MCLOUGHLIN BOULEVARD IMPROVEMENT STRATEGY

FINDINGS AND RECOMMENDATIONS

A. Transit Service Development Strategy

1. Findings

a. Travel forecasts for the year 2000 indicate that an LRT transit link connecting the Banfield LRT in Portland with Milwaukie and Oregon City could carry approximately 40,000 passengers per day in the segment north of Milwaukie and about 20,000 riders per day in the segment south of Milwaukie. This constitutes a six-fold increase (over 500 percent) above current ridership and is based largely upon the assumption of a significant increase in gasoline cost (to $3.10 per gallon in 1980 dollars) as well as the implementation of substantial transit service improvements in the Corridor.

b. Ridership projections and economic analyses indicate that LRT could be a viable transit mode in the Southern Corridor by the year 2000. Therefore, future provision for LRT in that Corridor should be incorporated into the Regional Transportation Plan (RTP).

c. Two routes are available for an LRT facility between Milwaukie and Oregon City: 1) via the McLoughlin Blvd. Subcorridor, and 2) via the Hwy. 224/I-205 Subcorridor.

d. The most likely route for an LRT facility south of Jackson St. (in Milwaukie) in the McLoughlin Blvd. Subcorridor would follow the McLoughlin Blvd./ Portland Traction Company (PTC) right-of-way to Park Ave., McLoughlin Blvd. south to Abernethy Lane, and then proceed along the PTC right-of-way through Gladstone and across the Clackamas River. This route consists of the optimum segments of the McLoughlin Blvd. and PTC rights-of-way in terms of service provision, operational considerations and accessibility. It also represents significantly less residential disruption than would occur if the portion of the PTC right-of-way between Park Ave. and Abernethy Lane were used (see II.D.).

e. At a ridership level of the projected magnitude in the segment north of Milwaukie (40,000 passengers per day in 2000), the operating cost savings of LRT compared to a bus system providing equal capacity (due to the larger capacity vehicle and faster speeds) would offset the greater capital costs of LRT construction.

f. Current transit ridership levels in the Southern Corridor, however, average only 6,000 passengers per day. This patronage base, combined with the fact that the year 2000 forecasts are based upon significant increases in gasoline cost over the next 20 years, indicates the need for less costly transit improvements in the short-term. These improvements will assist in developing the substantial transit ridership growth (from 6,000 to 40,000 riders) necessary to justify the capital expenditure for an LRT facility. Metro travel forecasts indicate that an improved bus system would attract 80% of the ridership projected for an LRT facility in the Corridor. As such, an improved bus system in the interim would be nearly as effective in attracting ridership as LRT, and would provide for growth in ridership over time at a much lower cost.

g. Even at the 40,000 passenger per day level, LRT patronage in the Southern Corridor would still be only about one-half of the levels projected for the Banfield and Westside Transitway projects. The recommendation to pursue a bus improvement in the short-term, therefore, is consistent with established regional priorities and commitments of available funding to the various corridors.

2. Recommendations

a. Long-Term Strategy

It is recommended that, at this time, the implementation of an LRT alternative not be pursued in the McLoughlin Corridor. However, preservation of the option to provide LRT at a later date should be included in the RTP and periodically reexamined to take into account:

1) Actual changes in energy costs and supplies;

2) Effects of improved bus service on transit ridership patterns and volumes in the corridor;

3) Acquired experience in the operation of LRT as a result of the completion of the Banfield facility; and

4) Funding availability.

b. Interim Strategy

In the interim, it is recommended that:

1) A high-quality trunk and feeder bus service should be implemented in the Southern Corridor to connect the City of Portland, Milwaukie, Gladstone and Oregon City to meet mid-term demands. This alternative will assist in developing the transit ridership patterns and volumes necessary to justify the capital expenditure for an LRT facility;

2) ODOT, Tri-Met and the affected local jurisdictions should proceed to develop and implement a package of highway and bus transit improvements on McLoughlin Blvd. using funds authorized and reserved by Metro to: a) relieve existing and projected congestion and neighborhood infiltration problems; b) support the improved bus service in the McLoughlin Corridor; and c) protect the option of future construction of LRT in the Corridor in a cost-effective manner.

3) In order to protect the option of future construction of LRT in the Southern Corridor, Tri-Met and affected local jurisdictions should:

   (a) Examine alternative routes between Milwaukie and Portland and determine which are feasible and should be protected for future LRT construction north of Hwy. 224 based upon service to population and employment markets, transfer connection to bus routes, right-of-way availability, engineering constraints and compatibility with local plans;

   (b) Examine alternative routes in the Hwy. 224/I-205 Corridor betwen Milwaukie and Oregon City to determine which are feasible and should be protected for future LRT construction based upon service to population and employment markets, transfer connection to bus routes, engineering constraints and compatibility with local plans;

   (c) Determine which alignment options should be protected for the future development of LRT over the entire length of the Southern Corridor;

4) Based on the data obtained from the evaluations outlined above (3a through 3c), the Oregon Department of Transportation (ODOT), Tri-Met and affected local jurisdictions should:

(a) Design proposed interim highway and transit improvement projects in the Southern Corridor to allow for future construction of the protected LRT alignments in the McLoughlin Blvd. and the Hwy. 224/I-205 Subcorridors;

(b) Examine and preserve (as necessary) right-of-way opportunities as they become available in the Corridor; and

(c) Take the necessary planning and zoning actions to preserve the protected alignments from encroachment by other private or public development and take steps to minimize property access conflicts along segments of LRT that parallel existing streets (particularly on McLoughlin Blvd. south of Milwaukie).

B. McLoughlin Blvd. Projects North of Hwy. 224

1. Findings

a. Travel projections developed by Metro for the RTP indicate that 24-hour traffic volumes on McLoughlin Blvd. will average about 60,000 vehicle trips per day in the section north of SE Tacoma St. (the most constrained segment in the McLoughlin Subcorridor north of Hwy. 224). In addition, a significant number of these trips have eastside origin/destination points which are scattered throughout north, northeast and southeast Portland.

b. Metro analysis indicates that an additional (above existing capacity) 1950 peak-hour southbound vehicle trip capacity is needed to provide an adequate level of service (D) on McLoughlin Blvd. and remove 600 through vehicle trips from neighborhood streets.

c. The addition of two mixed traffic lanes (one in each direction) will provide only about one-half (900 vehicles per hour) of the required additional capacity.

d. Previous analysis indicates that the provision of an exclusive or priority bus/carpool facility (in addition to the two lanes of mixed traffic capacity) will provide the highest level of service on McLoughlin Blvd.

e. However, it is likely that the construction of an LRT facility in the median of McLoughlin Blvd. (if that proves to be the preferred alignment and route

if the inclusion of a lane is found to be the most viable alternative (in addition to the two mixed-traffic lanes) to achieve the project objectives, it is recommended that the HOV lane is designed to provide high quality transit operations through:

(1) Economical station location and design that allows for efficient passenger walk-on and transfer opportunities;

(2) Controls on auto occupancy that ensure an adequate level of service in the HOV lane; and

(3) Priority treatment (if feasible) for buses over carpools;

f. Protection of future LRT construction by designing the bus/carpool lane(s) to be converted to LRT and/or reserving right-of-way for LRT (Map 1, No. 5) in the event McLoughlin Blvd. is selected as the preferred route north of Milwaukie;

g. Compatibility with the preferred East Marquam Interchange Project design;

h. Development of a program to increase ridesharing and to spread the peak demand; and

i. An examination of origin/destination patterns in the Sellwood/Eastmoreland area and development of a series of projects to discourage through trips from infiltrating adjacent neighborhoods.

C. McLoughlin Project Package South of Hwy. 224

1. Findings

a. Previous Metro analysis concluded that the most critical traffic operations and safety problems in the section of McLoughlin Blvd. south of Hwy. 224 are expected to occur as a result of frequent access points, conflict between through traffic and turning movements, intersection constraints and signal delay.

b. In addition to a package of traffic operations projects, significant improvements in transit service and pedestrian amenities would be necessary to attract the ridership necessary to minimize traffic demands at the most constrained portion of McLoughlin Blvd. north of Hwy. 224. These transit improvements would also support the comprehensvive planning efforts of the local jurisdictions in the area which have proposed a land use development patterns surrounding McLoughlin Blvd. that is highly transit supportive.

2. Recommendations

ODOT, Tri-Met and the affected local jurisdictions should proceed with the design and implementation of a package of transit and highway improvement projects in the McLoughlin Corridor south of Hwy. 224 to include:

a. Provision of high-quality trunk route bus service connecting Oregon City with Milwaukie and Clackamas Town Center (Map 1, No. 7);

b. Traffic operations improvements (i.e., signal intertie and channelization of traffic) on McLoughlin Blvd. from Hwy. 224 to I-205 to reduce turn conflicts and improve traffic progression (Map 1, No. 17);

c. Provision of bus priority facilities for trunk route bus service between Milwaukie and Gladstone (Map 1, No. 8);

d. Development of major transit stops at key points along the preferred McLoughlin bus trunk route for feeder bus transfers and walk-on access to support Clackamas County plan designations for high density development (Map 1, No. 7);

e. Development of timed-transfer transit stations in Milwaukie and the Oregon City area to provide a focus for local feeder bus routes and a transfer point to trunk route service (Map 1, Nos. 10 and 15);

f. Implementation of park and ride facilities south of downtown Milwaukie on McLoughlin Blvd. and east of Milwaukie on Hwy. 224 to intercept auto traffic and support the trunk route system (Map 1, No. 9);

g. Development of an expanded Oregon City park and ride lot located either south of the PTC Bridge or in the vicinity of the Clackamas River Bridge and served by the McLoughlin Subcorridor bus trunk routes that will intercept auto traffic in the Oregon City Bypass/I-205 junction area (Map 1, No. 15). This effort should include the following activities:

   (1) Reconstruction (if feasible) and purchase of the PTC Bridge across the Clackamas River to accommodate trunk route buses connecting Oregon City with both Milwaukie and the Clackamas Town Center (Map 1, No. 12);

   (2) Upgrading of Abernethy Lane (if feasible) to accommodate trunk route buses between McLoughlin Blvd. and Gladstone (Map 1, No. 13); and

(3) Provision of an auto access route from the Oregon City Bypass/I-205 junction to the park and ride (in the event the park and ride is located adjacent to McLoughlin Blvd.); and

h. Protection of future LRT construction by (1) siting and designing transit stops, stations and park and ride lots for conversion to LRT, and (2) negotiating with the Tri-Cities Sewer District to reserve the necessary right-of-way to preserve (if feasible) an LRT route into Oregon City via the PTC Bridge.

D. Portland Traction Company Right-of-Way

1. Findings

a. The PTC right-of-way between the Hawthorne Bridge and I-205 in Oregon City is a potential route for the construction of LRT in the long-term.

b. All McLoughlin Blvd. Subcorridor LRT route options would pass through a major transit station located in Milwaukie. Therefore, all route options north of the Milwaukie station would be independent of, and compatible with, all route options south of the station.

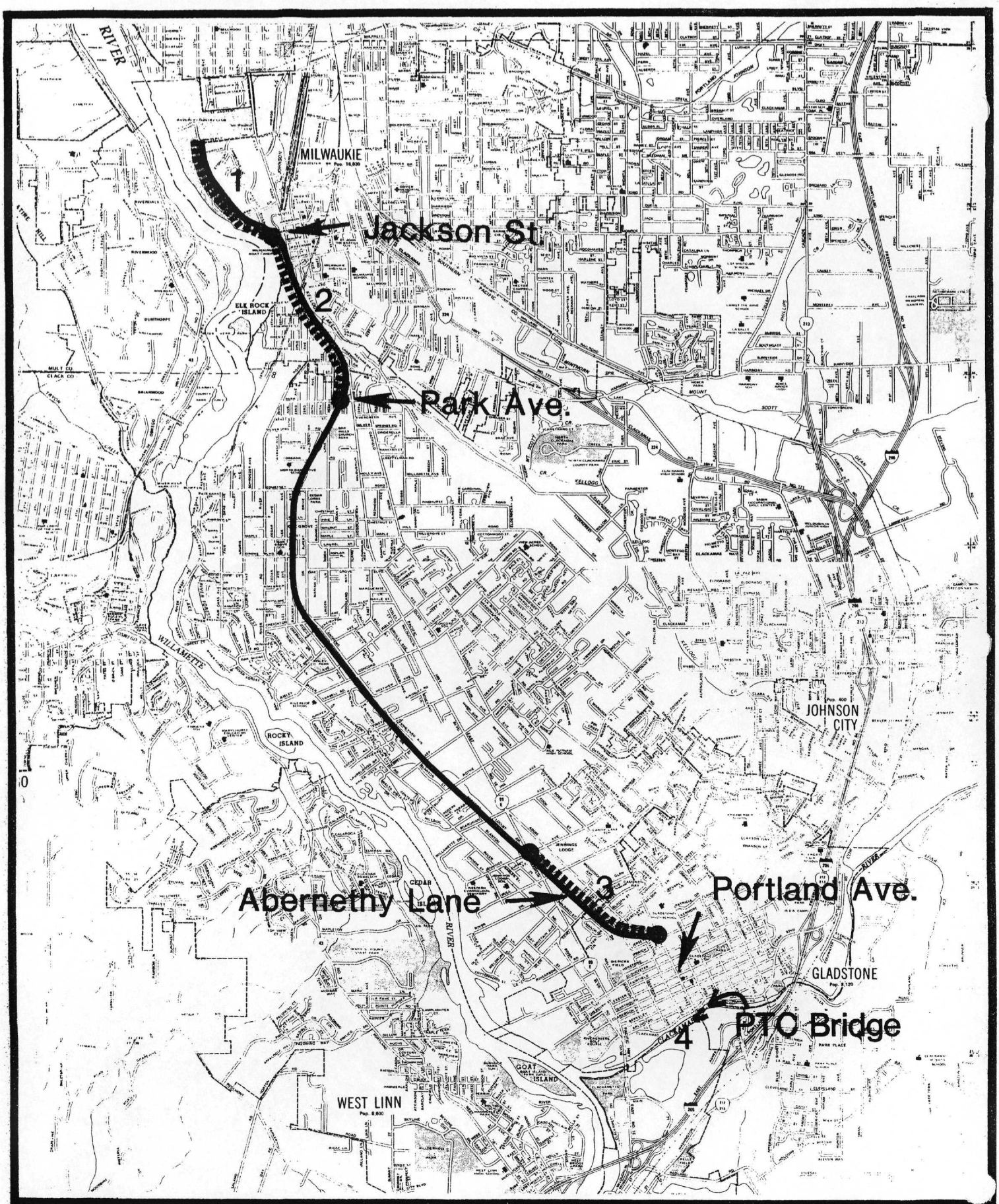
c. At the present time, the only portion of the PTC right-of-way for sale extends from the Waverly Country Club south to the vicinity of I-205.

d. The section of available PTC right-of-way from the Waverly Country Club to Jackson Street in Milwaukie (Map 2, No. 1), is necessary to protect one of several LRT route options between Portland and Milwaukie.

e. At least two significant LRT corridors exist to connect Milwaukie and Oregon City: (1) the Milwaukie Blvd. Subcorridor, and (2) the Hwy. 224/I-205 Subcorridor. In the McLoughlin Blvd. Subcorridor, two alternative rights-of-way were examined, McLoughlin Blvd. and the PTC right-of-way, to determine the most appropriate location for LRT and, therefore, which portions (if any) of the PTC right-of-way to purchase.

f. In the Subcorridor segment from Jackson St. to Park Ave., the McLoughlin Blvd. and the PTC right-of-way are adjacent to each other and would provide similar benefits.

g. In the Subcorridor segment from Park Ave. to Abernethy Lane, the McLoughlin Blvd. route is



METRO

—— PTC Right of Way Available
..... Segments Recommended for Purchase

Map 2
June 1980

preferred because it offers superior service potential with a minimum of disruption.

h. In the Subcorridor segment from Abernethy Lane to I-205, the PTC right-of-way route is preferred because it appears to provide better operations and service potential, especially to Gladstone and the Oregon City Bypass/I-205 junction area (for a potential park and ride lot location).

2. Recommendations

In order to protect for the future development of LRT in the Southern Corridor, Tri-Met should:

a. Negotiate the purchase of the portion of the available PTC right-of-way between the Waverly Country Club and Jackson St. (in Milwaukie) in the event LRT along the PTC right-of-way north of Milwaukie is the preferred LRT alignment (Map 2, No. 1);

b. Negotiate the purchase of three portions of the PTC right-of-way south of Milwaukie to protect this alignment option for future construction when it is feasible in the event McLoughlin Blvd. is the preferred LRT route between Milwaukie and Oregon City: (1) between Jackson St. and Park Ave. (along McLoughlin Blvd.) (Map 2, No. 2); (2) between McLoughlin Blvd. and Portland Blvd. along Abernethy Lane (Map 2, No. 3) (this segment is also necessary to upgrade the roadway for trunk route bus service); and (3) the PTC Bridge across the Clackamas River (Map 2, No. 4) (the bridge is also under consideration for use as a bus-only bridge); and

c. Negotiate with the Tri-Cities Sewer District to reserve necessary right-of-way south of the Clackamas River (Map 1, No. 14) to (1) preserve the LRT route into Oregon City; (2) site the Oregon City park and ride in the vicinity of the Oregon City Bypass/I-205 junction area; and (3) provide a connection for buses from the park and ride location to the PTC bridge over the Clackamas River.

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METROPOLITAN SERVICE DISTRICT
527 S.W. HALL ST., PORTLAND, OR. 97201, 503/221-1646

METRO

MEMORANDUM

Date: August 5, 1980

To: JPACT

From: Metro Staff

Regarding: Status of Air Quality Analysis

I. Background

Amendments to the 1977 Clean Air Act require that nineteen transportation control measures be evaluated in each Air Quality Maintenance Area (AQMA) not complying with federal ambient air quality standards. Because the Portland/Vancouver AQMA exceeds both federal and state ozone standards, the nineteen control measures were examined by Metro, DEQ, and the Portland Air Quality Advisory Committee.

The following were identified some time back as having the highest potential to reduce mobile source emissions in the Portland metropolitan area:

Inspection/Maintenance
Carpool/Vanpool Programs
Traffic Flow Improvements
Expanded Bicycle Programs
Expanded Public Transit
Additional Park and Ride Lots
Parking Restrictions
Combination of Strategies

II. Needed Emission Reductions

To analyze the alternative control measures, Metro refined its transportation/air quality techniques to more accurately assess emission reductions from each alternative. Because the new methods differed so widely from the methods used in 1979 to produce the State Implementation Plan, the base-case emission inventories were rerun. The resulting inventories are:

	Hydrocarbon Emissions (kg/day) 1977	1987
Stationary	101,200	87,420
Mobile	135,450	62,340
TOTAL	236,650	149,760

To attain the federal ozone standard by 1987, as required in the Clean Air Act, a 50 percent reduction (118,320 kg/day) of the hydrocarbons emitted in 1977 is needed. Since by 1987 total hydrocarbon emissions are estimated to only be reduced by 37 percent (86,890 kg/day), an additional 31,440 kg/day reduction is needed through control strategies.

Highway sources are estimated to account for 34 percent of hydrocarbon emissions in 1987. If all sources were to reduce their emissions proportionately, then emissions from highway sources would need to be reduced by 10,700 kg/day.

III. Effectiveness of Alternatives

A. Direct Emission Controls

1. Inspection/Maintenance: The 1987 base case assumes that Portland will have a biennial I/M program and Clark County an annual I/M program. If Portland were to implement an annual I/M program in 1982, hydrocarbon emissions in 1987 would be reduced by an additional 5,940 kg/day.

B. Programs to Improve Speeds

1. Ramp Metering: Ramp metering was identified as the only traffic flow improvement that would have a significant impact on regional emissions. Ramp metering was assumed for I-5 in Portland and Clark County, the Sunset Highway, and the Banfield Freeway. The total estimated reduction for a ramp-metering program is 530 kg/day.

C. Incentives to Reduce Travel

1. Expanded Public Transit Service: Tri-Met and the transit authority in Clark County have adopted short-range Transit Development Plans. It should be noted, however, that all of the monies required to fund the proposed service improvements have not yet been secured. The hydrocarbon emission reduction resulting from implementation of the new transit services called for in these plans would be an additional 1,590 kg/day.

2. Park and Ride Lots: The Transit Development Plans call for a substantial increase in Park and Ride lots by 1987. Fourteen lots in Oregon and five lots in Clark County are projected, having a total of 4,669 spaces. The estimated emission reduction from these lots is 80 kg/day.

D. Combination Incentive/Disincentive Programs

1. Priority Parking for Carpools: This strategy assumes that all persons who drive alone to work would be penalized by

having to park further away from their place of employment than those who carpool. If all persons who drive alone would walk five extra minutes to get to their job location, and those who use transit or carpools would have direct access to their employment sites, the hydrocarbon reduction would be 2,420 kg/day.

E. Disincentives to Reduce Travel

1. $1.00 Surcharge on Work Trips: If each person driving alone to work were to be required to pay a $1.00 surcharge, 910 kg/day would be reduced as a result of shifts to transit and carpooling.

2. High Gasoline Price: If the price of gasoline were to rise to $2.90 (in 1980 dollars), travel behavior would change to the degree that hydrocarbon emissions would be reduced by 3,130 kg/day.

F. Attitude Changes

If basic attitudes toward driving alone would change, additional gains could be made through increased carpooling/vanpooling and bicycling.

1. Carpool/Vanpool: The effect of changed attitudes, which would result in more car and vanpooling, was estimated by first identifying work trip movements which would likely shift to pools (i.e., longer trips, trips to larger employers, and trips where other potential poolers are making the same movement). On each of the selected movements, a percentage of the work trips were assumed to be converted to car and vanpools. The results are summarized in the following table:

Assumed Percent in:		Hydrocarbon
Vanpools	Carpools	Reduction (kg/day)
5%	40%	1,610
9%	60%	2,210
15%	80%	2,770

2. Bicycling: If more commuters were to change their attitudes about bicycling to work, additional savings would result. Metro tested three scenarios for 1987. They ranged from a low scenario of bicycle work trips being 3.6 percent of the eligible trips (drive-alone trips to work under 9 miles long), to a medium scenario of 5.8 percent, to a high scenario of 11.2 percent. The net emission reduction from these trips would be 100, 200, and 500 kilograms/day, respectively.

G. Additional Strategies

Additional transportation control strategies have been suggested by the Air Quality Advisory Committee for consideration. They are:

1. Free-fare transit during the off-peak hours.
2. Consolidation of non-work trips.
3. $1.00 surcharge for shopping trips.
4. 10% switch of fleet to electric vehicles.
5. Increased use of bicycles for non-work trips.
6. Four-day work week.
7. Increased use of commercial delivery vehicles for shopping centers.

Following further discussion with the Advisory Committee's Ozone Subcommittee, several of these strategies will be analyzed.

H. Combination of Strategies

The above strategies have been analyzed independently. This was done to get an idea of the relative effectiveness of each strategy. However, when a number of strategies are implemented at the same time, the total reduction is not necessarily the sum of the reductions from each individual strategy. A simple example of this is that when I/M is implemented, emission rates drop. Therefore, when strategies which reduce trips are combined with an annual I/M program, fewer emissions will be reduced even though the same number of trips will be removed. Therefore, the credits from the trip reducing strategy will be less than was originally estimated.

Once a package of control strategies has been chosen, Metro will rerun the transportation and air quality techniques to determine the combined effectiveness of the strategies.

SUMMARY OF EFFECTIVENESS OF ALTERNATIVE CONTROL MEASURES

	Hydrocarbon Reductions (kg/day)
A. Direct Emission Controls	
1. Annual Inspection/Maintenance for Oregon	5,940
B. Program to Improve Speeds	
1. Ramp Metering	530
C. Incentives to Reduce Travel	
1. Expand Public Transit Service	1,590
2. Park and Ride Lots	80
D. Combination Incentive/Disincentive Programs	
1. Priority Parking for Carpools	2,420
E. Disincentives to Reduce Travel	
1. $1.00 Surcharge for Work Trips	910
2. High Gasoline Price ($2.90/gallon)	3,130
F. Attitude Changes	
1. Carpool/Vanpool	
5% Vanpools/40% Carpool	1,610
9% Vanpools/60% Carpool	2,210
15% Vanpools/80% Carpool	2,770
2. Bicycling	
3.6% Bicycling	100
5.8% Bicycling	200
11.2% Bicycling	500

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TABLE 1

SUMMARY OF EFFECTIVENESS
OF ALTERNATIVE CONTROL MEASURES*

	Hydrocarbon Reductions (kg/day)
A. Direct Emission Controls	
1. Annual Inspection/Maintenance for Oregon	5,940
B. Program to Improve Speeds	
1. Ramp Metering	530
C. Incentives to Reduce Travel	
1. Expand Public Transit Service	1,035
2. Park and Ride Lots	80
D. Combination Incentive/Disincentive Programs	
1. Priority Parking for Carpools	2,420
E. Disincentives to Reduce Travel	
1. $1.00 Surcharge for Work Trips	910
2. High Gasoline Price ($2.90/gallon)	3,130
F. Attitude Changes	
1. Carpool/Vanpool	
5% Vanpools/40% Carpools	1,610
9% Vanpools/60% Carpools	2,210
15% Vanpools/80% Carpools	2,770
2. Bicycling/Work Trips	
3.6% Bicycling	100
5.8% Bicycling	200
11.2% Bicycling	500
3. Bicycling/Non-work Trips	540
G. Free Fare Transit in Off-Peak	1,150
H. Trip Consolidation	
1. Scenario 1	530
2. Scenario 2	710

*Transportation's goal would be 10,700 kg/day if all sources reduced their emissions proportionately in 1987.

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