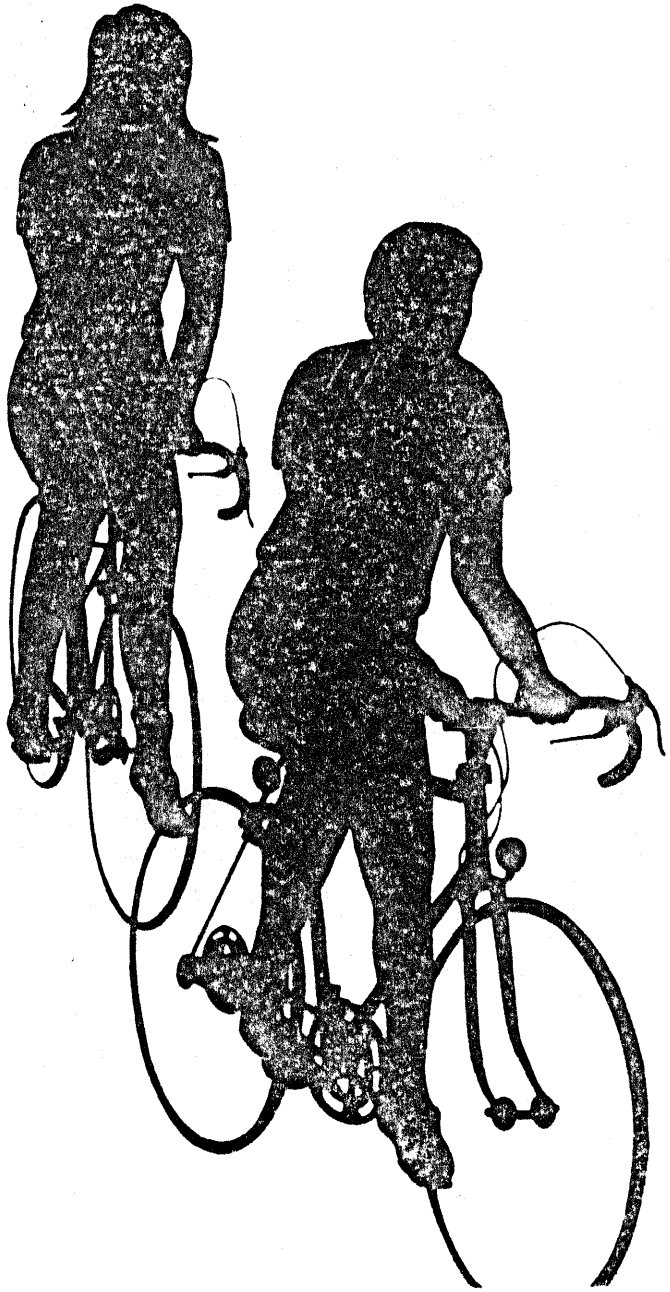
CITY AND BOROUGH OF JUNEAU
BICYCLE PLAN



Adopted 2/1/78

CITY AND BOROUGH OF JUNEAU
JUNEAU TRAIL PLAN
BICYCLE FACILITIES

OVERVIEW

The Juneau Bicycle Plan is a summary and guide for the development of a local bicycle trail system by the City and Borough of Juneau. It is written with the hope of coordinating efforts between private groups and public agencies to develop a trail system which will benefit all the citizens of the City and Borough of Juneau. There are four levels of ownership in the Juneau area: City and Borough, Federal, State, and private. Before an effective trail system is developed in Juneau, cooperation among these four levels will be essential.

Compounding the complex land ownership problem is Juneau's rugged topography. The land upon which trails can be built is limited by the water frontage and the very steep mountainsides. Though these factors are limiting, they offer aesthetic qualities and variety to the proposed Juneau Bicycle System seldom available in other communities.

The Juneau Bicycle Plan was written to provide a basis upon which trails for recreation and transportation can be developed and coordinated between the private and public sectors. It is the outline for action on the trail development by the Juneau City Borough Government.

There are more bicycles (8,500) than cars (7,050) in Juneau*. Sixty-five percent of the population in all age classes including senior citizens ride bicycles in the area*. Bicycling is an activity which is both enjoyable and utilitarian. Recognizing differences in the above two uses, the Juneau Bicycle Plan has used three distinct types of bicycle facilities. Trails developed for the recreation oriented bicyclist are placed in aesthetic areas and are not necessarily goal oriented. The transportation or utilitarian oriented bicycle trails are designed to be the easiest, most direct routes to areas such as schools, shopping centers, and high density work centers.

Children, being the largest group of bicycle users, are the most likely to be affected by the unsafe riding conditions which occur throughout the area. Safety was the primary concern and deterrant for great bicycling participation mentioned by the respondents to the Juneau Trail Survey. The State of Alaska's Department of Education has just recently funded and distributed a publication on bicycle safety to be used by elementary schools throughout the State in their regular curriculum.

* Juneau Trail Survey

BICYCLES AS AN ALTERNATIVE

"Perhaps the bicycle is beconing the dawn of a new age, not a regression to the time when roads were built for bicycles and there were no cars, but the beginning of a more liveable world where people are truly free--free of needless dependence on the automobile, free of air pollution alerts and oil spills, free of the need for diets and tranquilizers, free to enjoy the untainted beauty that is their world." From Master Plan of County Wide Bikeways for Orange County, Amendment #4.

One of the goals of the bicycle plan should be to provide an alternative to motorized transportation. Using the bicycle as an alternative would have these benefits: physical fitness of the participant, lower consumption of scarce fuel resources, and reduction of congestion and downtown Juneau parking problems. Bicycle transportation routes have been identified as the top priority in development of the bicycle system in the City and Borough of Juneau by the Mendenhall Planning Council and the citywide Trail Committee. These route priorities are listed in the following pages:

GLOSSARY

Classification of bicycle facilities:

Class I: Bike path. An exclusive right-of-way for bicycles. Generally, these facilities are located in parkland and have limited practicality in densely populated areas where land costs are high.

Class II: Bike lane. This provides for exclusive use of only a portion of a roadway or sidewalk. The bike lane may be between the right-hand travel lane and the curb or between the right-hand travel lane and the parking lane. Bicycles and cars are separated by a curb and by lines painted on the pavement. Lanes are created on both sides of the highway.

Class III: Bike route. Bicycles and cars share the right-of-way in this class of facility. Public officials generally determine which streets have low enough traffic volumes to be safe for bicycles. Signs marking these streets signal cyclists that they should have less automobile interference and warn automobile drivers that a high volume of bicycle traffic may be present.

CRITERIA FOR SELECTING CLASS I, CLASS II, AND CLASS III BICYCLE FACILITIES

Criteria used to determine whether a specific roadway needed a Class I, Class II, or Class III bicycle facility were:

(1) the existing physical and design features of the roadway.
(2) the volume type and speed of the motorized traffic.
(3) the estimated number of bicycle users and type of users.
(4) The number of bicycle and/or motor vehicle accidents resulting in injuries and fatalities.

The following chart summarizes the features which indicate a need for a Class I, Class II, or Class III bicycle facility.

Class I Bicycle Facility	Class II Bicycle Facility	Class III Bicycle Facility
Existing Design blind curves, no road	Existing Design blind curves, dips in roadway, no shoulder, gravel road	Existing Design broad curves, long direct vision, broad shoulder paved road
Traffic 3,500 cars or more per day, high percentage of trucks, vehicle speed greater than 35 mph, no traffic	Traffic 3,500 or more cars per day, high percentage of trucks, vehicle speed greater than 35 mph	Traffic less than 3,500 cars per day, few or no trucks, vehicle speed less than 35 mph
Bicyclists bicycling for the purpose of recreation, present volumes undetermined, potential volume	Bicyclists bicycling for the purpose of transportation, present volumes undetermined, potential volume	Bicyclists bicycling for the purpose of residential play, present volumes determined, potential volume
Accident Rates high number of injuries and fatalities, no injuries or fatalities	Accident Rates high number of injuries and fatalities	Accident Rates low number of injuries and fatalities

NOTE: These criteria are suggested lists to be able to make a judgement by those officials responsible. More study needs to be done to establish criteria warrents for selecting what class of bicycle facilities are needed in specific cases.

PROPOSED CLASS I, CLASS II, AND CLASS III BICYCLE FACILITIES

GLACIER HIGHWAY (Juneau to Mendenhall Loop Road)

I. Existing Design: The road has narrow shoulders with many blind, sharp curves and dips in the roadway.

II. Traffic: The volume of traffic since completion of Egan Drive shows little use of this Highway. The one area, however, that differs in traffic volume is from Lemon Road to Sunny Point access, where 2,257 vehicles per day travel this section.

III. Bicyclists: Transportation bicycling will occur; however, a great deal of riding will be recreational oriented.

IV. Accidents: Since 1971, there have been a total of 9 accidents. Seven involved pedestrian injuries and one involved a bicycle injury. One was a no-injury accident.

Recommendations: Since Egan Drive has taken the present volume of traffic down considerably on this highway, a Class III Bike Route is possible for the Glacier Highway, except for the Lemon Road to Sunny Point Access Road Class II or Class I, and along the Twin Lakes area where the Twin Lakes Master Plan shows a Class I Bike Path is needed. Also, a Class I bike facility should be added from the Old Dairy Road to Sunny Point Access Road.

Priority: This route and path is the first priority.

DOUGLAS TO JUNEAU

I. Existing Design: This area concerns itself with the intersection at Egan and 10th across the Juneau-Douglas Bridge to Douglas. This is a narrow highway with a narrow bridge across the Gastineau Channel. Vision is limited due to dips in the road. There are little or no shoulders.

II. Traffic: Traffic averages 5,400 vehicles per day. The Juneau-Douglas Bridge averages 7,700 vehicles per day. The average speed limit is 40 mph but varies at the school zones (20 mph). Vehicle use is primarily automobiles.

III. Bicyclists: The Juneau Citizen Trail Survey indicated there would be a high percentage of bicycle commuters if a lane were provided along this highway.

IV. Accidents: Since 1971 there has been a total of two accidents along this highway, one being a pedestrian injury accident.

Recommendations: Due to the lack of shoulders, volume of traffic, bicycles provide an alternate means of traffic to the automobile between Juneau and Douglas, a Class II Bike Lane is highly recommended. The Department of Transportation currently, in their proposed construction of the Juneau-Douglas Bridge, has two six-foot lanes for bicycle use exclusively. Reconstruction of the Douglas Highway from the bridge to Douglas is currently being planned by the State Department of Transportation and two eight-foot shoulders would be provided for bicycle use under their existing plans.

Priority: #2

GLACIER HIGHWAY (Intersection from Egan and Loop Road to Auke Bay Ferry Terminal):

I. Existing Design: Egan Drive changes from a four-lane to a two-lane at the beginning of this section. The road from that point is narrow, has little or no shoulders, has broad curves, and little dips.

II. Traffic: The Auke Bay Ferry Terminal to the Back Loop Road intersection averages 2,100 vehicles per day and from that point to the four-lane averages 5,000 vehicles per day. The legal speed limit is 55 mph. Recreation motor traffic will probably increase on this road in the future.

III. Bicyclists: The use of bicycles along this section of road would be a combination of recreation and transportation.

IV. Accidents: Since 1974 there have been a total of 6 accidents. One is known to be a pedestrian accident with an injury and one was a no-injury bicycle accident.

Recommendations: A continuation of the Loop Road Class I Bike Path should be made to the point where the four-lane merges in with the two-lane, at which time the bicyclist would merge onto a Class II Bike Lane and the lane continue to the Auke Bay Ferry Terminal.

Priority: #3

NORTH DOUGLAS ROAD:

I. Existing Design: This road consists of very broad curves, road dips, two-foot paved shoulders on the old section of road, and on the new road there are no shoulders on which to bicycle.

II. Traffic: From the Juneau-Douglas Bridge to Eagle Creek Trailer Court there are 3,200 vehicles per day; from the Trailer Court to mile 5.5 there are 720 vehicles per day; and from Fish Creek to the end of the road there are 305 vehicles per day. The legal speed limit is 45 mph.

III. Bicyclists: Purpose for bicycling on this section includes transportation and recreation. Recreational bicycling along this highway is quite extensive.

IV. Accidents: Since 1974 only one injury related accident along this highway.

Recommendations: Due to the traffic volume and high use of this highway by bicyclists currently, a Class II bicycle lane is needed from the Juneau-Douglas Bridge to Mile 7, Fish Creek Road. Beyond this point, a Class III Bike Route would be sufficient due to the improved road design and lower traffic volume. Possibility of developing a bicycle lane to the end of the North Douglas Road would be a long range goal and should be looked at if residential development along North Douglas continues to expand.

Priority: #4

BACK LOOP ROAD

I. Existing Design: The back Loop Road has a combination of bridges, sharp curves, dips in the road, and is narrow in points.

II. Traffic: The intersection of the Back Loop Road and the Loop Road has approximately 1,650 cars per day travelling through that intersection and from that point on the Back Loop Road drops drastically in the amount of traffic travelling on it, down to an average of 150 cars per day. The legal speed limit is 40 mph.

III. Bicyclists: The use of bicycles along this road currently would be more recreational than transportation. However, if residential growth continues to expand the relationship will even out between recreation and transportation.

IV. Accidents: No accidents have been reported along the Back Loop Road since 1974.

Recommendations: A Class II Bike Lane should be made available along the Back Loop Road with eight-foot shoulders along the highway on both sides from the intersection of the Mendenhall Loop Road to Auke Bay. A Class II Bike Lane along this highway is a planned development by the State of Alaska, Department of Transportation for the reconstruction of this highway.

Priority: #5

SUNNY POINT ACCESS TO THE OLD DAIRY ROAD

I. Existing Design: This area consists of various types of soils along the Gastineau Channel and Egan Drive.

II. Traffic: Currently there is no traffic along this proposed section.

III. Bicyclists: The purpose for bicycling along this area would be recreational as well as transportation, allowing the bicyclist to enjoy the beauty of the wetlands and provide an alternate means of transportation to the airport area.

Recommendations: A Class I Bike Path should be constructed along this section (approximately 1 mile long).

Priority: #6

MENDENHALL RIVER

I. Existing Design: This area consists of various types of soil conditions along the Mendenhall River for a recreational bicycle path.

II. Traffic: Currently there is no traffic except for foot hikers along the river, except in areas where houses are constructed on the river frontage.

III. Bicyclists: The purpose for bicycling along this area would be purely recreational, allowing the bicyclist to enjoy the beauty of the wilderness.

Recommendations: Due to problems of land ownership on the east side of the River once the Lakewood Subdivision is reached, the approach for a bicycle path along this stretch could be one of two ways: (1) a Class I Bike Path that would go up the east side of the River until you reach Montana Creek. At this point the Mendenhall River would be bridged and the bicycle path would be continued up the west side of the river to the Back Loop Road. (2) The other approach would be to go from the Brotherhood Bridge Park Site on the west side of the River from the Glacier Highway to the back Loop Road. The City/Borough should be looking at selecting State lands available along the river through the State Land Selection.

Priority: #7

CLASS I, CLASS II, AND CLASS III BICYCLE FACILITIES FOR JUNEAU

CBJ (City/Borough of Juneau) DOT (Department of Transportation)

Class I Bicycle Paths	Miles	Agency Responsible
Twin Lakes Bike Path	1.02	CBJ
Egan Drive/Mendenhall Loop Road to end of four-lane highway	.5	ADOT
Mendenhall River Bike Path	5.	CBJ
Old Dairy Road to Sunny Point Access	1.	ADOT
Total Miles managed by CBJ	7.02	
Total Miles managed by ADOT	.5	

Class II Bicycle Lanes		
Bike lanes from the intersection past Gastineau School in Douglas to the Juneau-Douglas Bridge, Douglas Island Side	2.17	ADOT
From the Juneau-Douglas Bridge to Fish Creek Road	7.0	ADOT
Across Juneau-Douglas Bridge	.4	ADOT
From Lemon Road to the Juneau Maintenance Station, ADOT	3.6	ADOT
From the beginning of two-lane re-entry of Glacier Highway to Auke Bay Ferry Terminal	4.	ADOT
Back Loop Road from intersection of Loop Road to Auke Bay	4.	ADOT
Total Miles managed by CBJ		
Total Miles managed by ADOT	21.17	

Class III Bicycle Routes

As explained in the glossary, Class III Bicycle Routes are areas where bicycles and cars share the right-of-ways of the roadways. The concept of these routes is that streets are designated for routing that show lower traffic volume for the safety of the bicyclist and allows a system throughout a community to reach the goal-orientated points within the community. Juneau presents a unique problem in the Downtown area in that quite a few of the streets are narrow and very steep; thus, the recommendations below are to allow the bicyclist the best means of travel through the City to try to provide for the safety of the bicyclist when routing them

through the downtown area. Minimization of route signs gives the route more effect to the bicyclist, thus establishing a means of transportation to all areas of the City by a minimum amount of routing.

Class III Bicycle Route	Miles	Agency Responsible
Glacier Avenue at Troy Way to Twelfth Avenue	2500'	CBJ
Glacier Avenue from Twelfth, connection to Willoughby, continuing on to the Telephone Hill Tunnel	2800'	CBJ
Telephone Tunnel to Main Street	500'	CBJ
Main Street to Seward on Second	200'	CBJ
Second and Seward to Egan Drive on Seward	600'	CBJ
Egan Drive to Admiral Way	500'	ADOT
Admiral Way to Franklin	200'	ADOT
Franklin to Ferry Terminal	800'	CBJ
Thane Road from Ferry Terminal to end	.5 mile	ADOT
South Franklin from Admiral Way to Third Street	1200'	CBJ
Third Street, from Franklin to Main	500'	CBJ
Main Street, from Third to Telephone Hill Tunnel	300'	ADOT
Third Street to Gold Street	200'	CBJ
Gold Street to Fourth Street	400'	CBJ
Fourth Street to Harris	200'	CBJ
Harris Street to Sixth Avenue	400'	CBJ
Sixth Avenue to East Street	200'	CBJ
East Street on Basin Road to the Last Chance Basin	1. mile	CBJ
Twelfth Street to Cope Park	2000'	CBJ
Capital Avenue to Willoughby Avenue	1300'	CBJ
Tenth Street to Juneau-Douglas Bridge	1500'	CBJ
North Douglas Road, from Fish Creek to the end	600'	CBJ
Fish Creek Road	5.2 miles	ADOT
	5.2 miles	ADOT

The key to the downtown routing system is Telephone Hill Tunnel to be able to direct the bicyclist from the intersections of Willoughby and Egan Drive, and Main and Egan Drive.

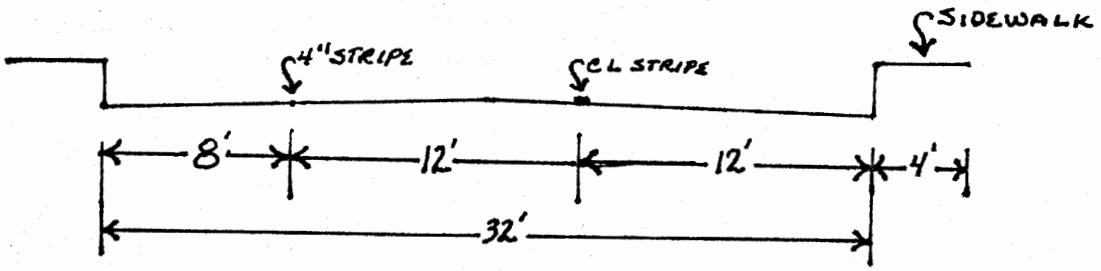
Class III Bicycle Route	Miles	Agency Responsible
Intersection of Old Dairy Road and Glacier Highway		CBJ
Old Dairy Road to Egan Drive	.02	CBJ
Across Egan Drive to the Continuation of the Old Dairy Road to Glacier Highway	.08	CBJ
Glacier Highway to Berner's Avenue	.04	ADOT
Berner's Avenue to Radcliffe Road	.02	CBJ
Radcliffe Road to Glacier Highway	.03	CBJ
Glacier Highway to Lee Smith Drive		ADOT
Lee Smith Drive to O'Day Drive	1200'	CBJ
O'Day Drive to Hurlock Avenue	1100'	CBJ
Hurlock Avenue to the Mendenhall Loop Road	400'	CBJ
Total Miles managed by CBJ	4.67 miles	
Total Miles managed by ADOT	15.63 miles	

ALTERNATIVE DESIGN FEATURES AND COSTS

The criteria for whether a specific area should be a Class I, Class II, or Class III bicycle facility was discussed earlier. Below you will find five alternative designs for typical construction of all three classes of bicycle facilities. These costs are examples of typical situations for which construction should take place. It should be recognized that these are average costs for construction of these types of facilities and each project will differ according to the specific design specifications needed for that facility. These are 1978-79 estimated costs for construction.

A. CLASS II

Bicycle lane on existing paved street at least 32' wide

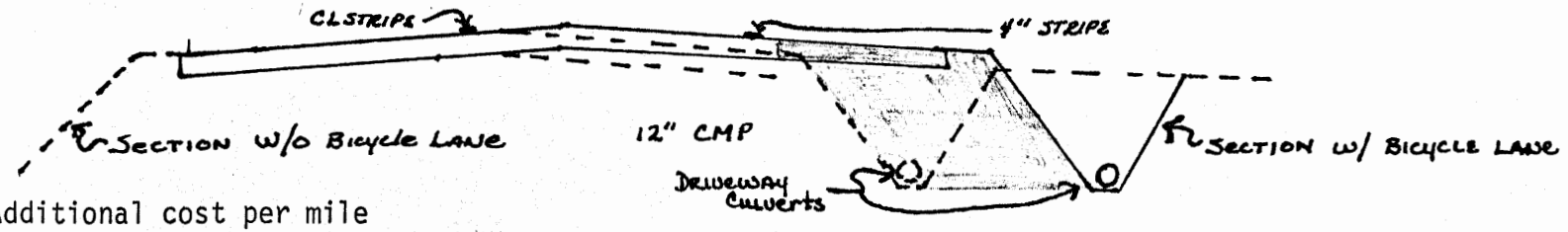


Cost estimate based on a typical Service Area #1 Block of 220 LF.

1.	Furnish and install new catch basin grates	2 ea @ $200.00	=	$400.00
2.	Stripe lane and center line	440 LF @ $ 0.12	=	$ 52.80
3.	Signs: standard green and white	2 ea @ $ 50.00	=	$100.00
4.	Posts: Installed	2 ea @ $100.00	=	$200.00
	Construction Cost			$752.80
	25% Engineering and Contingency			$199.48
	Project Budget			$952.28
	Budget per linear foot			$ 4.33

B. Class II

Bicycle lane on existing unpaved City/Borough of Juneau maintained Street.
Typical Valley street in conjunction with street upgrading.

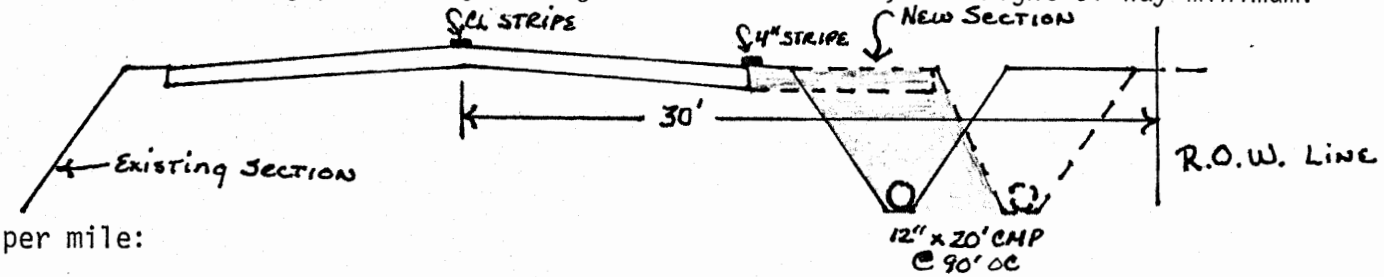


Additional cost per mile

1.	Earthwork	3,900 CY @ $ 3.00	=	$11,700
2.	Base Course	1,425 TN @ $ 18.00	=	$25,650
3.	Pavement	528 TN @ $ 70.00	=	$36,960
4.	___ and Lane Striping	10,560 LF @ $ 0.12	=	$ 1,270
5.	Signs and Posts Installed	5 ea @ $100.00	=	$ 500
	Construction Cost			$76,080
	25% Engineering and Contingency			$20,150
	Project Budget			$96,230
	Budget per linear foot			$ 18.23

C. Class II

Bicycle lane on existing paved City/Borough of Juneau Street, 60' right-of-way minimum.

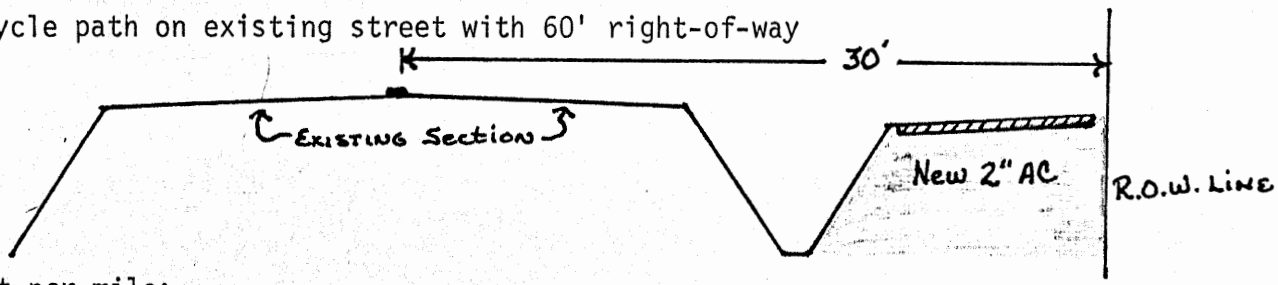


Cost per mile:

1.	Earthwork	3,900 CY @ $ 3.00	=	$11,700
2.	Relocate driveway culverts	1,200 LF @ $ 30.00	=	$36,000
3.	Pavement	528 TN @ $ 60.00	=	$31,680
4.	Stripe ___ and lane	10,560 LF @ $ 0.12	=	$ 1,270
5.	Signs and Posts Installed	5 EA @ $100.00	=	$ 500
	Construction Cost			$81,150
	25% Engineering and Contingency			$21,510
	Project Budget			$102,660
	Budget per Linear Foot			$19.44

D. Class I

Bicycle path on existing street with 60' right-of-way



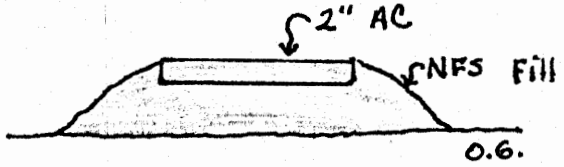
Cost per mile:

1.	Clearing & Grubbing	1.25	Acres	@ $8,000	=	$10,000
2.	Grading	5,867	SY	@ $ 2	=	$11,734
3.	Pavement	528	TN	@ $ 60	=	$31,680
4.	Signs and posts installed	10	EA	@ $ 100	=	$ 1,000
	Construction Cost					$54,414
	25% Engineering and Contingency					$14,419
	Project Cost					$68,833
	Budget per linear foot					$13.04

Applicable only with existing drainage

E. Class I

Bicycle path in greenbelt:



Cost per mile:

1.	Clearing and Grubbing	2	Acres	@ $8,000	=	$16,000
2.	NFS Fill	1,500	CY	@ $ 7	=	$10,500
3.	Pavement	528	TN	@ $ 60	=	$36,960
4.	Grading	9,400	SY	@ $ 2	=	$18,400
5.	Drainage fac.	400	LF	@ $ 40	=	$16,000
	Construction Cost					$97,860
	25% Engineering and Contingency					$25,940
	Project Budget					$123,800
	Budget per linear foot					$23.45

F. Class III Bike Route

Cost estimate on a typical service area #1 Block of 200 L.F.

1.	Furnish and Install new catch basin grates	2 ea @ $200	=	$400.00
2.	Signs: Standard Green and White	2 ea @ $ 50	=	$100.00
3.	Posts: Installed	2 ea @ $100	=	$200.00
	Construction Cost			$700.00
	25% Engineering and Contingency			125.00
	Total Project Costs			$875.00
	Budget per linear foot			$4.38

The limit of Federal-aid share of independent bicycle and pedestrian project costs is approximately 70%. A state may spend up to $2 million of Federal-aid funds in a fiscal year for independent bicycle and pedestrian facilities provided a nationwide total of $50 million annually is not exceeded. These funds are not a special authorization. The funds come directly out of those apportioned to each state for highways. Projects proposed for Federal-aid funding on the interstate primary and secondary systems are selected by the appropriate State transportation agency with consideration of state and local needs and desires.

III. State Trails and Footpath Grants

The State of Alaska, under the Division of Parks, has a State Trails and Footpaths Program that is 100% funding for bicycle and trail facilities. Application is made to the above mentioned State agency.

Sections I, II, and A/B were taken from the publication "Bicycle and Pedestrian Facilities in the Federal-Aid Highway Program,, U.S. Department of Transportation, Federal Highway Administration, Second Edition, August, 1977"