290	\$84,750

# **FY 2003--2007 ROADWAY CAPITAL IMPROVEMENT PROGRAM**

	FY 2003		FY 2004		FY 2005		FY 2006		FY 2007	
	Total Cost	County Funds	Total Cost	County Funds	Total Cost	County Funds	Total Cost	County Funds	Total Cost+J5	County Funds
Category: Pedestrian										
Division St: 182nd Ave--202nd Ave; #335									\$135,600	\$84,750
ADA: Division St/Burnside Rd; \$727	\$30,000	\$30,000								
Subtotal	\$30,000	\$30,000							\$135,600	\$84,750
Category: Fish Passage Culvert*										
Johnson Creek/282nd Ave MP 2.046 (RSTP); 493-06			\$334,750	\$103,000						
Beaver Creek/Stark St MP1.129; 404-01	\$110,000	\$80,000								
Subtotal	\$110,000	\$80,000	\$334,750	\$103,000						
Category: Preservation and Safety										
Burnside Rd: 242nd Ave--Powell Blvd							\$817,500	\$817,500		
Safety Annual Allotment	\$190,000	\$190,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
238th Dr Safety Project	\$100,000	\$100,000								
Overlay Program Annual Allotment	\$300,000	\$300,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Repairs Annual Allotment	\$50,000	\$50,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Subtotal	\$640,000	\$640,000	\$275,000	\$275,000	\$275,000	\$275,000	\$1,092,500	\$1,092,500	\$275,000	\$275,000
Category: ADA										
Annual Allotment	\$50,000	\$50,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
COP Debt Service	\$288,000	\$288,000	\$288,000	\$288,000	\$288,000	\$288,000	\$288,000	\$288,000	\$288,000	\$288,000
Total	\$12,022,000	\$4,267,000	\$6,964,220	\$1,446,720	\$8,405,900	\$1,912,900	\$3,302,100	\$2,473,700	\$4,693,290	\$2,966,650
MTIP=Metro. Transp. Imp. Program*										
RSTP=Rural STP										
PA=Project Agreement										
TIF =Traffic Impact Fee										
MP=Mile Post										
* Funding for MTIP and culvert projects requires securing competitive funds that are currently unavailable										

## **FY '03—07 Project Detail Sheets\* – Index**

1. 257<sup>th</sup> Ave/Orient Dr/Palmquist Rd Intersection
2. 242<sup>nd</sup> Ave: Stark St—Glisan St
3. 257<sup>th</sup> Ave: Powell Valley Rd—800' south
4. Stark St: 257<sup>th</sup> Ave—Troutdale Rd
5. Glisan St: 202<sup>nd</sup> Ave—207<sup>th</sup> Ave
6. 223<sup>rd</sup> Ave RR overcrossing at I-84
7. Corbett Hill Viaduct
8. Beaver Creek Bridge
9. Stark St Viaduct
10. 242<sup>nd</sup> Ave/23<sup>rd</sup> St Intersection
11. 257<sup>th</sup> Ave/Bull Run Rd Intersection
12. 257<sup>th</sup> Ave/Powell Valley Rd Intersection
13. Glisan St/172<sup>nd</sup> Ave Intersection
14. Cornelius Pass Rd/US 30 Intersection
15. 172<sup>nd</sup> Ave/Foster Rd Intersection
16. 282<sup>nd</sup> Ave/Stone Rd Intersection
17. Orient Dr/Dodge Park Intersection
18. Stark St Boulevard: 181<sup>st</sup> Ave—197<sup>th</sup> Ave
19. Division St Boulevard: 202<sup>nd</sup> Ave—235<sup>th</sup> Ave
20. 257<sup>th</sup> Ave Median Improvements
21. Division St: 195<sup>th</sup> Ave—202<sup>nd</sup> Ave Bicycle Improvements
22. Morrison Bridge Accessibility Project
23. Division St: 182<sup>nd</sup> Ave—202<sup>nd</sup> Ave Pedestrian Improvements
24. Division St/Burnside Rd ADA Improvements
25. Johnson Creek/282<sup>nd</sup> Ave Fish Passage Culvert
26. Beaver Creek/Stark St Fish Passage Culvert
27. Burnside Rd: 242<sup>nd</sup> Ave—Powell Blvd Preservation

\* No detail sheets are provided for Traffic Impact Fee Projects (TIF), annual allotment projects, wetland monitoring (207<sup>th</sup> Ave) or the overlay program.

# Road Fund Capital Projects

Project Name 257th Ave/Orient Dr/Palmquist Rd

Project #: 62

Category: Arterial

Functional Class: Minor Arterial

Project Realign intersection of Orient Dr, Palmquist Rd and 257th Ave and install new signal.

Description: Project also to include Orient Dr/257th Ave intersection project. Construct new 11th Ave between 257th Ave and US 26

RTP No: 2042

IRIS #: 443

ROW Cost: \$200,000

TIF



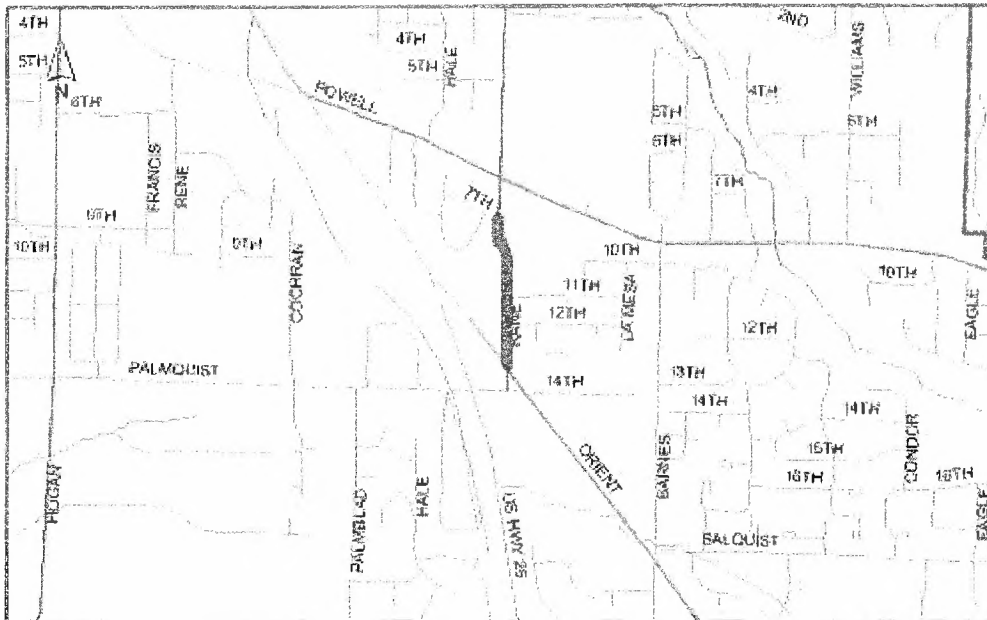
From Mile Point: 1.039

Construction Cost: \$3,600,000

Score: 50

To Mile Point: 1.292

Total Cost: \$3,800,000



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 Name 242nd Ave: Stark St--Glisan St

Project #: 708

Category: Arterial

Functional Class: Principal Arterial

Project Description: 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. Does not include signal at 242nd Ave/23rd St that is separate project.

RTP No: 2000

IRIS #: 401

ROW Cost: \$0

TIF ☐

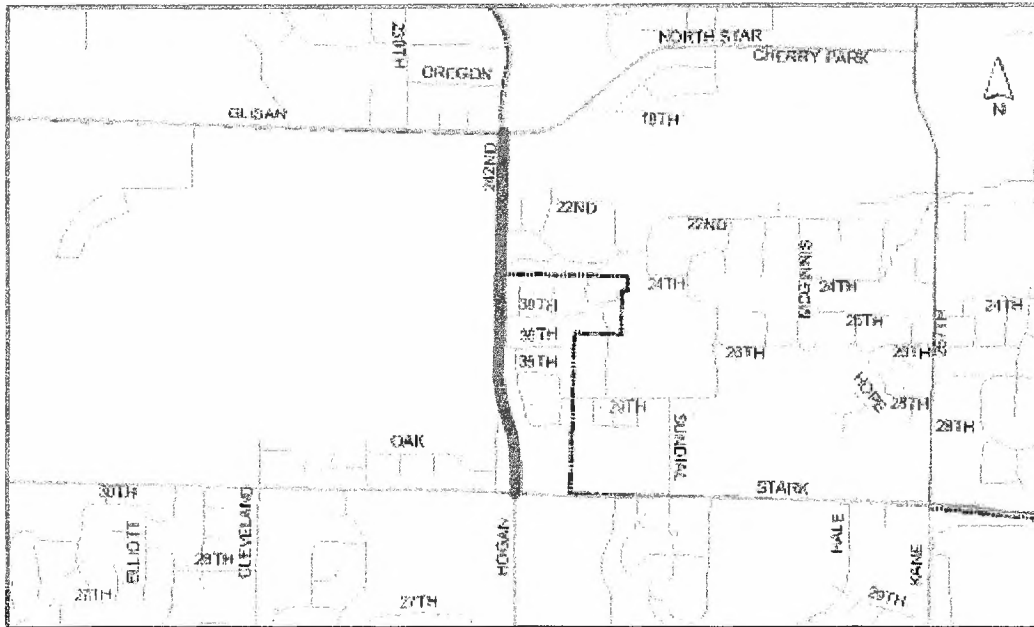
From Mile Point: 0.603

Construction Cost: \$1,000,000

Score: 50

To Mile Point: 0.000

Total Cost: \$1,000,000



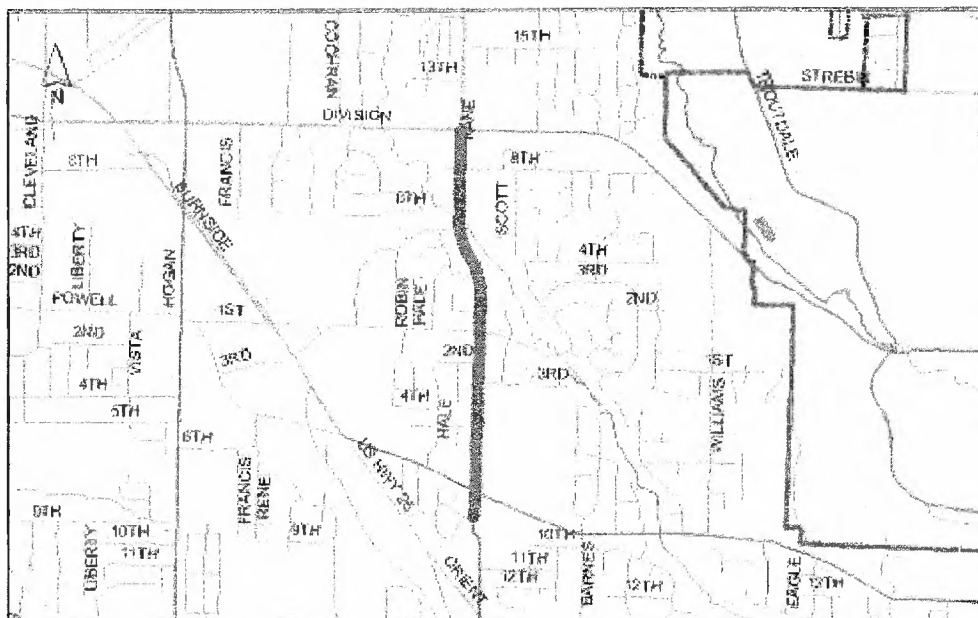
## Road Fund Capital Projects

Project Name 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 for FY '03 constructs only that portion from Powell Valley Rd to a point 800' southerly. Cost of segment is \$1.1 million.

RTP No:	2041	IRIS #:	443	ROW Cost:	\$500,000
TIF	<input checked="" type="checkbox"/>	From Mile Point:	2.275	Construction Cost:	<u>\$4,300,000</u>
Score:	45	To Mile Point:	1.292	Total Cost:	\$4,800,000



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 Name Stark St: 257th Ave--Troutdale Rd

Project #: 57

Category: Arterial

**Functional Class: Major Arterial**

Project Description:	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.
----------------------	--

RTP No: 2123

IRIS #: 404

ROW Cost: \$0

TIF ☒☒

From Mile Point: 0.680

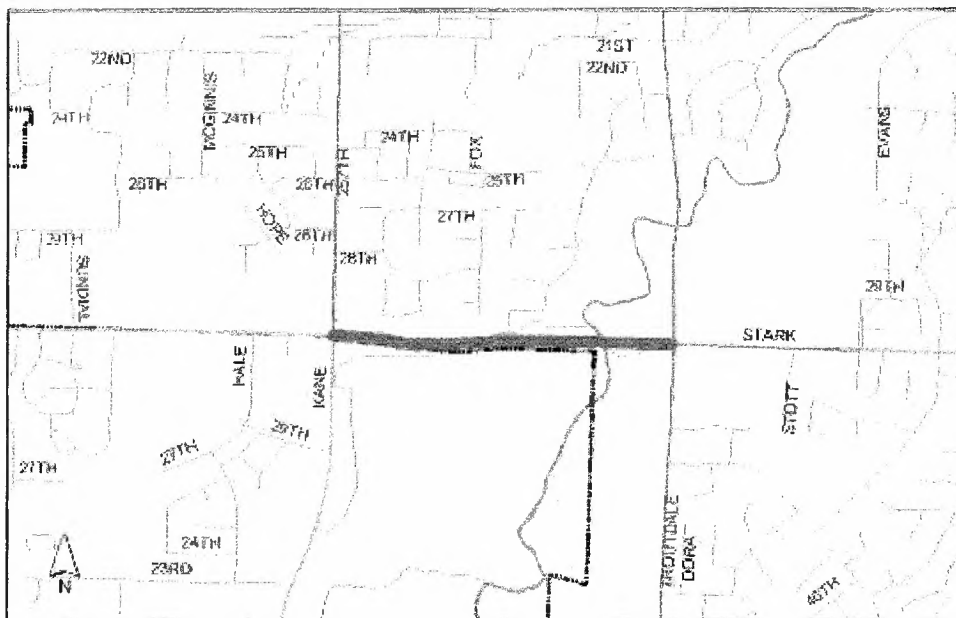
**Construction Cost: \$2,200,000**

Score: 40

40

To Mile Point: 1.242

**Total Cost:** \$2,200,000



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 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 Fujitsu property for \$225,000

RTP No: 2109

IRIS #: 308

ROW Cost: \$0

TIF ☐

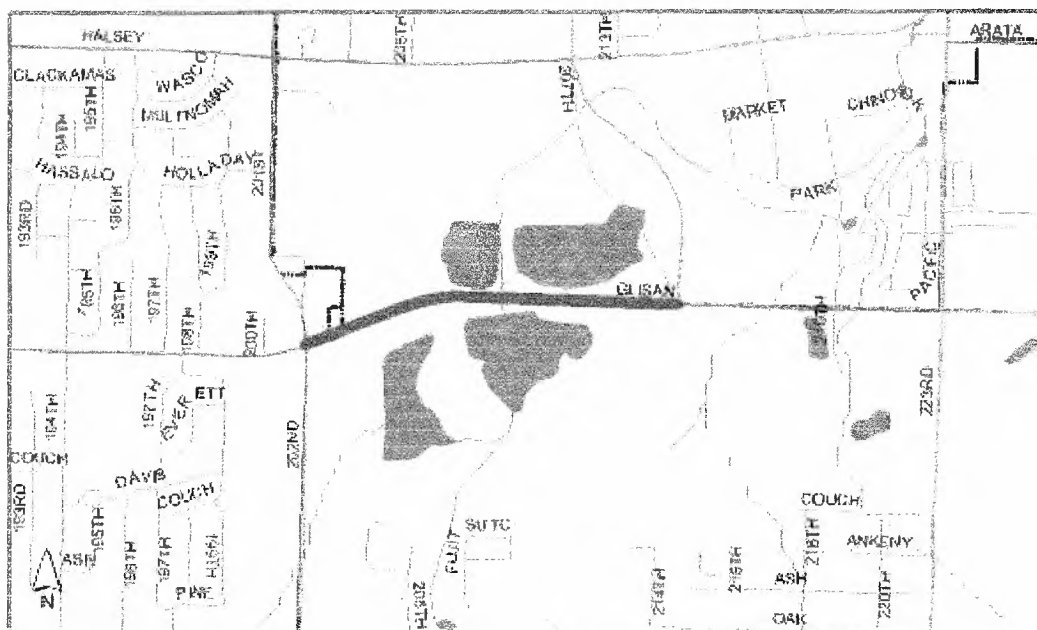
From Mile Point: 2.035

Construction Cost: \$1,600,000

Score: 35

To Mile Point: 2.665

Total Cost: \$1,600,000



# Road Fund Capital Projects

Project Name 223rd Ave RR Overcrossing

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: 2.111

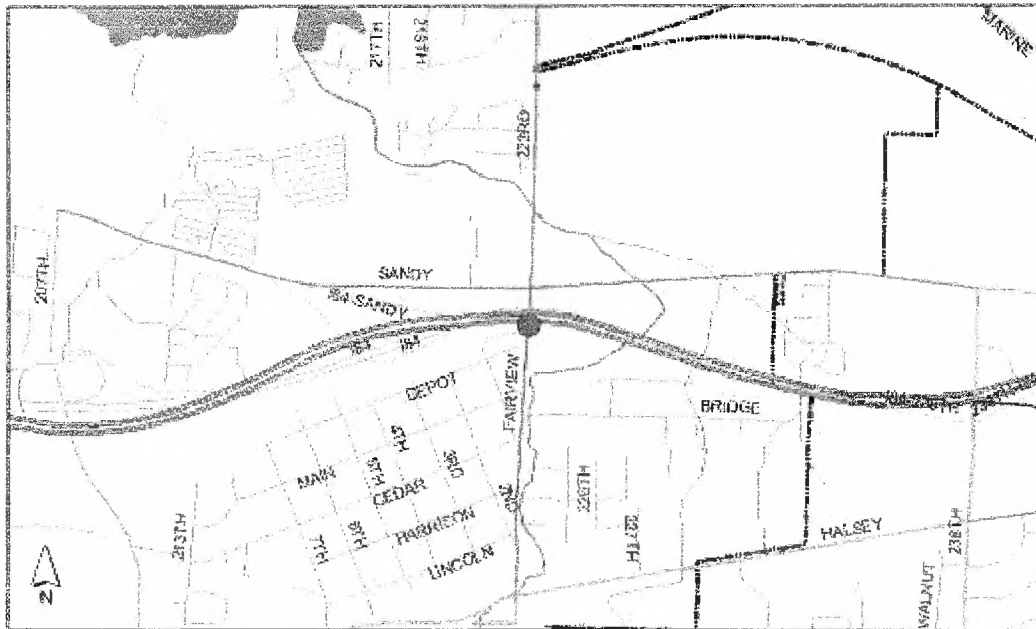
ROW Cost: \$140,000

TIF ☐

Construction Cost: \$3,660,000

Score: 50

Total Cost: \$3,800,000



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 Name Corbett Hill Viaduct

Project #: 723 Category: Bridge

Functional Class: Rural Arterial

Project Description: Replace viaduct

RTP No: IRIS #: 569 Mile Point: 1.012

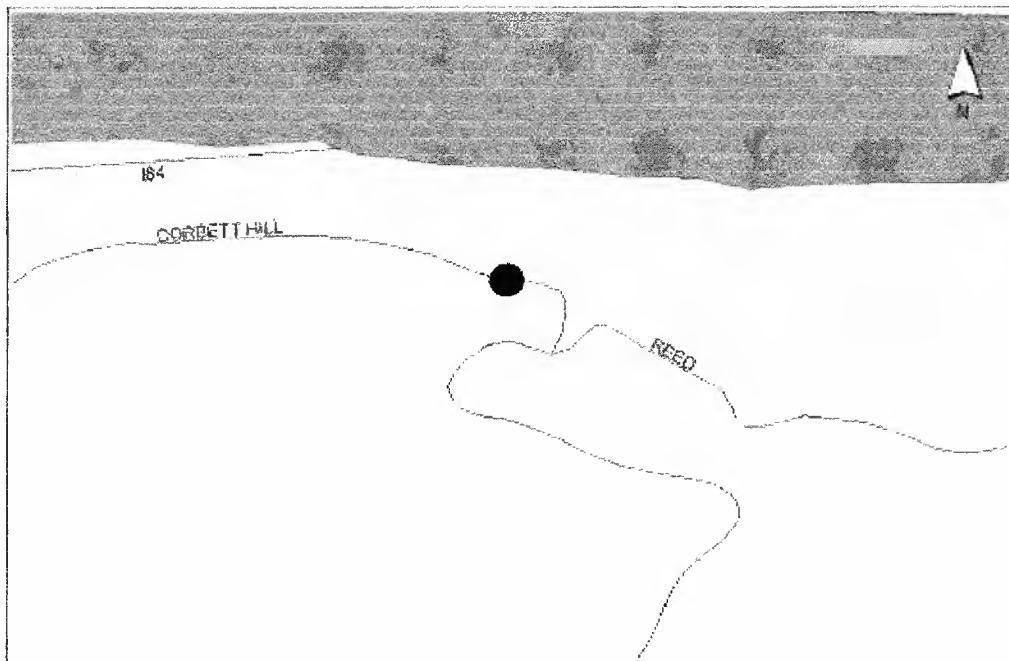
TIF ☐

Score: 15

ROW Cost: \$0

Construction Cost: \$1,047,000

Total Cost: \$1,047,000



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 Name Beaver Creek Bridge on Historic Columbia River Hwy

Project #: 724

Category: Bridge

Functional Class: Major Collector

Project Description: Replace Bridge

RTP No:

IRIS #: 490

ROW Cost: \$60,000

TIF

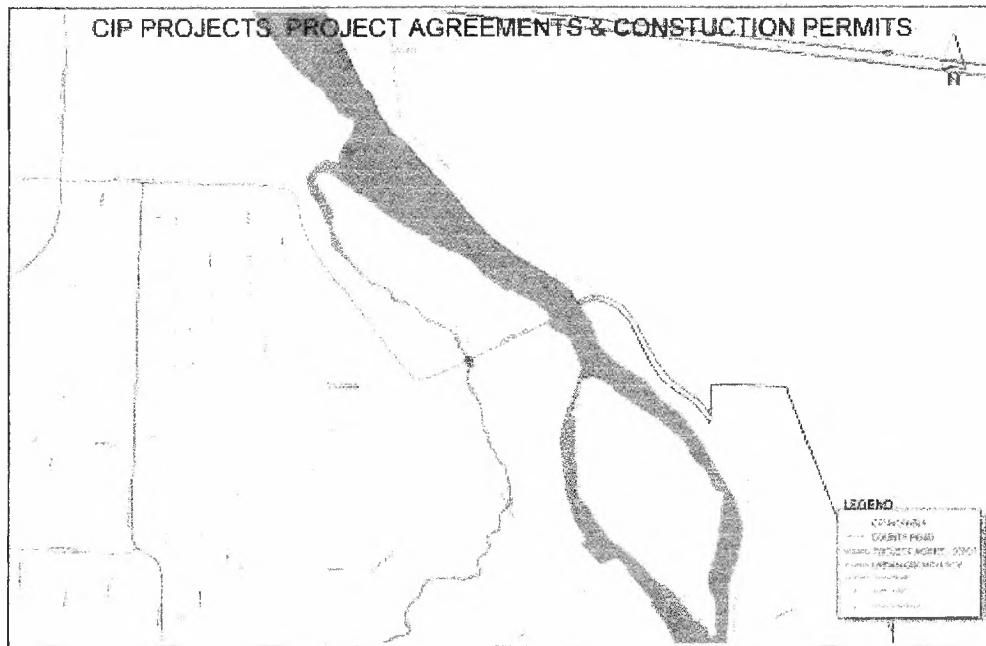


Construction Cost: \$987,000

Score:

30

Total Cost: \$1,047,000



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 Name Stark St Viaduct

Project #: 736

Category: Bridge

Functional Class: Rural Arterial

Project Description: Reconstruct Stark St Viaduct

RTP No:

IRIS #: 404

Mile Point: 2.643

ROW Cost:

\$0

TIF



Construction Cost:

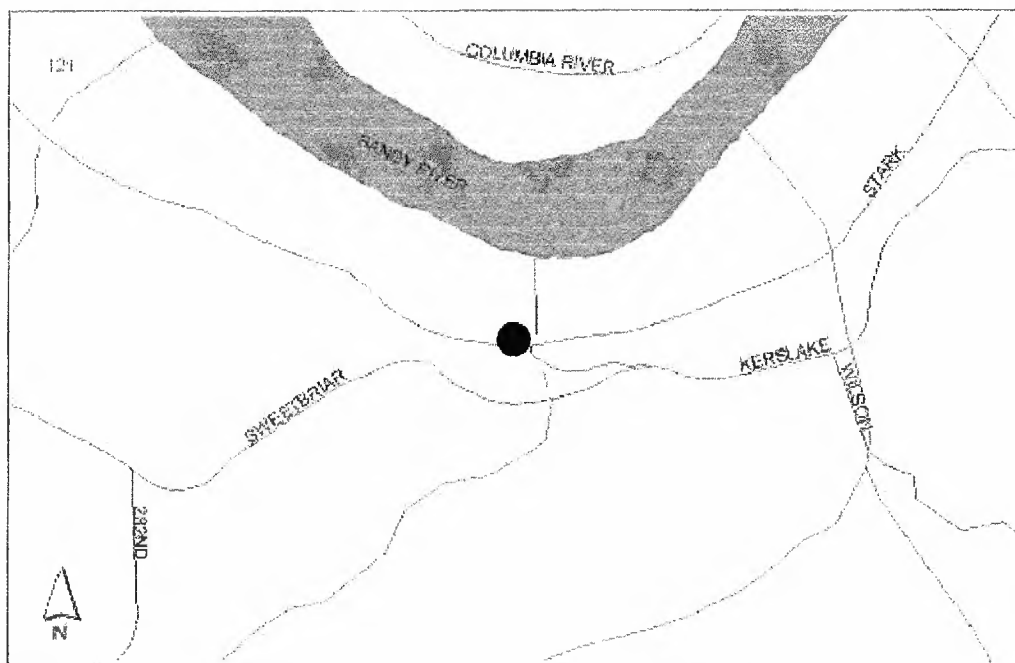
\$679,000

Score:

10

Total Cost:

\$679,000



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



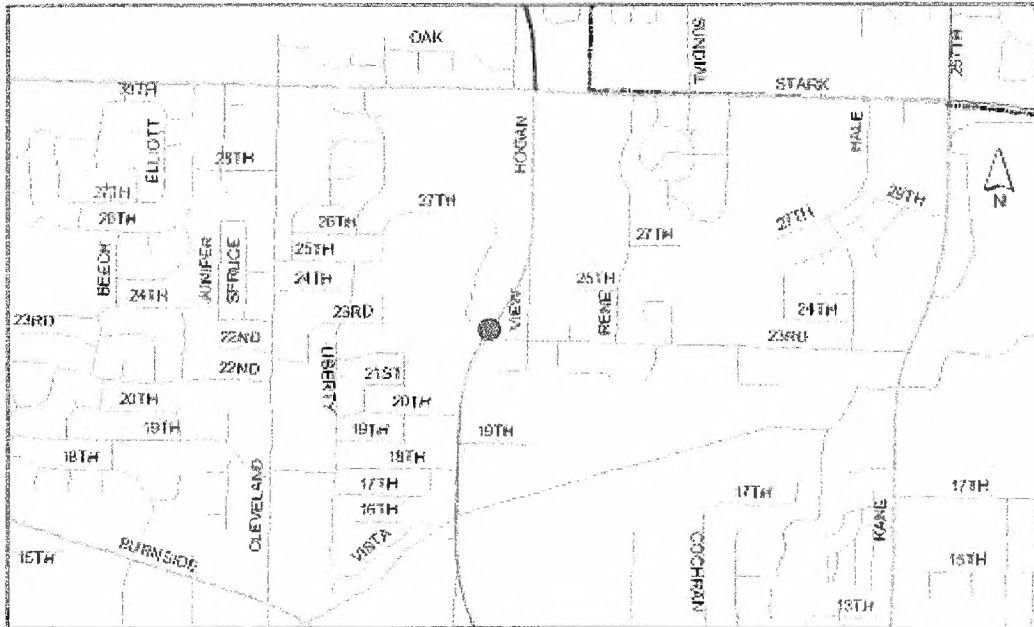
# Road Fund Capital Projects

Project Name 242nd Ave/23rd St

Project #: 172 Category: Signal/Intersection Functional Class: Major Arterial

Project Description: Install traffic signal and replace curbs, sidewalks and ADA ramps on east side of intersection. Widening of 242nd Ave is under a separate project.

RTP No:	IRIS #: 401	Mile Point: 1.019	ROW Cost:	\$0
TIF	<input type="checkbox"/>		Construction Cost:	\$220,000
Score:	40		Total Cost:	\$220,000



Map not to Scale

	Existing	New
Travel Lanes:	4	4
Sidewalks:	No	Yes
Bike Lanes:	No	Yes
Drainage:	Storm	Storm
Illumination:	No	Yes
Turn Lanes:	No	Yes
Intersection:	No	Yes

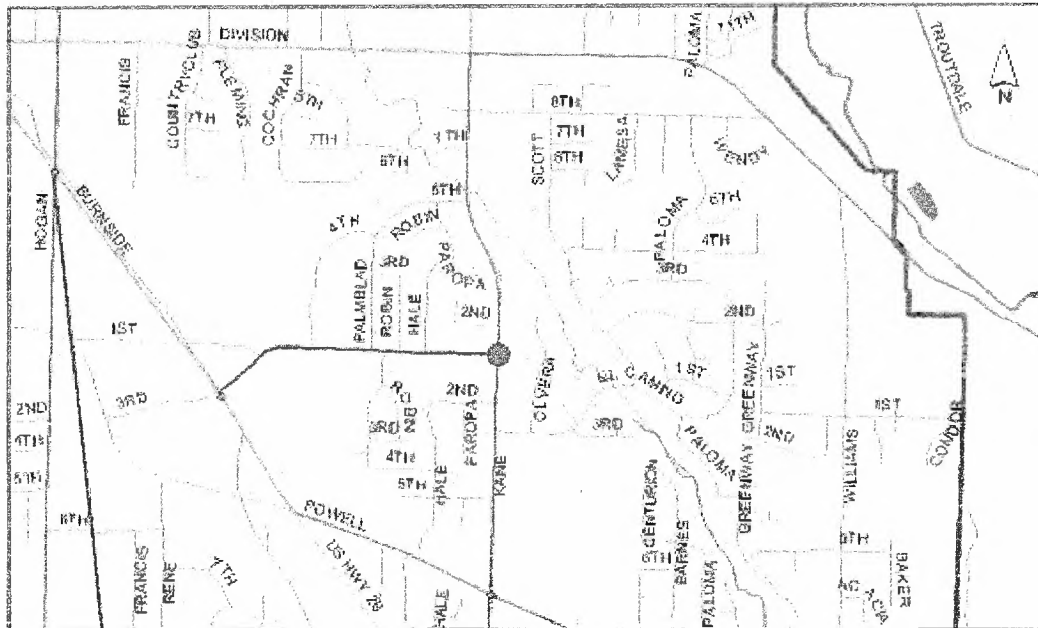
# Road Fund Capital Projects

Project Name 257th Ave/Bull Run Rd

Project #: 183 Category: Signal/Intersection Functional Class: Major Arterial

Project Replace signal.  
Description:

RTP No: IRIS #: 443 Mile Point: 1.761 ROW Cost: \$0  
TIF ☐ Construction Cost: \$190,000  
Score: 35 Total Cost: \$190,000



Map not to Scale

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

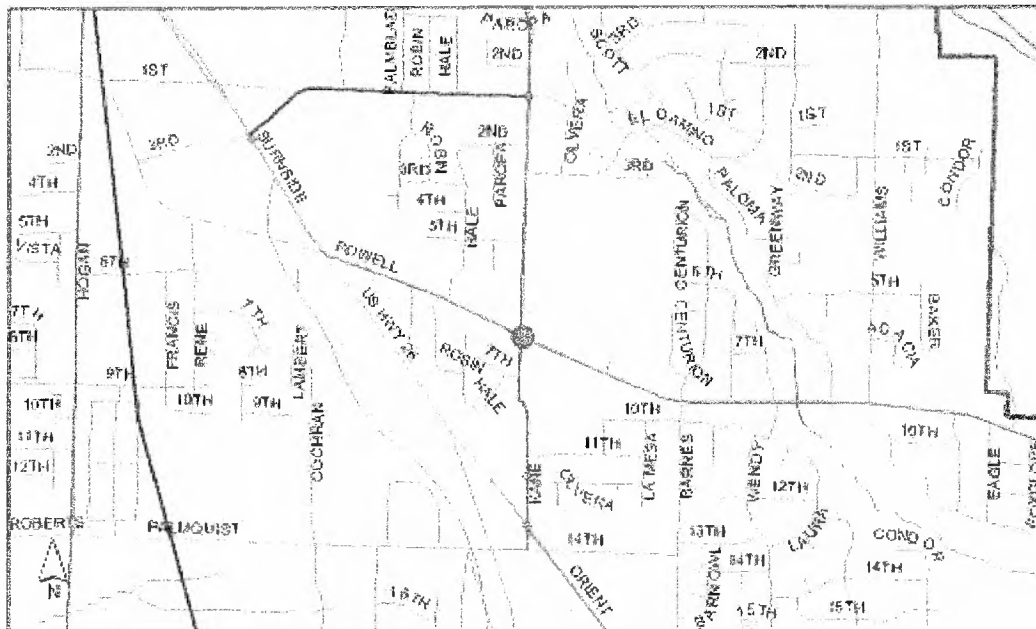
# Road Fund Capital Projects

Project Name 257th Ave/Powell Valley Rd

Project #: 177 Category: Signal/Intersection Functional Class: Major Arterial

Project Description: Construct intersection improvements with turn lanes, traffic signal, bike lanes and sidewalks.

RTP No:	IRIS #: 440	Mile Point: 0.354	ROW Cost:	\$69,000
TIF	<input checked="" type="checkbox"/>		Construction Cost:	\$330,000
Score:	30		Total Cost:	\$399,000



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

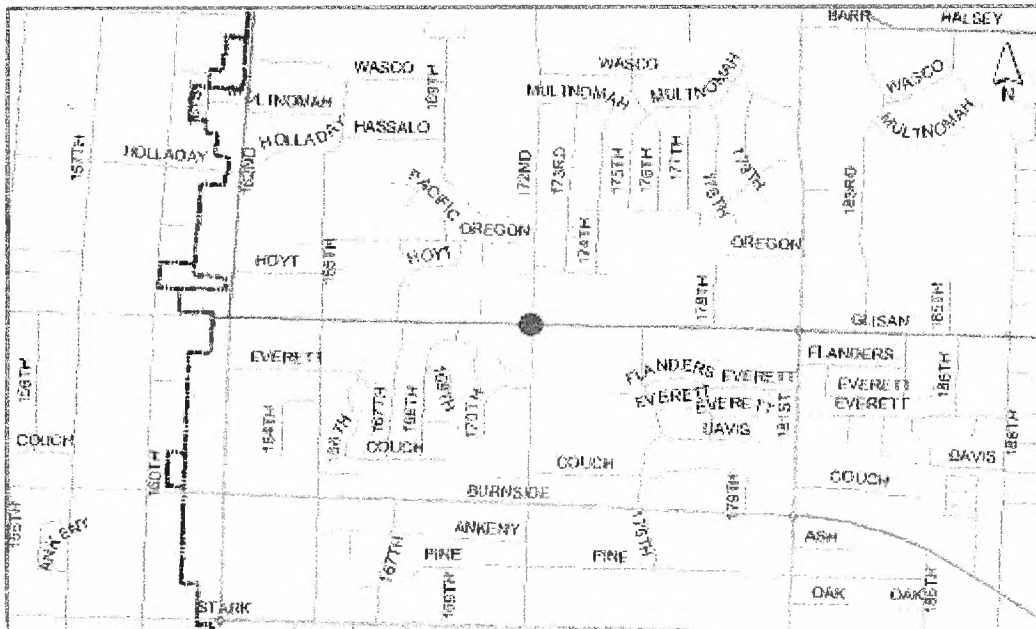
# Road Fund Capital Projects

Project Name Glisan St/172nd Ave

Project #: 171 Category: Signal/Intersection Functional Class: Major Arterial

Project Description: Replace traffic signal, reconstruct ADA ramps at each corner

RTP No:	IRIS #: 308	Mile Point: 0.524	ROW Cost:	\$10,000
TIF	<input type="checkbox"/>		Construction Cost:	\$260,000
Score:	30		Total Cost:	\$270,000



Map not to Scale

	Existing	New
Travel Lanes:	5	5
Sidewalks:	No	Yes
Bike Lanes:	No	No
Drainage:	Sump	Sump
Illumination:	No	Yes
Turn Lanes:	Yes	Yes
Intersection:	No	Yes

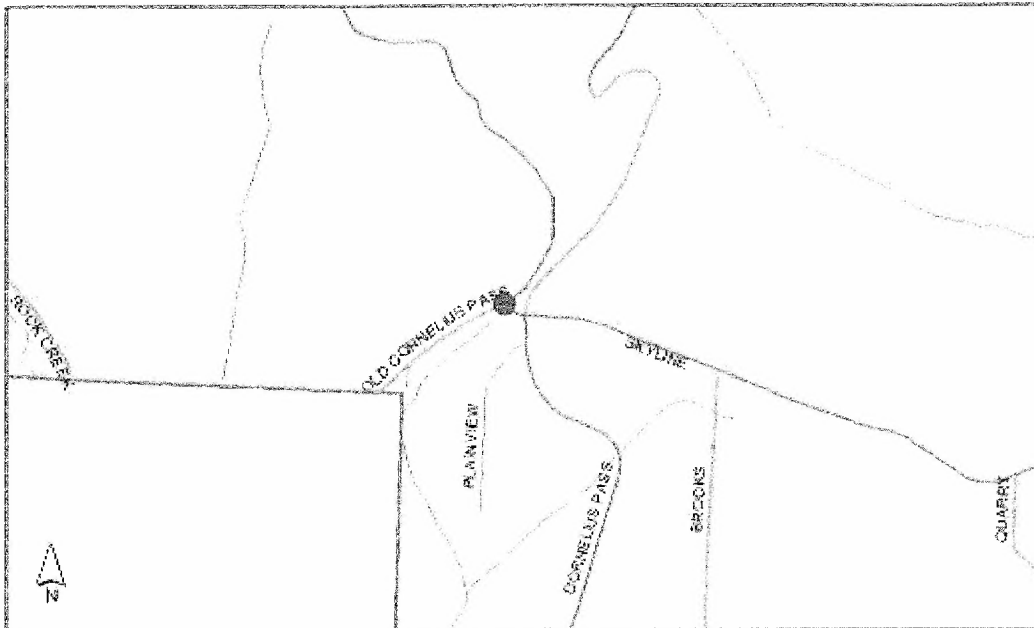
# Road Fund Capital Projects

Project Name Cornelius Pass Rd/US 30

Project #: 193 Category: Signal/Intersection Functional Class: Major Arterial

Project Description: Widen pavement to allow for north bound left turn lane, right turn lane and bicycle lanes.

RTP No:	IRIS #: 192	Mile Point: 0	ROW Cost: \$80,000
TIF <input type="checkbox"/>			Construction Cost: <u>\$440,000</u>
Score: 20			Total Cost: \$520,000



Map not to Scale

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

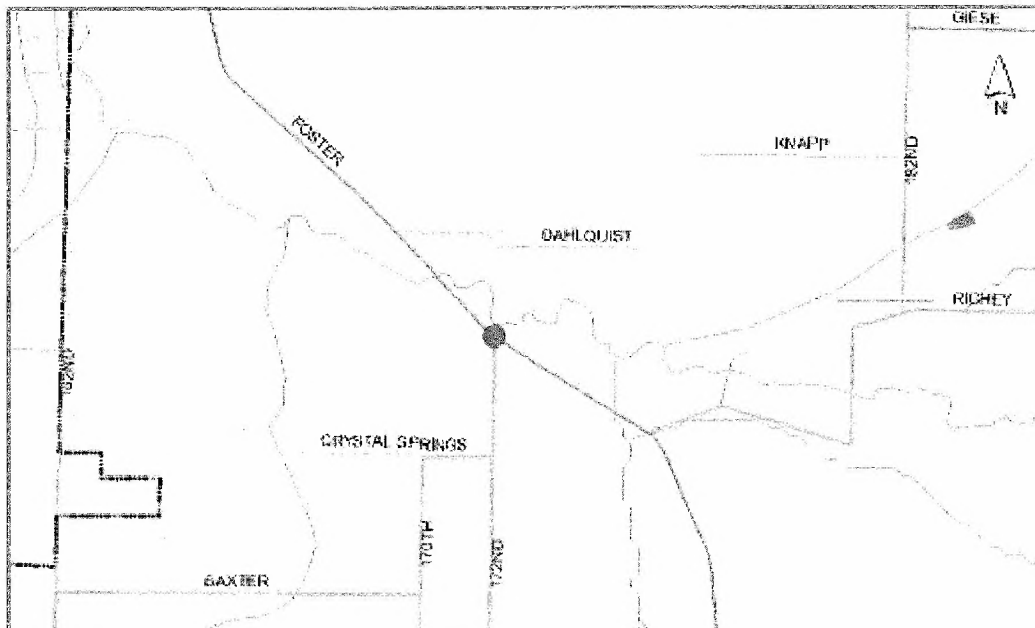
# Road Fund Capital Projects

Project Name 172nd Ave/Foster Rd

Project #: 178 Category: Signal/Intersection Functional Class: Rural Arterial

Project Description: Install traffic signal and construct bike and pedestrian improvements. Add turn pockets for west bound and north bound traffic

RTP No:	IRIS #: 383	Mile Point: 0	ROW Cost: \$50,000
TIF <input type="checkbox"/>			Construction Cost: \$480,000
Score: 25			Total Cost: \$530,000



Map not to Scale

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

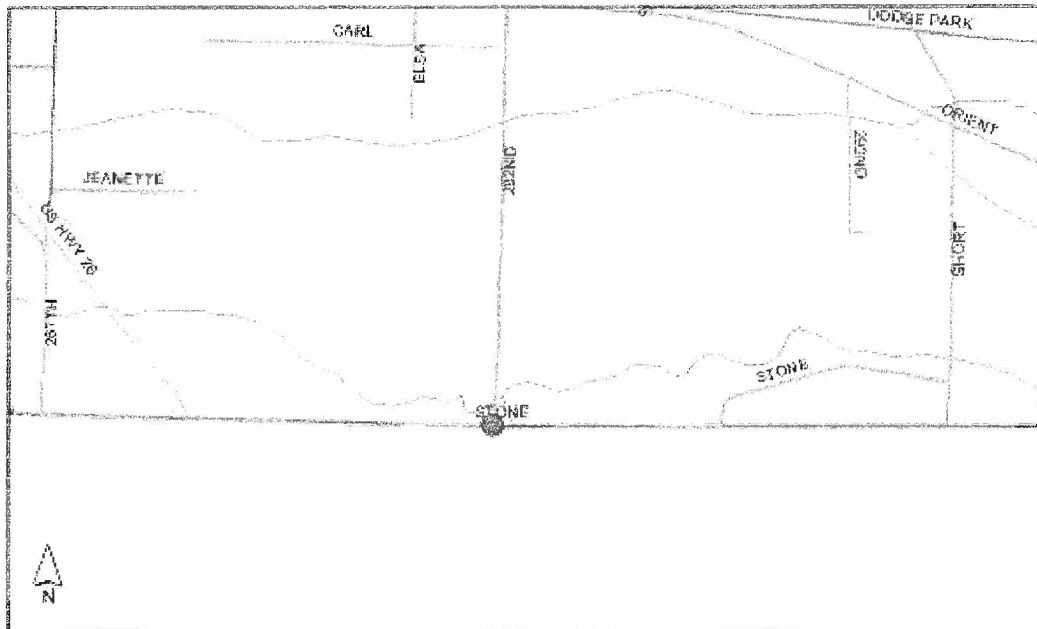
# Road Fund Capital Projects

Project Name 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.

RTP No:	IRIS #: 493	Mile Point: 2.093	ROW Cost:	\$20,000
TIF	<input type="checkbox"/>		Construction Cost:	\$150,000
Score:	5		Total Cost:	\$170,000



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

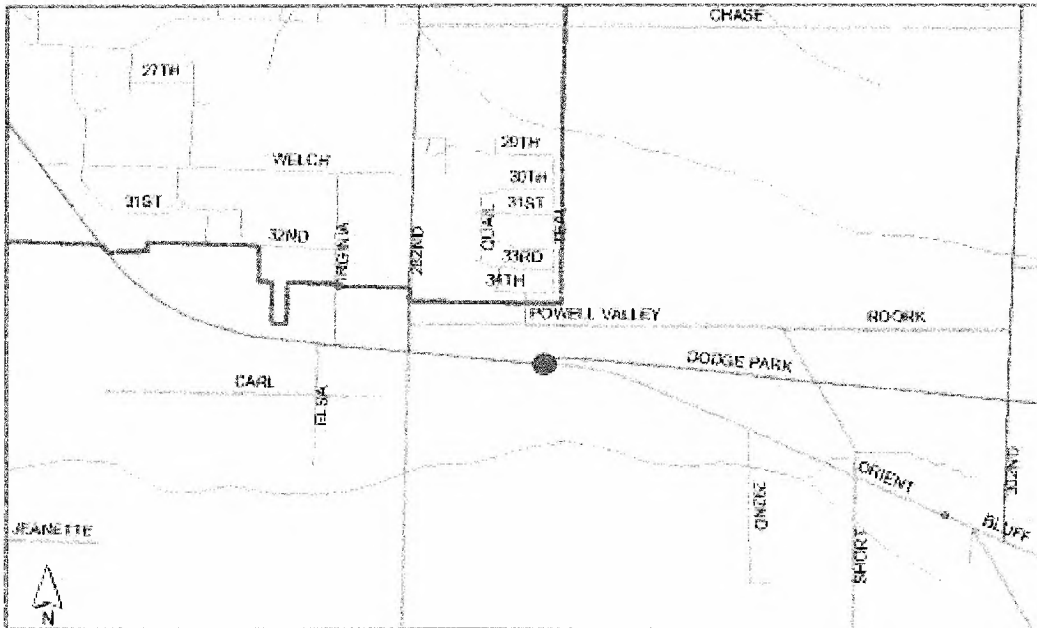
# Road Fund Capital Projects

Project Name Orient Dr/Dodge Park Blvd

Project #: 703 Category: Signal/Intersection Functional Class: Rural Arterial

Project Description: Widen Orient Dr to create eastbound left turn lane.

RTP No:	IRIS #: 434	Mile Point: 2.061	ROW Cost:	\$10,000
TIF	<input type="checkbox"/>		Construction Cost:	\$90,000
Score:	5		Total Cost:	\$100,000



Map not to Scale

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



## Road Fund Capital Projects

**Project Name** Stark St Boulevard Design: 181st Ave--197th Ave

**Project #:** 201      **Category:** Street Design Concept      **Functional Class:** Major Arterial

Project	Construct Stark St to regional boulevard standards
Description:	

RTP No: 2102

IRIS #: 304

ROW Cost: \$0

TIF ☒



From Mile Point: 0.970

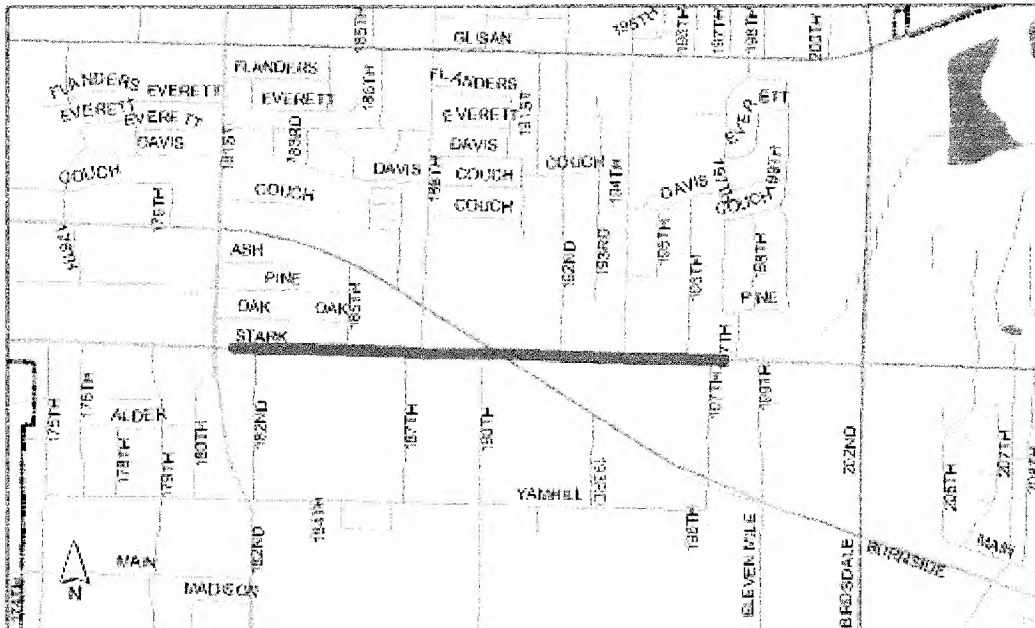
Construction Cost: \$2,715,000

Score: 60

60

To Mile Point: 1.783

**Total Cost: \$2,715,000**



Map not to Scale

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

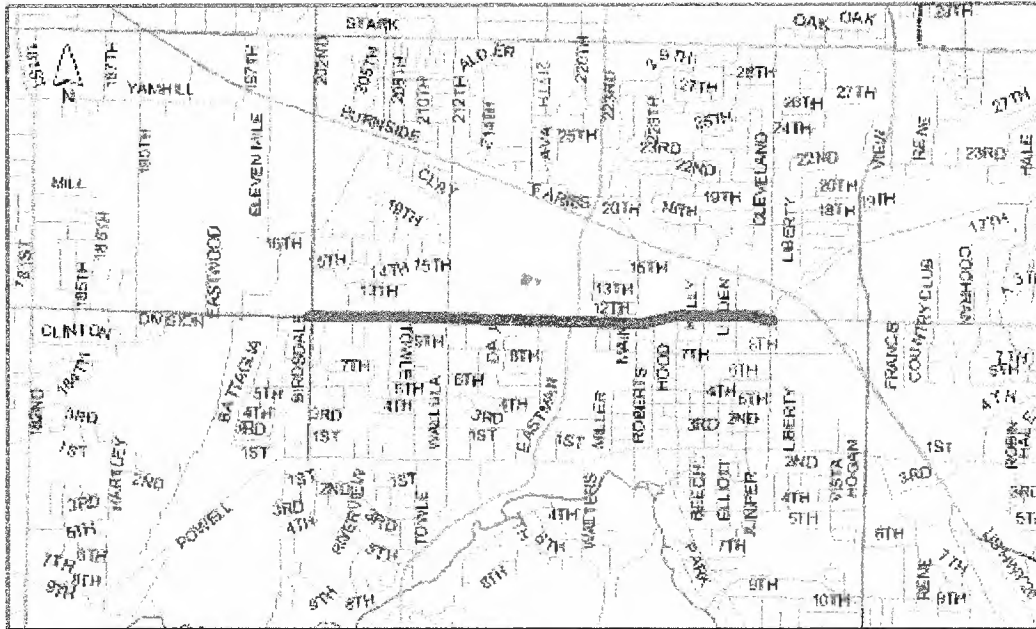
# Road Fund Capital Projects

Project Name Division St Boulevard Design: 202nd Ave--235th Ave

Project #: 200 Category: Street Design Concept Functional Class: Major Arterial

Project Construct Division St to regional boulevard standards.  
Description:

RTP No:	2046	IRIS #: 302	ROW Cost:	\$0
TIF	<input checked="" type="checkbox"/>	From Mile Point: 1.363	Construction Cost:	<u>\$5,211,000</u>
Score:	50	To Mile Point: 3.023	Total Cost:	\$5,211,000



Map not to Scale

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

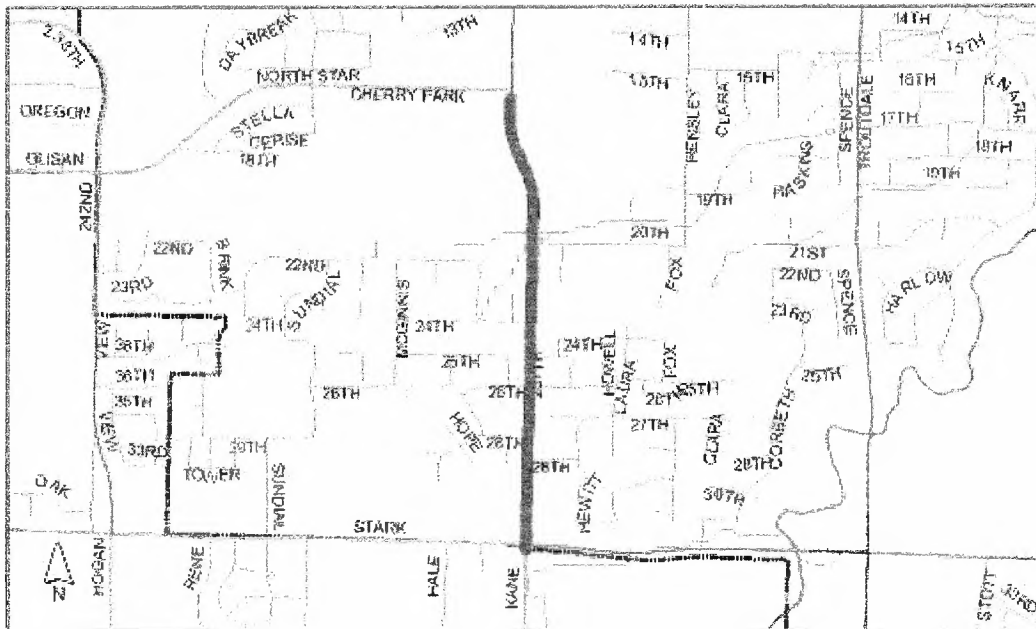
# Road Fund Capital Projects

Project Name 257th Ave: Median Improvements

Project #: 97 Category: Street Design Concept Functional Class: Major Arterial

Project Description: Construct median improvements to enhance pedestrian safety. Includes signal improvements, U-turn land at Cherry Park Rd (North).

RTP No:	IRIS #: 443	ROW Cost:	\$20,000
TIF <input type="checkbox"/>	From Mile Point: 4.025	Construction Cost:	\$630,000
Score: 45	To Mile Point: 3.265	Total Cost:	\$650,000



Map not to Scale

	Existing	New
Travel Lanes:	5	5
Sidewalks:	Yes	Yes
Bike Lanes:	Yes	Yes
Drainage:	Storm	Storm
Illumination:	Yes	Yes
Turn Lanes:	Yes	Yes
Intersection:	Yes	Yes

## Bike Fund Capital Projects

Project Name Division St: 195th Ave--202nd Ave

Project #: 250

Category:

**Functional Class:**

Project RCIP 119

**Description:**

RTP No: 2056

IRIS #: 302

ROW Cost: \$0

TIF ☐

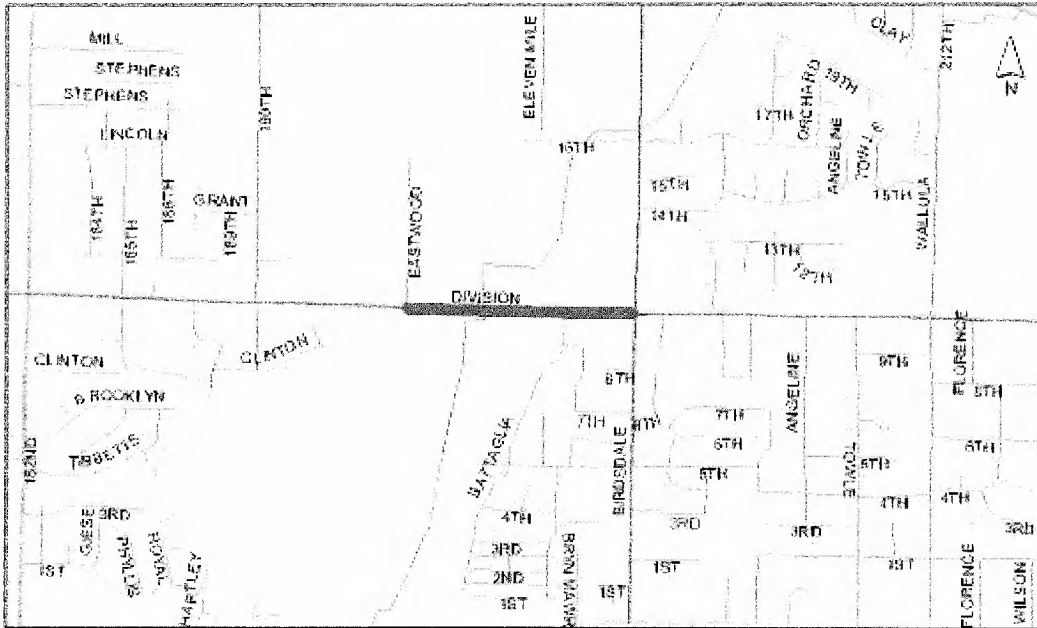
From Mile Point: 0.988

Construction Cost: \$133,400

Score: 26

To Mile Point: 1.363

Total Cost: \$133,400



Map not to Scale

## Bike Fund Capital Projects

**Project Name** Morrison Bridge Bicycle Facility

Project #: 737

**Category:**

**Functional Class:**

Project Description:	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.
----------------------	---

RTP No: 1062

IRIS #: 0

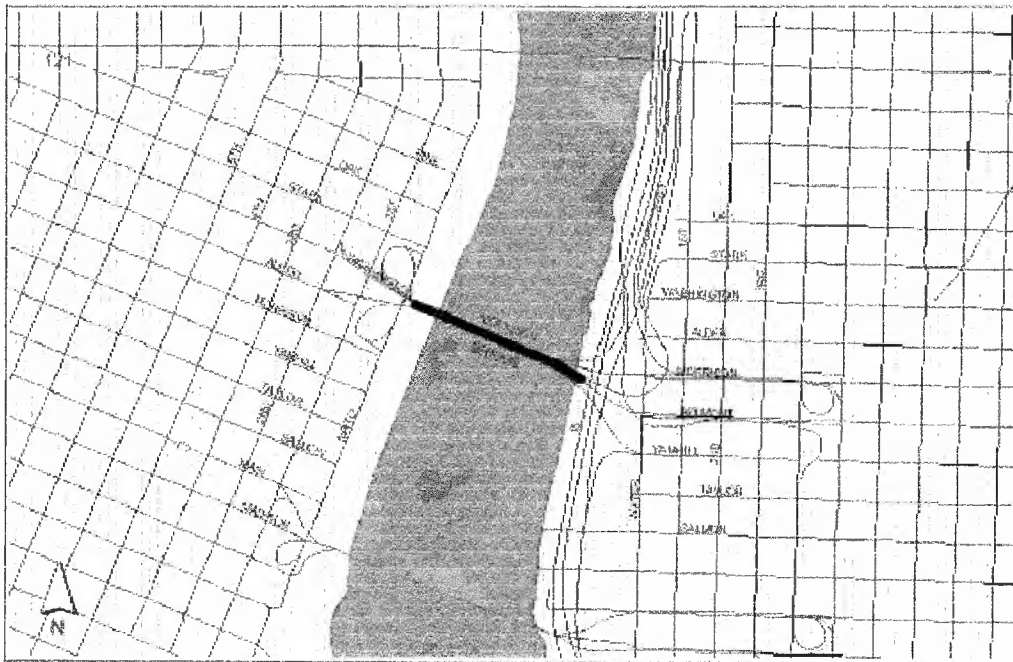
ROW Cost: \$0

TIF ☐

Construction Cost: \$1,795,000

Score: 40

**Total Cost:** \$1,795,000



Map not to Scale

# Pedestrian CIP

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

Project #: 335

Category:

Functional Class:

Project Both sides of road. Large trees need to be removed, and large cutbanks added. 4366  
Description: feet

RTP No:

IRIS #: 302

ROW Cost: \$0

TIF



From Mile Point: 0.357

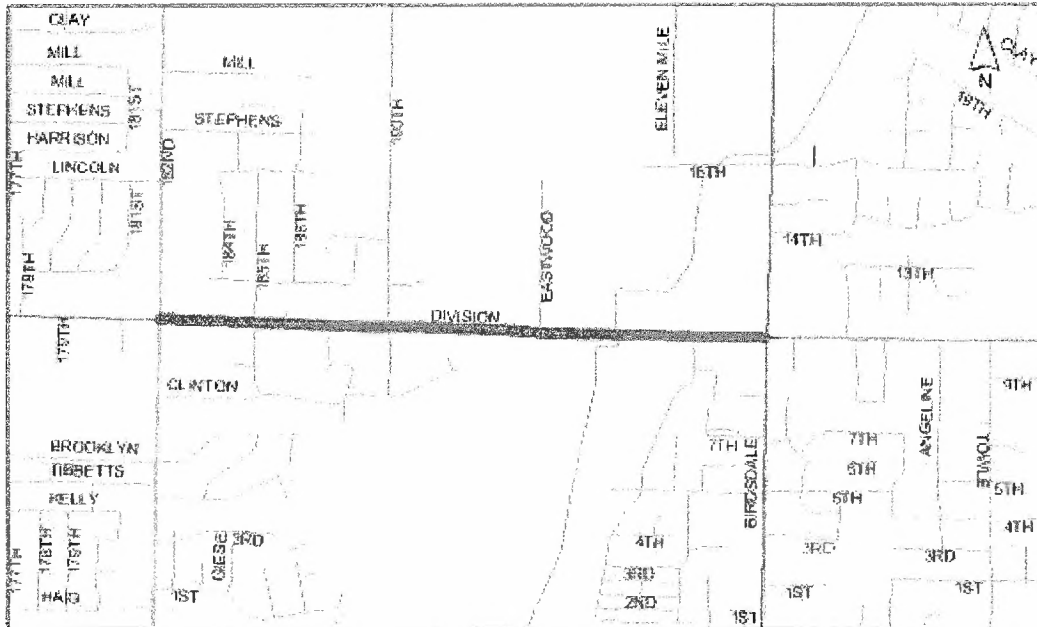
Construction Cost: \$120,000

Score:

14

To Mile Point: 1.363

Total Cost: \$120,000



Map not to Scale

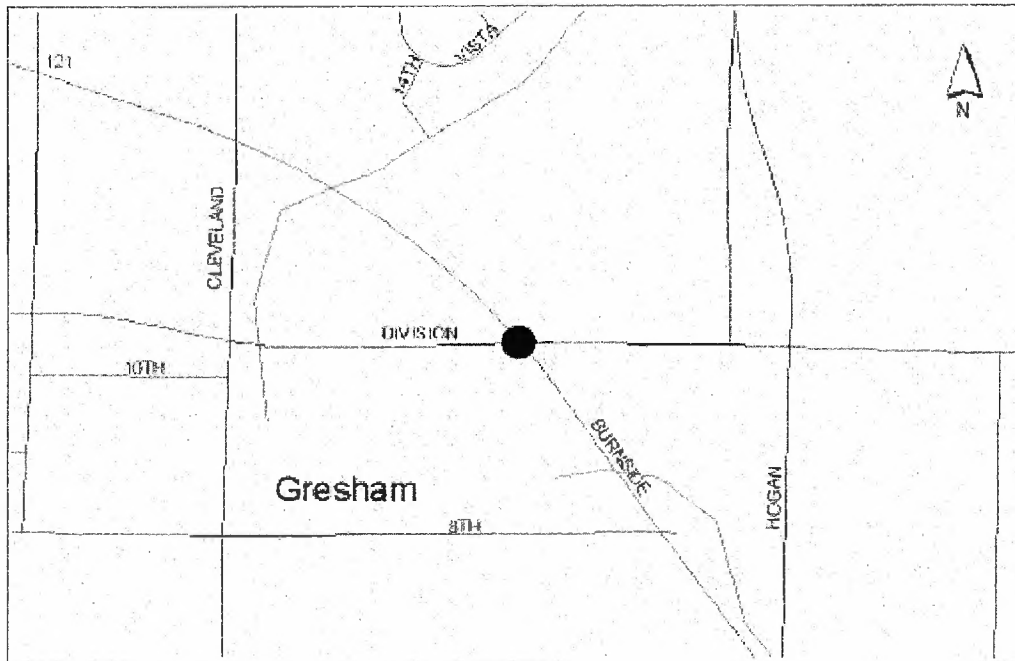
# Road Fund Capital Projects

Project Name Bunrside Rd/Division Intersection

Project #: 727 Category: Signal/Intersection Functional Class: Principal Arterial

Project Description: Add exclusive 200' eastbound right turn lane.

RTP No:	IRIS #: 306	Mile Point: 4.169	ROW Cost:	\$158,000
TIF	<input checked="" type="checkbox"/>		Construction Cost:	\$234,000
Score:	40		Total Cost:	\$392,000



Map not to Scale

	Existing	New
Travel Lanes:	5	6
Sidewalks:		Yes
Bike Lanes:	Yes	Yes
Drainage:	Storm	Storm
Illumination:	Yes	Yes
Turn Lanes:	No	Yes
Intersection:	Yes	Yes

# Fish Passage Culvert Project - Field Form

Culvert ID No. Road Name, Culvert #, Mile Point, Size Stream Milepoint Priority Owner USGS Quad MapName

493-06 282ND Av, SE - # 2 - MP: 2.046 84 x 40 IRIS: 493

549250 5034300 Johnson Creek 3.5 High Multnomah County Sandy

Preliminary Assessment

☒ Retrofit ☐ Replace

IRIS Stats Material Type: CP Inlet Treatment: BH Offset Distance: 16 Slope: 0 Rise Height: 84 Drainage Adequacy: A  
Coating Type: C Outlet Treatment: BH Cover Depth: 2 Skew: 45 Span Width: 84 Condition: G Road MP 2.046

Coho Salmon: Verified Cutthroat Trout: Verified Steelhead: None Winter Steelhead: Verified Rainbow Trout: None

Oregon Dept. Fish and Wildlife Data Slope: 0.0 Habitat Quality: Unknown

Biologist's Note: High velocity. Just north of Clackamas Co line. Eleven plus upstream obstructions as well as agricultural channelization and culverting. At least 4 downstream of



\\Dscd-yeon\DBFiles\FishPassage\Images\FPCM493-06.jpg

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Measurements - Outfall Drop: \_\_\_\_\_ Depth of Pool: \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

☐ Land Use Planning ☐ Engineering ☐ Road Maintenance ☐ Consultant



# Fish Passage Culvert Project - Field Form

Culvert ID No. Road Name, Culvert #, Mile Point, Size Easting Northing Stream Name Stream Milepoint Priority Owner USGS Quad MapName

404-01 Stark St, SE - # 1 - MP: 1.129 144 x 60 IRIS: 404

Preliminary Assessment

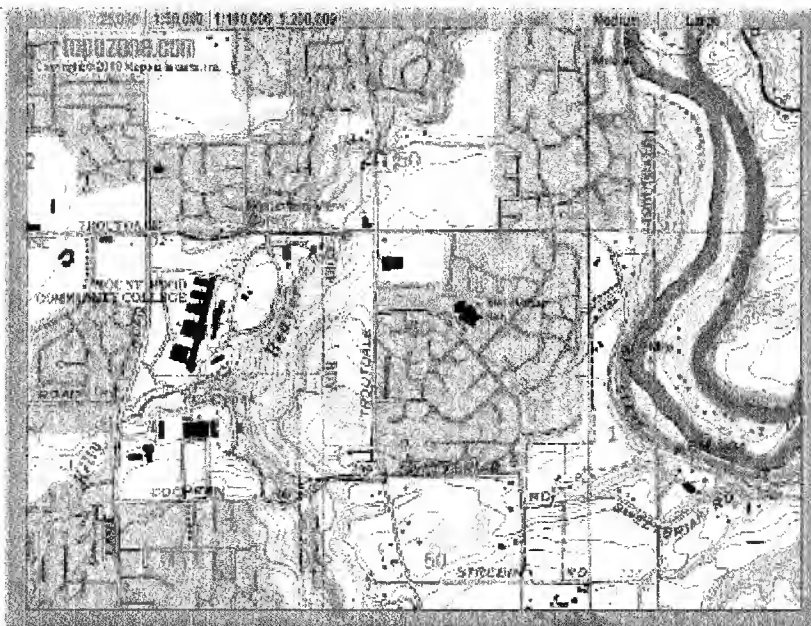
0 0 Beaver Creek 2.4 N/A Multnomah County Camas

☐ Retrofit ☒ Replace

IRIS Stats	Material Type: CP	Inlet Treatment: O	Offset Distance:	Slope:	Rise Height: 144	Drainage Adequacy: A
	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 Winter Steelhead: Verified Rainbow Trout: None

Oregon Dept. Fish and Wildlife Data Slope: 0.0 Habitat Quality: Unknown



\\Dscd-yeon\DBFiles\Fish Passage\Images\FPCM404-01.jpg

Notes: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
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 \_\_\_\_\_

Measurements - Outfall Drop: \_\_\_\_\_ Depth of Pool: \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

☐ Land Use Planning ☐ Engineering ☐ Road Maintenance ☐ Consultant

# Road Fund Capital Projects

Project Name Burnside Rd: 242nd Ave--Powell Blvd

Project #: 729

Category: Arterial

Functional Class: Principal Arterial

Project Description: Reconstruct road--capital preservation project.

RTP No:

IRIS #: 406

ROW Cost: \$0

TIF

☐

From Mile Point: 0.000

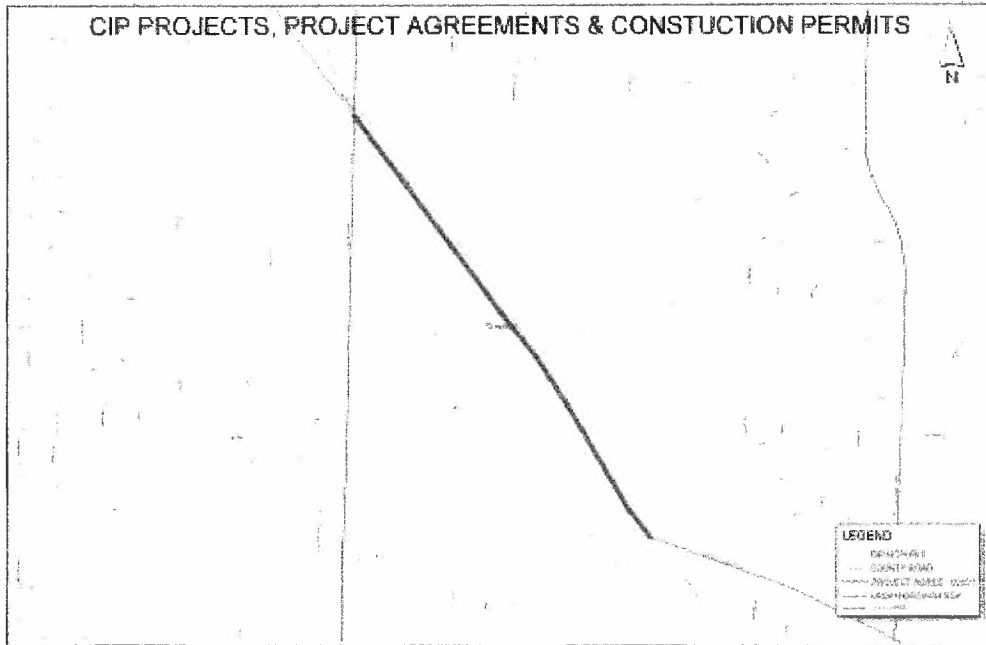
Construction Cost: \$750,000

Score:

40

To Mile Point: 0.688

Total Cost: \$750,000



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 2002 -- 2021  
Capital Improvement Plan and Program  
for the  
Willamette River Bridges**

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 '03—'07 with annual allocations and the Plan identifies projects for the following 15 years, through FY '22.

**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.

The following source documents and consultant reports were used:

Willamette River Bridges Investigation, Summary Report, prepared by Sverdrup & Parcel and Associates, Inc., in association with Moffatt, Nichol and Bonney, Inc., and Milton C. Stafford, October 1986.

Willamette River Bridge Ramp Investigation, Executive Summary Report by OBEC Consulting Engineers, Eugene, Oregon, January 1988.

Inspection and Cost Estimates for Contract Maintenance Painting, Multnomah County Structural Steel Bridges, prepared by W.L. Bangert, November 1987.

Willamette River Bridges 20-Year Capital Works Needs, Multnomah County Transportation Division, May 1988.

Oregon Coding Guide for the Inventory and Appraisal of Oregon Bridges, OR State Highway Division, 1985.

Manual for Maintenance Inspection of Bridges, American Association of State Highway and Transportation Officials (AASHTO), 1983.

Bridge Inspector's Training Manual 70, U.S.D.O.T., FHWA.

Bridge Inspector's Manual for Movable Bridges, U.S.D.O.T., FHWA.

Oregon State Highway Division, 1991 (Paint) Specifications.

Conceptual Engineering Analysis of Light Rail Service for the Sellwood Bridge,  
November 1990, CH2M Hill.

Willamette River Bridges Safety Evaluation Report, January 1996, DeEtta Burrows,  
MSPH, CIH, Wise Steps, Inc.

After reviewing these documents, Multnomah County Transportation Division, Bridge Capital Section, identified 28 construction and corrosion protection (painting) projects in the 20-year plan ending in the year 2021. 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 28 construction and corrosion protection projects.

In addition to the 28 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. A fourth project for accessibility improvements is included.

### **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 has 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. 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.

### **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 Division 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.

WRBAP projects are rated and ranked in the WRBAP Final Report, August, 1994. Those projects are identified in the WRBAP sub-section.

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 Construction Contingencies  
Bridge Section Overhead Not Included

## Construction and Paint Projects - Summary

Estimates in Thousands of 2002 Dollars

Rank	Bridge Name	MS	Bridge #	Cat	Project Description	Cost	Tot Pts 135	1-5 yrs to FY 06-07	6-10 yrs FY 07-08 FY 11-12	11-15 yrs FY 12-13 FY 16-17	16-20 yrs FY 17-18 FY 21-22
1	Sauvie Island Bridge	MS	2641	S	2nd Crossing or Replacement	\$26,536	125	\$26,536			
2	Broadway Bridge	MS	6757	M	Span Drive Mechanical Renovation (Phase III)	\$891	120	\$891			
3	Broadway Bridge	MS	6757	S	Deck Rehabilitation and Painting	\$22,449	120	\$22,449			
4	Morrison Bridge	MS	2758	E	Phase I: Electrical Rewiring & Gate Replacement	\$701	115	\$701			
5	Burnside Bridge	MS	0511	LM	Electrical Traffic Control Upgrades	\$433	115	\$433			
6	Burnside Bridge West Appr	R	0511A	R	Deck Rehab and Microsilica Overlay	\$2,065	110	\$2,065			
7	Broadway Bridge	MS	6757	EMS	Replace Centerlocks	\$510	110	\$510			
8	Broadway Bridge	MS	6757	P	Paint Above Deck Fixed Spans	\$5,400	110		\$5,400		
9	Burnside Bridge	MS	0511	EM	Deck Rehab and Microsilica Overlay	\$7,035	100	\$7,035			
10	Burnside Bridge	MS	0511	P	Paint Steel Deck Truss/Bascule Entire Bridge	\$6,470	105		\$6,470		
11	Morrison Br. Morrison St. Vi	R	8589	S	Bearing Repair	\$342	100		\$342		
12	Broadway Approach Ramp	R	6757A	S	Deck & Joint Rehabilitation	\$1,382	90		\$1,382		
13	Morrison Bridge	MS	2758	E	Phase II: Replace Centerlocks	\$1,120	95		\$1,120		
14	Sellwood Bridge	MS	6879	S	Concrete & AC Overlay	\$1,100	90		\$1,100		
15	Sellwood Bridge	MS	6879	P	Paint Trusses	\$4,950	90		\$4,950		
16	Broadway Approach Ramp	R	6757A	P	Paint Steel Framing and Columns	\$4,901	89		\$4,901		
17	Morrison Bridge	MS	2758	S	East Side Deck and Lift Span Grating Rehabilitation	\$3,696	85		\$3,696		
18	Morrison Bridge	MS	2758	L	Phase III: Roadway Lighting Improvement	\$800	85		\$800		
19	Hawthorne Br. Hawthorne S	R	2757A	RS	Rdwy Approach/Deck Overlay	\$2,769	80		\$2,769		
20	Morrison Bridge	MS	2758	M	Gear Reducer Replacement	\$850	85			\$850	
21	Sellwood Bridge	MS	6879	S	Replace Structure	\$54,500	80				\$54,500
22	Broadway Bridge	MS	6757	E	Variable Message Fiber Optic Warning Signs	\$485	80			\$485	
23	Morrison Transition Structur	R	2758B	P	Paint Steel I-Beams	\$9,152	78			\$9,152	
24	Morrison Bridge	MS	2758	P	Steel Deck Truss/Bascule	\$4,500	74			\$4,500	
25	Broadway Bridge	MS	6757	M	Emergency Drive System	\$205	60			\$205	
26	Hawthorne Br. Hawthorne S	R	2757A	P	Paint Steel I-Beams	\$4,290	63			\$4,290	
27	Morrison Bridge	MS	2758	M	Emergency Drive System	\$326	55				\$326
28	Morrison Bridge	MS	2758	S	Fender Replacement	\$843	55			\$843	
	Willamette River Bridges	R	WRB	S	Accessibility Improvements (Bike, Ped, Disabled)	\$6,800		\$2,398	\$2,553	\$1,515	\$334
	Willamette River Bridges	R	WRB	S	OR-OSHA Facility Compliance	\$2,330		\$978	\$878	\$415	\$59
	Willamette River Bridges	R	WRB	S	Seismic Retrofit - One Crossing and All Ramps	\$43,148		\$8,131	\$7,524	\$19,092	\$8,400
	Willamette River Bridges	R	WRB	S	In-Depth and Semi-In-Depth Inspections	\$950		\$238	\$238	\$238	\$238
ESTIMATED CONSTRUCTION COST						\$221,929		\$72,364	\$44,123	\$41,584	\$63,857
Design Engineering (15%)						\$33,289		\$10,855	\$6,618	\$6,238	\$9,579
Construction Engineering (12%)						\$26,631		\$8,684	\$5,295	\$4,990	\$7,663
ESTIMATED PROJECT COST						\$281,850		\$91,903	\$56,036	\$52,812	\$81,099
AVERAGE YEARLY PROJECT COST						\$14,092		\$18,381	\$11,207	\$10,562	\$16,220

## Explanation of Tables

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

<u>Table Code</u>	<u>Term Explanation</u>
-------------------	-------------------------

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.

<u>Table Code</u>	<u>Term Explanation</u>
-------------------	-------------------------

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.

<u>Table Code</u>	<u>Explanation</u>
-------------------	--------------------

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>
-------------------	--------------------

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.

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.

**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

$S_4 = 13\%$  Max.

19 Detour Length  
36 Traffic Safety Features  
43 Structure Type, Main

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
	Heavy	Moderate	Scattered	None		
Area Rust Breakthrough	4	3	2	1	=	3
	Loose	Dead	Moderate	Live		
Quality of Paint	3	2	1	0	=	2
	Wet	Moderate	Dry			
Weather Exposure	3	2	1		=	2
	High	Low	None			
Visual (Pub. Exposure)	2	1	0		=	2

(Rate) Total = 13

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**

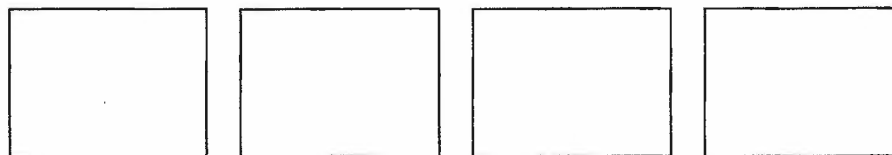
### **HAWTHORNE BRIDGE**

### **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 19<sup>th</sup>/early 20<sup>th</sup> 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.

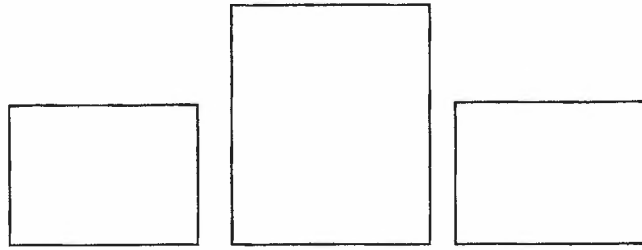
It opened in 1925 as a local community connector, tying Sellwood, Eastmoreland, Westmoreland and Milwaukie to Downtown Portland, three miles downriver. Now an intercounty bridge that serves Multnomah and Clackamas counties, Sellwood Bridge also is a primary connector for eastside residents headed for 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 ½" 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 1<sup>st</sup> 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 1<sup>st</sup> 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.

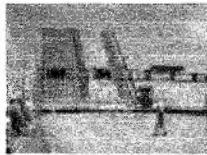
The Hawthorne Bridge was designed by Waddell and Harrington, Consulting Engineers from Kansas City, MO and constructed by the Pennsylvania Steel Co and United Engineering and Construction. and Robert Wakefield. It opened to traffic on December 19, 1910.



## 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.

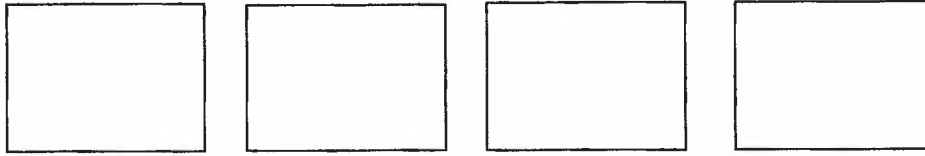
Also on the east side is the Water Avenue Ramp. This ramp was part of the original project in 1958, but was reconstructed in 1961 when Interstate 5 was built. The eastbound off-ramp is approximately 324 feet long and has both steel and concrete deck girders supported by concrete columns.

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.





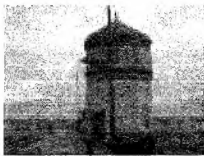
## Burnside Bridge

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



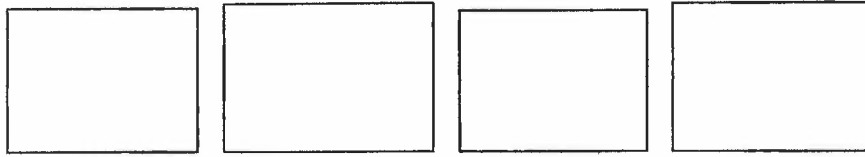
Gustav Lindenthal (1850-1935). Burnside's opening mechanism, or bascule, was designed by Joseph Strauss (1870-1938), whose Golden Gate suspension bridge would open 11 years after Burnside.

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.

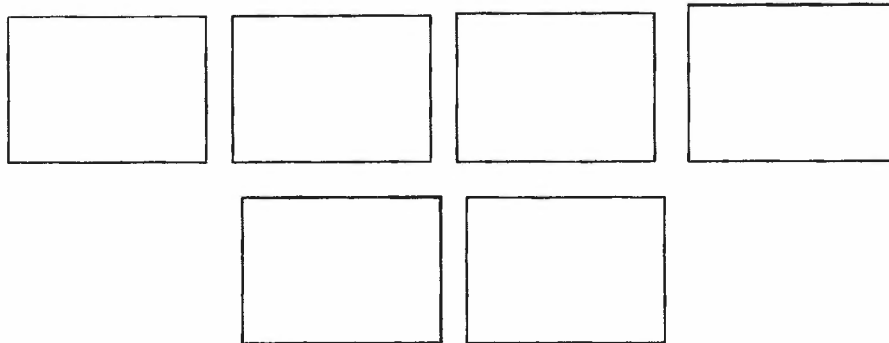
The east approach to the bridge is a two-span continuous concrete deck girder bridge 84 feet long crossing over Interstate Avenue. The end abutment walls are approximately 20 feet high.

A very complicated bridge. 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

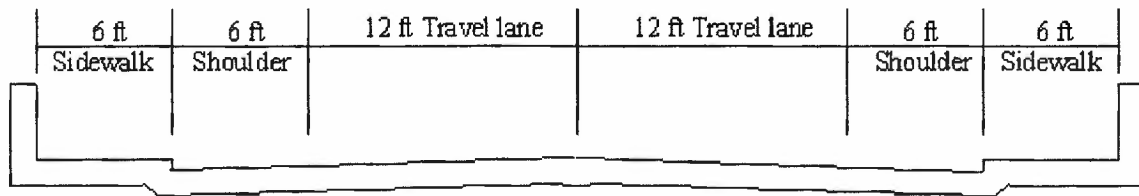


Sauvie Island Bridge was designed by the Oregon State Highway Commission and built by the Gilpin Construction Co. The bridge opened December 30, 1950, retiring the Sauvie Island Ferry. Jurisdiction for the bridge was transferred to Multnomah County on August 9, 1951.

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 last December. 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 adjacent to the existing bridge.

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). Depending on the location, a new bridge could require a signalized intersection at Highway 30 (such as the existing bridge), or a grade-separated interchange.



The county and its consultant plan to complete the preliminary siting study in May 2002. Other steps in the siting process will follow when funds are secured.

# **WILLAMETTE RIVER BRIDGES ACCESSIBILITY PROJECT**

## **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 has 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 lanes, 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. 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.

Detailed project descriptions, evaluation analysis and cost estimates can be found in the Final Report: Willamette River Bridges Accessibility Project, August, 1994.

### **Project Goals**

The Citizen Advisory Committee (CAC) and Technical Advisory Committee (TAC) established four primary objectives for the WRBAP study:

- Identify opportunities to improve access to and from the bridges and create ramps for bicycles, pedestrians, and disabled persons.
- Identify ways to improve safety for all bridge users.
- Integrate improvements for bridges and ramps with existing and planned surface street systems.
- Develop an action plan for capital improvements and maintenance, on the basis of project criteria and priorities for adoption by the responsible policy bodies (the city of Portland, Multnomah County and the Oregon Department of Transportation).



## **User Objectives and Criteria**

The CAC worked closely with Multnomah County staff to develop objectives and criteria relating to bridge users. These objectives can serve as long-term goals for accessible facilities, particularly in the case of new bridge construction. The objectives and criteria for bicycles, pedestrians, and disabled persons follow:

### **Bicycles**

**Objective:** To provide safe, direct and convenient bicycle access to and across the Willamette River with minimal conflicts with motor vehicles.

**Criteria:**

Separate rights-of-way for bicycles should be provided in the bridges' main spans and ramps, wherever practicable.

Planned bikeways should offer direct connection to bridge ramps. Bikeway facilities should be appropriate to the functional classification of the bikeway system.

Bikeways should have minimal uncontrolled conflicts with motor vehicles.

Direct and convenient routing is vital to bicyclists; access routes to the Willamette River Bridges should be planned so that they are as direct and convenient as practicable, with sufficient signage.

There will continue to be bikeways shared with pedestrians in the foreseeable future; on shared facilities, travelways and protocol among users should be indicated with clear signage.

Bikeway design should accommodate use by motorized wheelchairs.

### **Pedestrians**

**Objective:** To provide safe, direct, and convenient pedestrian access to and across the Willamette River with minimal conflict with motor vehicles.

**Criteria**

Sidewalks should be of adequate width to accommodate anticipated pedestrian and wheelchair traffic.

Sidewalks should be a minimum of 72 inches wide, where practicable. Pedestrian underpasses should be replaced with at-grade pedestrian crossings, where practicable.

To ensure pedestrian safety, at-grade crossings should provide measures to

control traffic.

To ensure the continuity of the pedestrian system, pedestrian rights-of-way at bridgeheads should be delineated. (The bridgehead is the transition area between the bridge ramp and the surface streets.)

To reduce conflict between bicyclists and pedestrians, travelways should be separated, where practicable.

If separated travelways are not possible, shared bicycle and pedestrian two-way travelways should be a minimum of 12 feet wide, per AASHTO standards, where practicable.

Safe pedestrian routes to and across the river should be indicated by directional signage.

Safe pedestrian routes to popular destinations should be indicated by informational signs.

To increase personal safety, all pedestrian facilities should be well lighted.

### Disabled Persons

Objective: To provide safe, direct, and convenient access for disabled persons to and across the Willamette River with minimal conflict with motor vehicles.

#### Criteria

New construction planned by the WRBAP must comply with the American with Disabilities Act.

To improve accessibility for the physically disabled, ramps with stairs should be included on pedestrian ways, wherever practicable.

To reduce obstacles to the physically disabled, curb ramps should be placed appropriately in the project area.

Signage should indicate safe and convenient routes for the physically disabled to cross the river.

To increase safety, visually impaired persons should be alerted to hazards by means of textured sidewalks.

To increase the safety of hearing impaired persons, there should be pedestrian-activated signals and other appropriate traffic controls in the project area to provide visual cues.

## **Project Performance Criteria**

### **A. Mode Benefit**

The proposed project provides significant benefit to at least one project mode (i.e. bicycles, pedestrians and disabled persons). The alternative should not deteriorate conditions for other project modes. Projects that provide benefit to more than one mode will receive additional points.

- Provides significant\* benefit to more than one mode. 4 Points
- Provides significant benefit to one mode and marginal\* benefit to one or more other modes. 3 Points
- Provides marginal benefit to more than one mode, or significant benefit to one mode. 2 Points
- Provides marginal benefit to one mode. 1 Point
- Provides no benefit. 0 Points
- Limits accessibility for one or more modes. -3 Points

**\*Significant:** Provides direct access from street system or recreational amenity, or provides increased accessibility across the main span. Provides increased safety and user comfort.

**\*Marginal:** Provides improved access but does not eliminate all conflicts and problems. Does not necessarily increase user comfort but does increase safety.

### **B. Removes Barriers**

The goal of the project should be to plan for increased access on Willamette River Bridges. The project should assure that access to the bridges does not represent a barrier to project modes travel.

- Project removes or circumvents a significant barrier to alternative modes travel across a particular bridge (i.e., a barrier which precludes or severely limits access on an otherwise accessible bridge). 4 Points

- Project removes or circumvents a significant barrier, however other minor barriers still exist. 3 Points
- Project removes or circumvents one of a number of barriers, however a significant barrier still exists. 2 Points
- Project removes or circumvents a barrier, however several significant barriers still exist. 1 Point
- Project does not remove or circumvent a barrier. 0 Points

#### C. Facilities Connections

The project should provide a necessary addition to existing bike and pedestrian systems. The project should not be isolated from other systems or other proposed projects.

- Provides critical system additions\* for more than one mode. 4 Points
- Provides critical system additions for one mode. 3 Points
- Provides minor system additions\*\* for more than one mode. 2 Points
- Provides minor system additions for one mode. 1 Point
- Does not provide a system addition. 0 Points

\*Critical system additions: Addition to system that connects to a developed circulation system for the benefited mode, project provides a vital connection.

\*\*Minor system additions: Addition that does not necessarily connect with a well developed circulation system.

#### D. Traffic System Performance

Some decrease to traffic system performance may result from the project, however increases to traffic congestion that will negatively affect goods movement and transit service are not acceptable.

- Project will not degrade traffic system performance. 0 Points
- Project will cause minor degradation to traffic system performance. -1 Point
- Project will cause significant degradation to traffic system performance. -2 Points
- Project will cause capacity decrease which could lead to failure of traffic system links or intersections on streets important to goods movement. -3 Points

- Project will cause capacity decrease which could lead to failure of traffic system links or intersection on streets heavily used by transit. -4 Points

#### E. Potential Users

Relative number of users of a project

High Use: 5 Points

Moderate Use: 3 Points

Low Use: 1 Point

#### F. Cost benefit Analysis

Project score divided by project cost.

Lowest 20% cost per unit. 4 Points

Next lowest 20% cost per point. 3 Points

Middle 20% cost per point. 2 Points

High 20% cost per point. 1 Point

Highest 20% cost per point. 0 Points

## **Implementation Plan**

After applying the evaluation criteria to the 80 preliminary projects, the CAC and TAC selected 38 multimodal projects for implementation. The total cost of the 38 projects is estimated at \$7.63 million.

WRBAP received \$1 million from the Congestion Management/Air Quality program in 1996. The \$1 million grant plus additional local funding will be directed toward construction of 25 of the 38 projects. The Phase One projects consist of improvements costing \$5,000 to \$200,000.

Thirteen future phase projects are anticipated to be included in the regional transportation plan, transportation improvement plans, and local jurisdiction capital improvement plans. If Phase One project costs are lower than estimated, some Phase two projects may be shifted to Phase One.

## **Funding Sources**

There are several possible sources of additional funding, both local and federal.

### **Local Funds:**

The Oregon Department of Transportation, city of Portland and Multnomah County all have funds set aside for constructing pedestrian, bicycle and disabled access projects. All three jurisdictions will consider construction projects before 1996. County funds used to maintain the Willamette River Bridges must go to continued maintenance of bridge facilities.

### **Federal Funds:**

Most grant funds from the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) Implementation Strategy have already been allocated; however, Congress is expected to begin consideration of a new ISTEA in the next year. The new legislation should include programs for alternative modes of transportation. Completion of WRBAP will position the involved jurisdictions to compete for available funds.