

6.1 FULL FUNDING AGREEMENT SCOPE (Revised September, 1983)

BANFIELD LIGHT RAIL TRANSIT SCOPE OF WORK

Scope of Work

This project scope and definition is designed as a general guideline and description of the project. It is recognized that the document will evolve and that certain changes, additions and deletions will occur over time. It is anticipated that the document will be amended at certain future points. This document is also designed to be a general working document. Minor changes in scope are subject to Tri-Met's discretion. Any major or substantive changes shall be incorporated into future amendments and receive advance UMTA approval. This scope includes funding of highway relocation and rebuilding work of the Banfield Freeway Project as authorized by the Congress in Public Law 97-102, Department of Transportation and Related Agencies Appropriations Act, 1982.

MACS CODE20.01.00: Purchase of Transit Vehicles

Covers the purchase of 33 articulated Light Rail Vehicles including spare parts and special tools required for these vehicles. This also covers the manufacturer's training of operating, servicing and maintenance staff, warranties and technical field service support.

20.02.00: Purchase and Installation of Support Equipment

20.02.04 Fare Collection - Includes ticket issuing machines at stations and passenger-operated ticket validators on the Light Rail Vehicles for the Self-Service Fare System being introduced throughout Tri-Met in 1982.

20.02.06 Communications - Includes two-way radio communication sets for the Light Rail Vehicles and Central Dispatch, Yards (transportation) Control, Vehicle and Maintenance of Way crews and Light Rail road supervision. The Light Rail radio system will be compatible with Tri-Met's bus radio system to the greatest extent feasible.

20.03.00: Purchase and Installation of Service and Maintenance Equipment

20.03.01 Vehicles - Includes both rail-borne and off-rail equipment for inspection and repair work, cranes, "cherry-picker" high-lift truck, personnel trucks or vans, automobiles, maintenance of way work cars or trucks. Other vehicles and precise quantities to be determined during final engineering and subject to UMTA concurrence.

20.03.02 Tools and Equipment - Includes car wash and blowdown equipment, miscellaneous shop tools, equipment and testing apparatus, wheel shop equipment, body and paint equipment, hoists, fork-lifts, and the like. Other tools and equipment and precise quantities to be determined during final engineering and subject to UMTA CONCURRENCE

20.06.00: Real Estate Acquisition

These acquisitions will be done by the Oregon Department of Transportation. This item includes all costs of administration, negotiations, condemnations (as necessary), and closing costs and will meet all Federal requirements.

- 20.06.10 Right-of-Way - Includes the easements and/or acquisitions of right-of-way for the Light Rail Line between downtown Portland and the City of Gresham, and for the necessary relocation of 4½ miles of the Banfield Freeway (I-84) in conjunction with this Project. The properties to be acquired to accommodate relocation of the highway identified in Attachment 4.
- 20.06.22 Maintenance and Repair Facilities - Includes property acquisition for the Maintenance Facility and storage yard at Ruby Junction (199 Ave. and Portland Traction Right-of-Way, South of East Burnside Crescent). It is approximately 12.5 acres.
- 20.06.40 Parking Facilities for Transit Patrons - Park & Ride lot sites at Gateway Station, 181st Street, Gresham City Hall and Terminal Station. Others may still be identified and would be subject to environmental requirements and UMTA concurrence.
- 20.06.70 Other Facilities - Land for three off-street bus transfer station areas (Hollywood Station, Gateway Station & Gresham Central Station)

20.08.00: Professional Services Contracts

- 20.08.01 Engineering and Design - Includes all costs of final design and contract document preparation and review, subconsultant services and construction supervision and management services during procurement and construction of the Project. Also includes professional services for administering the insurance program. This work covers that done by Oregon Department of Transportation staff for construction elements described in 20.13.00. It also includes work of Bechtel Civil & Minerals, Inc. and L.T. Klauder and Associates, Ltd. as prime consultants to the Project and various subconsultants as required from time to time. Also includes preliminary engineering for vintage trolley system in downtown Portland.
- 20.08.03 Legal Services - Includes necessary costs of professional legal services engaged or involved on this Project.
- 20.08.04 Appraisal Services - (Administered through ODOT) - Includes the costs of special reports and appraisals for properties and easements required to determine fair and proper evaluations, conforming to State and Federal requirements.

20.08.05 Relocation Expenses - (Administered through ODOT) - Includes costs to establish and provide reasonable costs of relocation assistance and preparation of relocation plan in conformity with State and Federal relocation and property acquisition regulations and procedures.

20.10.00: Demolition

Covers the demolition of structures and rough restoring to safe conditions of right-of-way and other properties required before construction.

20.11.00: Construction of Facilities

20.11.01 Wrap-Up Insurance - Covers the costs of insurance coverage for workers' compensation, general liability, errors and omissions and all-risk construction insurance covering construction through completion of the contracts administered by Tri-Met.

Oregon Department of Transportation will require contractors to provide insurance coverage in contracts administered by ODOT.

20.11.10 Stations - Includes all costs involved in the provision of 25 stations of relatively simple function and design for sidewalk level boarding and alighting of Light Rail passengers, and interconnecting pedestrian and bus transfer facilities. Passenger shelters will be provided at most stations (at several stations, shelters are not appropriate relative to anticipated passenger waiting numbers or to nearby building facades). Lighting, landscaping, telephones, information signs, benches and other furnishings will be provided, as determined in final design. Stations along the Banfield Freeway section in Sullivan Gulch will be served with elevators as well as stairways. Includes station for vintage trolley

20.11.20 Maintenance and Repair Facilities - Includes maintenance, servicing and repair shops at Ruby Junction (199 Ave. and Portland Traction Right-of-Way, South of E. Burnside Crescent) in Gresham, and will include facilities for cleaning, inspecting, storing and complete maintenance and repairing of the fleet of Light Rail Vehicles for the Banfield Line. Includes provision for storage of Facilities for Maintenance-of-Way equipment and supplies. Space for Operating, Administration and Vehicle Maintenance staff is included. The building will contain approximately 95,000 square feet of floor space in a partial basement, ground floor and partial second and third floors. Landscaping of site is included.

- 20.11.30 Storage Yards - Includes yard trackage for storage and circulation of the Light Rail Vehicle Fleet in conjunction with the Maintenance Shops. Yard lighting, drainage, utilities, paving of service lanes, landscaping, fencing and outside storage for track materials are included. Employee and visitor parking spaces are also included.
- 20.11.40 Parking Facilities - (For Transit Patrons) - Includes paved, landscaped and lighted parking facilities for park-and-ride patrons in the total amount for approximately 1500 to 2500 automobile spaces at Gateway Station, 181st Street, Gresham City Hall and Terminal stations. Others may be determined during final design work (subject to environmental requirements and UMTA concurrence).
- 20.11.90 Other Facilities - Wayside Lifts - Includes the development, testing and procurement of wayside lifts to facilitate the boarding and alighting of handicapped persons to and from the Light Rail Vehicle at all stations (except in one or two cases where lack of space may preclude their installation, such as Yamhill Street and First Avenue).

20.13.00: Right-of-Way Construction

- A. Includes all construction elements necessary for the operation of the 15-mile Banfield Light Rail Line along an alignment as follows:
1. on Morrison St. (Westbound) from 1st Ave. to 11th Ave., returning via Yamhill St. to First Ave.; thence by double-track, including downtown street and transit improvements as directed by Congress in FY83 Appropriations Bill, Conference Report;
 2. on First Ave. continuing via a new ramp to the Steel Bridge;
 3. and through the central bay of the Steel Bridge and the ramp down to Holladay Street;
 4. along the northern half of Holladay Street and an extension via a new ramp into the Sullivan Gulch;
 5. paralleling the northerly edge of I-84 Banfield Freeway, (between it and the Union Pacific right-of-way) for approximately 4½ miles to the intersection with I-205, where
 6. a new ramp carries the Light Rail tracks to Gateway Station and along the east embankment of I-205;
 7. to East Burnside Street where the Light Rail tracks will occupy the center median strip;

8. to approximately 197 Street, where the track shifts to East Burnside Crescent and the Portland Traction Co. right-of-way at Ruby Junction with a spare track.
 9. The main line track follows the P.T.C. right-of-way on single track to Gresham and the Terminal Station east of Cleveland Avenue.
 10. Includes trackwork and wirework for vintage trolley spur.
- B. Relocation of utilities for trackway or other construction; power lines of Portland General Electric Co. and Pacific Power and Light Co; telephone lines of Pacific Northwest Bell Telephone Co; gas transmission lines of Northwest Natural Gas Co; steam lines of PP&L Co; water and sewer lines of the City of Portland, County of Multnomah and City of Gresham; and such others as may be subsequently determined in final engineering.
- C. ODOT highway relocation and transit work is as follows:
1. Steel Bridge and Ramps Section
 - a. First Avenue - Steel Bridge LRT Ramp

Design of the ramp connecting to N.W. First Avenue from the west end of the Steel Bridge. Design work is to include the Everett Street and First Avenue intersection and plans for removal of the ramp connecting the Steel Bridge to southbound Front Avenue.

Produce contract drawings, specifications bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for Tri-Met Banfield Project Civil Engineering Section.
 - b. Steel Bridge Main Span, Glisan and Oregon Street Ramps

Design for reinforcement of structural steel section; traffic control signals and gates for drawbridge operation; design for attachment of rail and LRT loadings, electrification and LR traffic control signals.

Produce contract drawings specifications, bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for Tri-Met Banfield Project Civil Engineering section.

c. Holladay Ramp

Design modification of the existing ramp connecting to Holladay Street from the east end of the Steel Bridge to accommodate light rail.

Produce contract drawings, specifications, bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for Tri-Met Banfield Project Civil Engineering section.

2. Banfield (16th Avenue - 87th Avenue Section)a. Banfield Light Rail Trackway Grade

Design drainage, grading, noise and shoulder barriers, walls, structures, ramp for LRT between Holladay Street and Banfield, utilities. This work is to provide the prepared subgrade for the light rail facility and all other elements except for light rail trackwork, electrification, signals, communications and stations.

Produce contract drawings, specifications, bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for Tri-Met Banfield Project Civil Engineering section.

b. Banfield Highway Relocation Work (16th Avenue - 87th Avenue Section)

Design drainage, grading, walls, barriers, city street overpass structures, ramp structures, relocation of utilities and paving for the relocation and reconstruction of the existing Banfield (I-84) Freeway between 16th Avenue and 87th Avenue, providing six twelve-foot lanes with eight-foot shoulders and a ten-foot median. (The same number of lanes as exist at present are to be rebuilt.)

Produce contract drawings, specifications, bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for this work.

3. I-205 (Banfield E. Burnside) Section

a. Banfield - Gateway Station Ramp

Design for grading, drainage, walls and ramp structure to Banfield from the Gateway Station.

Produce contract drawings, specifications, bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for Tri-Met Banfield Project Civil Engineering section.

b. Glisan Street Underpass

Design for light rail structure crossing beneath Glisan Street.

Produce contract drawings, specifications, bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for Tri-Met Banfield Project Civil Engineering section.

c. Gateway - E. Burnside

Design for grading, drainage, walls and noise barriers for the light rail facility between Gateway Station and E. Burnside Street.

Produce contract drawings, specifications, bid and contract documents and advertise for bid proposals.

Award contracts, manage and provide construction engineering support and inspection during the construction stages for Tri-Met Banfield Project Civil Engineering section.

D. Light rail line construction includes:

1. procurement and construction of the Light Rail trackage and special trackwork; rehabilitating the Portland Traction Co. track to accommodate the Light Rail trackage;
2. procurement and construction of the Light Rail electrification system including both catenary and simple trolley overhead lines, power feeders, approximately 14 traction power substations of approximately 1 megawatt capacity each to supply nominal 750 Volt Direct Current traction power including circuit breakers and line disconnects and all necessary electrical cabling;

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3. automatic train protection signalling in the Banfield segment in the single track Portland Traction Co. section, and interlockings to the Steel Bridge lift spans;
4. detection and pre-emption for certain of the regular traffic control signals;
5. provision of traffic control signals or crossing gates at certain locations determined during final engineering;
6. The costs of temporary traffic control and other miscellaneous expenses during construction will also be covered under this cost classification.

E. Such other associated construction as determined during final design and engineering to construct the Light Rail line subject to approval by UMTA.

20.15.00: Project Sponsor Force Account Work

Includes acceptance testing, training with new vehicles and others as approved by UMTA.

20.16.00: Supporting Services - Cost Allocation Plan

Includes all Tri-Met direct, fringe and approved administrative and overhead costs associated with the management, direction and overall supervision of the design, procurement, construction, installation of the Banfield Light Rail Transit Project under an UMTA approved cost allocation plan.

Planning Studies - Includes technical planning studies to be undertaken in FY 83 by the Metropolitan Service District under contract with Tri-Met. The technical study work scope was defined in the area's FY 83 Unified Work Program and an application was prepared and submitted to UMTA for approval. UMTA notified Tri-Met of approval of the application.

20.02.01 Purchase of 4 Vintage Trolleys and Renovation of Vintage Trolleys

20.11.20 Construction of Vintage Trolley Maintenance Facility

Attachment 2

The Government may adjust the maximum grant under Section 4.B.1 according to the following procedures:

(1) The inflation calculation specified in Section 4.B.1 of Part I of this Contract shall be performed as follows: For each contract listed in Attachment 3 hereof, the April 1980 cost estimated by the Public Body (as found in Column 3 of Attachment 3) shall be multiplied by a ratio computed by dividing the official monthly Engineering News Record Building Cost Index (BCI) for the US-20 Cities Average for the midpoint month (as found in Column 5 of Attachment 3) by the BCI for April 1980 which is 1902.15. The difference between the product of this computation and the Estimated Cost at the Time of Construction (as found in Column 7 of Attachment 3) whether positive or negative, shall equal the Incremental Change for the applicable contract. The following formula shall be used to perform the entire computation expressed hereinabove.

$$\text{Incremental Change} = \text{Est. April 1980 Cost (Col. 3)} \times \frac{\text{BCI Index at Midpoint Date (Col. 5)}}{1902.15} - \text{Est. Cost Time Construction (Col. 7)}$$

(2) Positive incremental changes for each Line Item of Attachment #3 as determined in accordance with paragraph 1 shall be offset by negative incremental changes of other line items. Net positive incremental changes may result in an inflation adjustment to the maximum grant in accordance with Section 4.B.1.

(3) It is expressly understood that expenditures made by the Public Body will be reimbursable only to the extent that they meet all of the requirements of Section 104(c) of Part II of this Contract.

CIVIL TRANSIT

BANFIELD LIGHT RAIL PROJECT

CAPITAL COST ESTIMATE

(BASIS FOR CALCULATING EXTRAORDINARY INFLATION COST)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CONTRACT NUMBER	CONTRACT DESCRIPTION	BASE DOLLARS (In Thousands)	SCHEDULED NOTICE TO PROCEED	MIDPOINT OF ACTIVITY	ESCALATION FACTOR	COST AT TIME OF EXECUTION (In Thousands)
		Mid-April 80		Mid-Month		
CIVIL:						
81-2408/5070	Bechtel - Professional Services (Civil Engineering Consultants)	1,079	7/81	10/83	1.49	1,200
7001	Rail Procurement	4,030	6/82	10/83	1.49	6,095
7002	Tie Procurement	1,010	6/82	10/83	1.49	1,505
7003	Special Trackwork Procurement	1,010	6/82	10/83	1.49	1,505
7004	Rail Welding Fabrication	340	6/82	10/83	1.49	507
7005	Grade Crossing Procurement	1,340	6/82	10/83	1.49	1,997
7006	Traffic Signal Equipment Procurement	569	5/82	1/83	1.37	780
7007	Signs and Graphics Procurement	166	10/82	7/83	1.45	241
7010	Line Section 1 (Freshman Terminal to 199th St)	2,017	1/83	4/83	1.40	2,826
7020	Line Section 2 (199th St. to Gateway Station)	15,061	3/82	6/83	1.43	21,537
7030	Line Section 3 (Gateway Station to Lloyd Center Station)	3,006	1/83	8/83	1.46	4,389
7050	Line Section 4 (Lloyd Ctr. Station to 11 Ave. Terminal) Additional Downtown Street & Transit Improvements Track	7,859	6/83	7/84	1.62	12,737
7050		6,674	-	-	-	6,250
		6,674	2/83	5/84	1.59	10,612
	TOTAL CIVIL	144,961				\$73,687

TRANSIT - VEHICLES & SYSTEMS

BANFIELD LIGHT RAIL PROJECT

CAPITAL COST ESTIMATE

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CONTRACT NUMBER	CONTRACT DESCRIPTION	BASE DOLLARS (In Thousands)	SCHEDULED NOTICE TO PROCEED	MIDPOINT OF ACTIVITY	ESCALATION FACTOR	COST AT TIME OF EXEC (In Thousands)
		Mid-April 1980		Mid-Month		
SYSTEMS:						
82-410N/5040	L. T. Klaunder - Maintenance Facility (Systems Engineering Consultant)	\$ 131	4/81	4/81	1.12	\$ 147
81-244M/5050	L. T. Klaunder - Professional Services (Systems Engineering Consultant)	2,700	7/81	4/84	1.57	4,239
8010	Vehicle Procurement	25,000	9/81	3/83	1.39	35,062
8020	Maintenance Facility	10,645	1/82	8/82	1.30	13,839
8031	Service Vehicles (Work Cars)	600	7/81	8/82	1.30	780
8050	Electrification	11,740	5/82	1/84	1.53	17,962
8070	Signals	1,000	11/82	11/83	1.50	2,700
8080	Communications	650	12/82	4/83	1.40	910
8090	Wayside Life	700	1/82	5/83	1.42	994
TOTAL SYSTEMS		\$54,766				\$77,433

BANFIELD LIGHT RAIL PROJECT
CAPITAL COST ESTIMATE

GENERAL

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CONTRACT NUMBER	CONTRACT DESCRIPTION	BASE DOLLARS (In Thousands)	SCHEDULED NOTICE TO PROCEED	MIDPOINT OF ACTIVITY	ESCALATION FACTOR	COST AT TIME OF EXECUT (In Thousands)
		Mid-April 80		Mid-Month		
0	Support Services - Transit	\$ 5,200 +	7/80	3/83	1.39	\$ 7,220
0	Fare Collection	1,200	11/82	7/83	1.45	1,740
0	General Contingency	1,262	---	---	---	661
	Planning Studies	----	7/82	----	----	1,200
	TOTAL OTHER	\$ 7,662				\$10,829

AT HIGHWAY RELOCATION and TRANSIT WORK

BANFIELD LIGHT RAIL PROJECT

(1) TRACE NUMBER	(2) CONTRACT DESCRIPTION	(3) CAPITAL COST ESTIMATE			(4) SCHEDULED NOTICE TO PROCEED	(5) MIDPOINT OF ACTIVITY	(6) ESCALATION FACTOR	(7) COST AT TIME OF RECORD (in thousands)
		BASE DOLLARS (in thousands)	MID-APRIL 80	MID-MONTH				
189M/6001	Right-of-Way Acquisition	\$ 12,705	1/81	11/81	1.20	\$ 15,246		
189M/6020	Support Services	2,538	7/80	6/83	1.43	3,630		
189M/6010	Professional Services	1,220	1/81	10/82	1.33	1,622		
189M/6030	Line Section 1 (87th Ave. to 58th Ave.)	18,756	10/82	9/83	1.47	27,572		
189M/6020	Line Section 2 (60th Ave. to 39th Ave.)	10,335	11/82	10/83	1.49	15,399		
189M/6030-6040	Line Section 3 & 4 (39th Ave. to 18th Ave.)	24,960	5/82	8/83	1.46	36,412		
189M/6060	Steel Bridge and Ramps Construction	7,902	5/83	5/84	1.59	12,564		
189M/6070	Line Section 5 (1-705; Banfield to E. Burmida)	7,324	8/82	8/83	1.46	10,693		
0	Contingencies	2,538				2,520		
TOTAL		88,278				\$125,688		
GRAND TOTAL (Page 1 through 4)		\$195,667				\$287,634		

March 2, 1982

Attachment 4

BANFIELD PROJECT - REAL ESTATE ACQUISITION

<u>Location</u>	<u>File</u>	<u>Estimated Acquisition and Relocation Cost</u>		<u>Title Vested</u>
		<u>1980 Base \$</u>	<u>Escalated \$</u>	
<u>Downtown Segment:</u>				
11th & Morrison - Yamhill	51528	\$ 782,500	\$ 892,050	Tri-Met
" " " " "	51529			
<u>Banfield Segment:</u>				
I-5 - 47th Ave.	51147	1,676,000	1,910,640	ODOT
" " "	51148	1,420,000	1,618,800	"
" " "	51149	185,000	210,900	"
47th Ave. - 56th Ave.	51150	415,000	473,100	"
" " " " "	51151	200,000	228,000	"
" " " " "	51307	88,000	100,320	"
" " " " "	51308	125,000	142,500	"
" " " " "	51309	139,000	158,460	"
" " " " "	51310	9,600	10,944	"
" " " " "	51311	7,600	8,664	"
" " " " "	51312	1,000	1,140	"
" " " " "	51313	11,000	12,540	"
" " " " "	51314	16,000	18,240	"
" " " " "	51315	16,000	18,240	"
" " " " "	51316	7,500	8,550	"
" " " " "	51317	2,000	2,280	"
" " " " "	51318	5,000	5,700	"
" " " " "	51319	4,000	4,560	"
" " " " "	51320	1,000	1,140	"
58th Ave. - I-205				
" " " "	51321	165,000	188,100	"
" " " "	51323	19,000	21,660	"
Hollywood Station & Ramps:	51530	100,000	114,000	ODOT
(43rd Ave.)	51754	235,000	267,900	Tri-Met
" "	51755	70,000	79,800	ODOT
" "	51756	2,000	2,280	Tri-Met
Union Pac. R.R. Easements (16-45 Ave.: 70-92 Ave.) (60% of Total)	49425	1,042,211	1,188,121	ODOT
(Temporary Construction Easements)	52278 thru 52300 52423	121,800	138,852	ODOT

<u>Location</u>	<u>File</u>	<u>Estimated Acquisition and Relocation Cost</u>		<u>Title Vested In</u>
		<u>1980 Base \$</u>	<u>Escalated \$</u>	
<u>(Banfield Segment continued):</u>				
I-205: Gateway Station	51413	\$ 1,000,000	\$ 1,140,000	Tri-Met
<u>East Burnside Segment:</u>				
181st Park & Ride	52799* 52780* 52781*	475,000	541,500	Tri-Met
Unidentified Street Widening, etc.		350,000	399,000	Tri-Met
Unidentified P & R Lots		329,500	375,630	Tri-Met
Street Widening, Property Takes of approx. 10-20 ft. (approx. 255,000 sq. ft)			760,000	Tri-Met
19 Property Takes			2,850,000	
<u>Portland Traction Segment:</u>				
Portland Traction R/Way	51715	1,600,000	1,824,000	Tri-Met
<u>Gresham Segment:</u>				
City Hall Station P & R	51800 51838	700,000	798,000	Tri-Met
Central Station	51540	67,500	76,950	" "
Terminal Station P & R	51631 51632	800,000	912,000	" "
Maintenance Facility:	51137 51138 51139 51140 51141 51142 51143	128,000 134,000 128,000 128,000 98,000 108,000 106,000	140,920 147,760 140,920 140,920 111,720 123,120 120,840	" " " " " " " " " " " " " "
	<u>TOTALS</u>	<u>\$13,018,211</u>	<u>\$14,820,761</u>	
	Appraisals	231,100	242,839	
	Contingencies	160,000	182,400	
	<u>SUB TOTAL</u>	<u>\$13,409,311</u>	<u>\$17,898,970</u>	
		-0-	(2,652,470)*	

*To be funded from savings in other Line Items in Attachment 3 & proceeds from sale of real property