

MEMORANDUM

State of Alaska Department of Transportation & Public Facilities

TO: Sarah E. Schacher, P.E.,
Preconstruction Engineer
Northern Region

DATE: October 3, 2018

FILE NO: I:\Traffic
Data\Design\2018\DenaliHwy_NFHWY00128

**TELEPHONE
NO:** 451-5150

FROM: Judy Chapman
Planning Chief
Northern Region

SUBJECT: Denali Hwy MP 25 Rock Creek Bridge
Replacement 0750015/NFHWY00128
Design Designation Request

Please approve the attached design designation by signing the endorsement below which enables your staff to proceed.

Any questions should be directed to Scott Vockeroth at 451-2251.



10/8/2018

Sarah E. Schacher, P.E., Preconstruction Engineer

Date

cc: Isadora L. Fanning, P.E., Engineering Manager, Northern Region

Attachment

Please circulate and return to Traffic Data & Forecasting Manager	
Planning Manager (outside FNSB)	MLC
Planning Chief	MLC
Fairbanks Area Planner (FNSB)	
Traffic & Safety	PLJ
Any changes, additions, or questions, Please write on this sheet	

DESIGN DESIGNATION
Northern Region Planning
Traffic Data & Forecasting

ROUTE NAME: Denali Hwy
STATE ROUTE NO: 140000
CDS MILEAGE: 24.8208-24.8328
FUNCTIONAL CLASS: Major Collector
URBAN/RURAL: Rural

	YEAR	AADT	%	
AADT	2017	100		
	2035	110		
	2045	120		
DHV	2035		17.80	20
	2045			25
D				40-60
T			14.40	Total
			0.45	Class 4
			10.40	Class 5
			0.75	Class 6
			1.30	Class 8
			1.10	Class 9
			0.30	Class 10
		0.10	Class 13	
ESAL'S (Design Lane)	To Be Provided by Design			

MEMORANDUM

State of Alaska
Department of Transportation & Public Facilities
Northern Region Design and Engineering Services

TO: Judy Chapman.
Planning Chief
Northern Region

DATE: September 25, 2018

FILE NO: H:\Projects\Denali_Hwy\00128_Rock_Creek_Brdg\6 Design\1
Design Criteria\

THRU: Sarah E. Schacher, P.E.
Preconstruction Engineer
Northern Region

PHONE NO: (907) 451-5379

FAX NO: (907) 451-5126

FROM: Isadora L. Fanning, P.E.
Engineering Manager
Northern Region

SUBJECT: Denali Highway MP 25 Rock
Creek Bridge Replacement
0750015/NFHwy00128
Design Designation Request

Please provide a Design Designation for the subject project.

- Present AADT
- Design Year AADT (2045)
- Mid-Design Period AADT (2035)
- Design Hourly Volume
- Directional Split
- Percent Trucks
- Design Functional Classification
- Intersection Turning Movement Counts at:
- Other (*Specify*)

Replace Rock Creek Bridge at approximately MP 25 of the Denali Highway. Work includes replacing Rock Creek Bridge and adjusting the grade of the existing road to match. The project is scheduled for construction in FY2021.

Please complete the attached Traffic Date Request Form.

Attachment: as stated

ilf/xxx

Traffic Data Request Form

TDR Form-1-10/20/03

Alaska Department of Transportation & Public Facilities



































Requested By: <i>Isadora Fanning</i>		Design Project Number: <i>0750915/NHwy92128</i>	Date Requested: <i>9/25/18</i>																		
Base Year: <i>2017</i> Base Year Total AADT: <i>100</i> AADT Growth Rate Forward (%/yr): <i>0.75</i> End Year: <i>2045</i> Back Cast (%/yr): Begin Year:		Common Route Name: <i>Denali Hwy</i> Functional Class: <i>Major</i> <i>Urban/Rural</i> <i>Collector</i>	CDS Route Name: <i>140000</i> <i>Denali Hwy</i> CDS M.P. Interval: <i>24.8208-</i> <i>24.8328</i>																		
<table border="1"> <thead> <tr> <th>Truck Category</th> <th>Load Factor (ESALs per Truck)</th> <th>% of Total AADT in Truck Category</th> </tr> </thead> <tbody> <tr> <td>2-axle</td> <td></td> <td></td> </tr> <tr> <td>3-axle</td> <td><i>See</i></td> <td></td> </tr> <tr> <td>4-axle</td> <td><i>attached</i></td> <td></td> </tr> <tr> <td>5-axle</td> <td></td> <td></td> </tr> <tr> <td>≥ 6-axle</td> <td></td> <td></td> </tr> </tbody> </table>	Truck Category	Load Factor (ESALs per Truck)	% of Total AADT in Truck Category	2-axle			3-axle	<i>See</i>		4-axle	<i>attached</i>		5-axle			≥ 6-axle			Lane Configuration Sketch: (Designer: Provide sketch of lane layout. Number each lane and show directions.) <div style="text-align: right;">↑ N</div>		
	Truck Category	Load Factor (ESALs per Truck)	% of Total AADT in Truck Category																		
	2-axle																				
	3-axle	<i>See</i>																			
	4-axle	<i>attached</i>																			
	5-axle																				
≥ 6-axle																					
Percent of Base Year Total AADT for Each Numbered Lane in Configuration Sketch:		Comments:																			
Lane # <i>1</i>	% <i>40</i>																				
Lane # <i>2</i>	% <i>60</i>																				
Lane #	%																				
Lane #	%																				
Lane #	%																				
Data Provided By: <i>Scott Yockerath</i>	Provider's Signature: <i>[Signature]</i>	Date Provided: <i>10/3/18</i>																			

Figure 6-1. Traffic Data Request (TDR) Form



Report Route Log
CDS Route DENALI HIGHWAY (140000)
From Milepoint 0
To Milepoint 50
Filter

FacilityType INTERCHANGE RAMP;NON-INVENTORY;WYE;SECONDARY FERRY ACCESS;ROUNDAABOUT;PRIMARY FERRY ACCESS;NON-INTERCHANGE RAMP;MAINLINE;CONNECTOR

Milepoint	Attribute	Side	Feature CDS	Description	Viewer
0	 Intersection	B	190000	RICHARDSON HIGHWAY	 
0	Functional Class	-	-	Start MAJOR COLLECTOR	 
0	FHWA Urban Area	-	-	Start RURAL AREA (RURAL)	 
0.1914	Traffic Station	-	-	36072000	 
0.2314	 Bridge Midpoint	U	-	GULKANA RIVER (0681)	 
0.3308	 Intersection	L	141100	DUMP ROAD	 
6.4687	 Intersection	R	141000	7 MILE LAKE ACCESS ROAD	 
21.3949	Traffic Station	-	-	30062000	 
21.4043	 Bridge Midpoint	U	-	TANGLE CREEK (0683)	 
21.4555	 Intersection	R	-	TANGLE LAKES CAMPGROUND ACCESS	 
24.8268	 Bridge Midpoint	U	-	ROCK CREEK (0684)	 
41.5931	Traffic Station	-	-	30063000	 
42.0623	 Bridge Midpoint	U	-	MACLAREN RIVER (0685)	 

Computations and Historical Data

Project: Denali Hwy MP 25 Rock Creek Bridge Replacement 0750015/NFHWHY00128

Historical AADTs

Link	Start CDS	Start Feature	End CDS	End Feature	Year									
					1980	1981	1982	1983	1984	1985				
1	0.000	Richardson Hwy	6.469	7 Mile Lake										
2	6.469	7 Mile Lake	21.456	Tangle Lakes										
3	21.456	Tangle Lakes	42.028	Maclaren River										

Link	Year														
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1		160	225	124	143	109	198	231		236	207	122	188	147	
2		135	151	121		93	188	240		251	202			149	
3			63	76		55	113	156		174	158			85	

Link	Year														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	119		125	49	97	104	114	89		122	115	95	85	88	86
2	142		134	106	129		109	130		109			103	103	74
3	73		78	73	52	72	71	62		77		68	56	52	40

Link	Year	
	2016	2017
1	75	99
2	91	89
3	49	45

Growth Rate: 0.75% Based on previous traffic patterns.

Growth Factors:	Year	Factor
	2035	1.144
	2045	1.233

Future AADT	Year	AADT
	2017	100
	2035	110
	2045	120

D Factor (30) 40-60

K-Factor (30) 17.80% Obtained from Continous Count at Gulkana Airport, MP 121 Richardson Hwy

Design Hourly Volume (DHV)

2035	20
2045	25

Class Data

Station ID	Station Description	MP	Year	Percent by Class								Total Truck %
				4	5	6	8	9	10	13		
30067000	Denali Hwy East Of Parks Hwy	0.191	2017	0.45	10.40	0.75	1.30	1.10	0.30	0.10	14.40	
	Load Factor			1.00	0.50	0.85	1.20	1.55	2.24	2.24		
	Number of Axles			2/3	2	3	4	5	6	7+		