

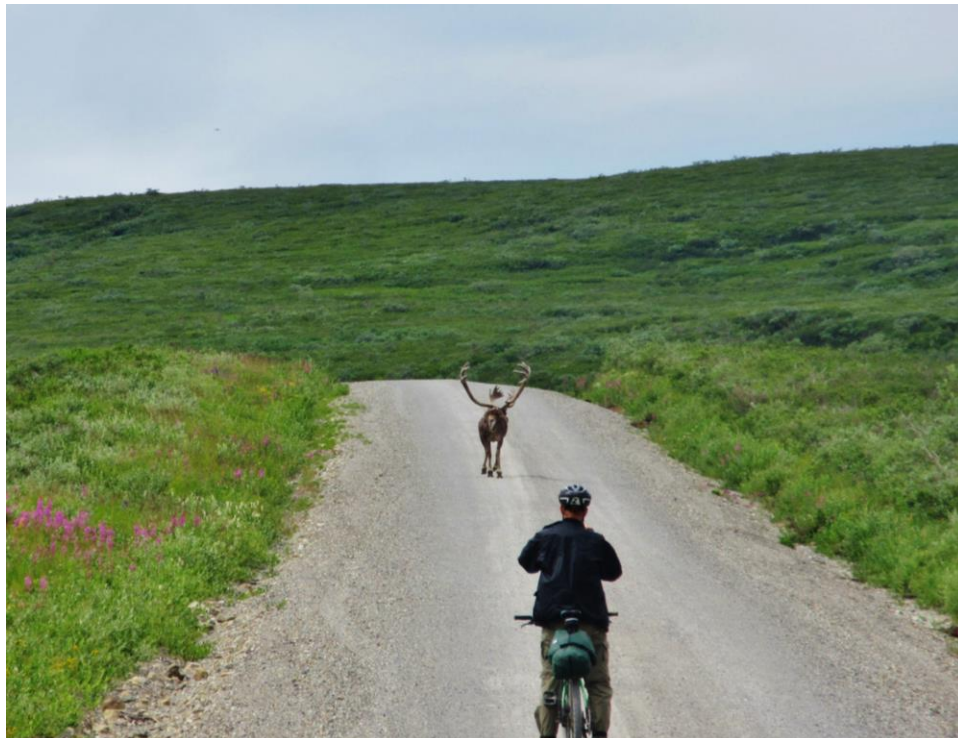


Denali Park Road Traffic Model – East Fork Bridge Closure Exercise

2020 Summary Report

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ON THE COVER

A cyclist stops to view an adult male caribou walking down the center of the Denali Park Road.
NPS Photo (A. Kirk)

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Executive Summary

The Denali Park Road Traffic Model was used to assess the effects of road closure scenarios on the desired condition standards established in the Vehicle Management Plan (VMP; NPS 2012). The scenarios assumed the road was closed to bus traffic at the East Fork Bridge (EFB, mile 43.2). Several variables were modeled, including bus turn-around locations, providing rest room facilities at the new terminus, and altering bus timing (including reduced and alternate schedules that spread traffic to balance morning and afternoon departures) and frequency, which resulted in 80 unique scenarios.

1. Every scenario met rest stop, viewscape, wildlife stop, and vehicle entrance standards;
2. No scenario met both sheep gap standards (mile 26, Hogan Creek, and mile 37, Tattler Creek);
3. Scenario 79 performed the best, which featured Long tours that terminated at Igloo campground on a 50% reduced Alternative schedule, Short Tours terminated at Primrose (mile 17) on a 50% reduced schedule, admin access beyond EFB and toilets near the EFB termination point;
4. Two scenarios performed a close second:
 - Scenario 61: Long tours terminated at Igloo campground on a 30% reduced Alternative schedule, Short Tours terminated at Primrose (mile 17) on a full (100%) schedule, admin access beyond EFB and toilets near the EFB termination point;
 - Scenario 63: Long tours terminated at Igloo campground on a 30% reduced Alternative schedule, Short Tours terminated at Primrose (mile 17) on a 30% reduced schedule, admin access beyond EFB and toilets near the EFB termination point;
5. Scheduling Short Tours to Primrose nearly tripled the percentage of days sheep gap standards were met at Hogan Creek (33% vs. 13%) compared to scheduling Short Tours to Tek Flat, and no scenario that scheduled Short Tours to Tek Flat met the Hogan Creek sheep gap standard by more than 53% (e.g. 53 out of 100 hours) of the time;
6. The majority of scenarios (64 of 80; 80%) met VMP standards for the mile 37 sheep gap (Tattler Creek) – the only scenarios that did not meet this standard scheduled Long Tours to EFB with no reduction in the quantity of Long Tours.

Acknowledgments

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Introduction

In 2012, the Denali Park Road Final Vehicle Management Plan and Environmental Impact Statement (VMP) established indicators and standards for monitoring the interaction between the transportation and ecological systems of Denali National Park & Preserve (DENA; NPS 2012). Based on biological and social science gathered over several years, the VMP leverages the best available science to manage visitor carrying capacity as required by NPS policy. VMP standards were established at levels intended to: 1) maintain high-quality visitor experiences; 2) protect wildlife and other park resources; and 3) maintain the historic and primitive character of the Denali Park Road.

About 10,000 vehicles from nearly 20 different user groups access the permit-controlled section of the park road annually. Behavior of user groups is varied, complex, and dependent upon random events (e.g. stopping for wildlife) whose effects cascade through the system. Predicting effects of changes to the transportation system (i.e. scheduling or traffic volumes) on the resource is impractical without the use of simulation models. DENA contracted the development of a discrete event, behavior-based, empirical simulation model (DBES) of the Denali Park Road transportation system. The DBES allows park management to assess the system under various scenarios and estimate the effects of changes within those scenarios on the resource without actually incurring those changes.

The DBES is constructed from several hundred related tables that describe vehicle (i.e. driver) behaviors based on vehicle type and how those behaviors interact with instances of wildlife viewing opportunities. In 2020, we modified the DBES to investigate the effects of a road closure at the East Fork Bridge (EFB, mile 42.3) on the desired conditions in the VMP. This exercise was conducted primarily to respond to persistent landslide threats in the Polychrome Pass section of the park road.

Methods

We modeled 80 unique combinations of variables (i.e. scenarios) through three iterations of decision-making using the Denali Park Road transportation model (DBES).

Bus Schedules

We used 2019 data from the Savage database to describe baseline timing and frequency of Short Tour and Long Tour buses and a combination of the 2020 schedule of VTS routes and 2019 data from the Savage database to describe baseline timing and frequency of VTS buses. Because VTS buses run as a scheduled service, they were modeled to occur daily at their advertised time. VTS double buses (buses that are added to the schedule by the concessionaire based on demand when specific day-route combinations are booked full) were included in this analysis based on the most immediately available data (Savage database 2013-2015). For scenarios 1-32 the 2020 VTS schedule was unmodified (except overnight buses were altered to be round-trip day trips); for scenarios 33-80 the 2020 VTS schedule was modified to more evenly distribute trips throughout the bus operating day based on the shorter service time and distance.

Departure times for Short Tour and Long Tour (collectively, Tour) buses were calculated, rounding to the nearest 15-minute increment. The maximum, minimum, and average number of Tour buses were used to define Tour schedules. Reduced Tour schedules were developed by calculating reductions to the 2019 maximum and 2019 averages. For example, if the Short Tour 2019 maximum and average equaled 30 and 20, respectively, under an 20% reduced schedule, the maximum equaled $(30 * 0.8)$, or 24, and the average equaled $(20 * 0.8)$, or 16.

Finally, an Alternative (differentiated from reduced) schedule was calculated for Long Tours by minimizing the number of Long Tour buses on the road at the same time (Appendix A).

Variables

Through three iterations of modeling, the following variables were tested: Long Tour destination (Teklanika rest stop, Igloo campground, East Fork Bridge); Short Tour destination (Primrose, Tek Flats); Long Tour schedule (full (100% - no change from 2019), 12% reduction, 10% reduction, Alternate 0% reduction (), Alternate 20% reduction, Alternate 30% reduction, Alternate 50% reduction); Short Tour schedule (full (100%), 12% reduction, 30% reduction, 50% reduction); administrative access (yes, no); toilets at EFB (yes, no); and Long Tour length of time stationed at TekRS (15 minutes, 30 minutes) (Appendix B).

Modeling

Eighty scenarios were tested and replicated between four and 30 times. Each replicate represents one 100-day season on the park road with all 100 days occurring during peak visitor season (approximately June 8 – August 5). Replicates results were averaged to assess a scenario's success rates of meeting VMP standards for rest stops (all vehicles), rest stops (buses), sheep gaps, viewscapes, wildlife stops, and daily vehicles. We defined the standards at the EFB rest stop using the same VMP standards as the Teklanika (TEK) rest stop (12-bus maximum and 16-vehicle

maximum). This is a model assumption as it is unknown what the actual termination point may be or what the vehicle capacity will be based on size and how many rest rooms are present.

Each scenario was scored based on its performance related to VMP standards:

1. If both rest stops (TEK and EFB) met VMP standards for total vehicles, the scenario was scored a “1”, otherwise it scored a zero;
2. If both rest stops (TEK and EFB) met VMP standards for total buses, the scenario was scored a “1”, otherwise it scored a zero;
3. If both sheep gaps (mile 21 and mile 37) passed 1-year VMP standards (90% success rate; e.g. 90 of 100 hours), the scenario was scored a “1”, if either sheep gap (mile 21 (Hogan Creek) or mile 37 (Tattler Creek)) passed 1-year VMP standards (90% success rate), the scenario was scored a “0.5”, otherwise it scored a zero;
4. If the mile 26 viewscape passed VMP standards, the scenario was scored a “1”, otherwise it scored a zero;
5. If wildlife stops passed VMP standards, the scenario was scored a “1”, otherwise it scored a zero;
6. If the number of daily vehicles was less than 160, the scenario was scored a “1”, otherwise it scored a zero;
7. The total available score for a scenario is 6.0.

Results

Overview

All scenarios met rest stop (1, 2), viewscape (4), wildlife stop (5), and daily vehicle number (6) standards (Appendix A). Therefore, the rest of the analysis will focus on sheep gap results (3) – the only standard to fail during scenario testing.

Sheep Gaps¹

Sixty-four scenarios met desired conditions for at least one sheep gap location (score of 5.5). However, no scenarios met the desired conditions at both sheep gap locations (score of 6.0). Only four scenarios met one sheep gap (Tattler Creek) while also meeting the other sheep gap standard (Hogan Creek) at least 75% (e.g. 75 of 100 hours – 15 fewer than the desired condition) of the time:

- Scenario 79 was the best performer (78.9%), which featured Long tours that terminated at Igloo campground on a 50% reduced Alternative schedule, Short Tours terminated at Primrose (mile 17) on a 50% reduced schedule, admin access beyond EFB and toilets near the EFB termination point;
- Scenario 61 (76.6%): Long tours terminated at Igloo campground on a 30% reduced Alternative schedule, Short Tours terminated at Primrose (mile 17) on a full (100%) schedule, admin access beyond EFB and toilets near the EFB termination point;
- Scenario 63 (76.6%): Long tours terminated at Igloo campground on a 30% reduced Alternative schedule, Short Tours terminated at Primrose (mile 17) on a 30% reduced schedule, admin access beyond EFB and toilets near the EFB termination point;
- Scenario 72 (75.0%): Long tours terminated at EFB on a 30% reduced Alternative schedule, Short Tours terminated at Primrose (mile 17) on a 30% reduced schedule, admin access beyond EFB and toilets near the EFB termination point.

Two groups emerged within the subpopulation of scenarios that met at least one sheep gap standard. First, there were ten scenarios (61-64 and 70-73 and 79-80) whose success rate at Hogan Creek was relatively high (average 74% (e.g. 74 of 100 hours)). Second, we found 54 scenarios whose success rate at Hogan Creek was very low (average 16% (e.g. 16 of 100 hours)). The primary difference between these two groups is that the high success group combined: 1) Primrose as the Short Tour destination, 2) a reduced and 3) Alternate Long Tour schedule, whereas the low success group either

¹ Comparison to VMP Scorecards: Modeling results cannot be satisfactorily compared to the results of previous VMP scorecards. The DBEM can consider the entire population of monitoring hours from 0600–2200 of each day of the operating season. If more than two hours in that period fail to achieve a 10-minute gap, the day fails. If more than 10% of the days fail, the site fails the VMP 1-year standard. In comparison, the Road Ecology Program collects a representative sample of 40–80 sheep gap observations throughout a season. If more than 10% of those observations fail to achieve a 10-minute gap, the site fails the VMP 1-year standard. The sensitivity of the model is far higher than practicable using field protocols.

combined Tek Flat as the Short Tour destination or applied a reduced Long Tour schedule or the Alternate Long Tour schedule but did not combine all three to the same scenario (Table 1).

Table 1. The percentage of simulated days that VMP standards were met at the Hogan Creek sheep gap site based on Short Tour destination and Long Tour schedules as predicted by the Denali Park Road traffic model (Denali National Park and Preserve, Denali Park, Alaska USA).

Long Tour Schedule	Short Tour Destination	
	<i>Primrose</i>	<i>Tek Flat</i>
<i>Reduced</i>	4.4%	0.6%
<i>Alternate</i>	9.2%	1.9%
<i>Alternate and reduced</i>	74.3%	36.7%

Average success at the mile 21 sheep gap site (Hogan Creek) is two-and-a-half times more likely (from 16% to 42%) when Short Tours buses are scheduled to Primrose compared to when they are scheduled to Tek Flats.

Discussion

The EFB exercise supposes that about half of the Denali Park Road is closed to visitor vehicle traffic – including buses. If we hold constant: 1) the number of vehicles on the road, 2) their behavior at rest stops, and 3) their operating period, then we can expect vehicle return intervals – the time it takes between when an individual vehicle passes a point headed westbound and when it passes it again headed eastbound – to decrease by about half; creating the effect of twice as much traffic volume. It is no surprise, then, that the model predicts poor compliance with the VMP desired conditions at sheep gap sites when traffic volumes are unchanged (81% failure at Hogan Creek, 20% failure at Tattler Creek). It is axiomatic, the more frequently vehicles travel a road section, the fewer opportunities there are to maintain a time period without vehicles.

Another way to analyze this is *vehicle mass flow rate*. During normal operating periods, vehicle mass flow rate is approximately 1.36 vehicles per mile per operating day (124 vehicles/92 miles/day) on an average peak season day. This is a rough but illustrative exercise because not all vehicles use all miles of road and not all vehicles are on the road concurrently. Nonetheless, in the EFB exercise, vehicle mass flow rate is 2.88 vehicles/mile/day, more than double the observed rate for the summer of 2019. There are four components to the Denali Park Road transportation system, and thus, four factors that control vehicle mass flow rate in the system: 1) road users (i.e. who); 2) quantities of vehicles (i.e. how many); 3) schedules (i.e. when); and 4) destinations (i.e. where). The DBES used combinations of these four factors to determine VMP compliance. We found that desired conditions were most sensitive to quantities of vehicles: reducing how many vehicles are operating is the most effective means to reduce vehicle density and achieve VMP standards. Scenarios 69 and 78 were most successful because they most effectively reduced how many vehicles were on the road in an operational day. However, there was some response to destination as Hogan Creek is two-and-a-half times more likely to succeed when Short Tours buses are scheduled to Primrose.

Literature Cited

Clark, W. C. and K. B. Orlofsky 2020. Current condition of standards from the Denali Park road vehicle management plan: 2019 summary report. Natural Resource Report.

National Park Service 2012. Denali Park Road Final Vehicle Management Plan and Environmental Impact Statement. Accessible at <https://irma.nps.gov/DataStore/Reference/Profile/2259344>.

Appendix A. Scenario Results

Table A 1. Results for 80 scenarios modeled using the Denali Park Road discrete event, behavior-based, empirical simulation model (DBES).

Scenario	<i>Variable 1 Long Tour Destination</i>	<i>Variable 2 Long Tour Schedule</i>	<i>Variable 3 Short Tour Destination</i>	<i>Variable 4 Short Tour Schedule</i>	<i>Variable 5 Admin Access*</i>	<i>Variable 6 Toilets at EFB</i>	<i>Variable 7 Long Tour 15 min OR 30min at Tek</i>	<i>Tek RS % time meeting VMP</i>	Hogan Creek SG (mile 21) % time meeting VMP (1yr)	Tattler Creek SG (mile 37) % time meeting VMP (1yr)
1	East Fork Bridge	100%	Primrose	100%	yes	yes	15 min	100.0%	30.5%	50.7%
2	East Fork Bridge	100%	Primrose	100%	no	yes	15 min	100.0%	36.5%	56.9%
3	East Fork Bridge	100%	Primrose	100%	yes	no	15 min	100.0%	30.3%	58.2%
4	East Fork Bridge	100%	Primrose	100%	no	no	15 min	100.0%	34.7%	64.8%
5	East Fork Bridge	100%	Teklanika Flats	100%	yes	yes	15 min	100.0%	7.8%	49.7%
6	East Fork Bridge	100%	Teklanika Flats	100%	no	yes	15 min	100.0%	10.6%	56.7%
7	East Fork Bridge	100%	Teklanika Flats	100%	yes	no	15 min	100.0%	8.9%	60.3%
8	East Fork Bridge	100%	Teklanika Flats	100%	no	no	15 min	100.0%	9.8%	63.2%
9	East Fork Bridge	100%	Primrose	100%	yes	yes	30 min	100.0%	34.3%	53.4%
10	East Fork Bridge	100%	Primrose	100%	no	yes	30 min	100.0%	39.7%	57.9%
11	East Fork Bridge	100%	Primrose	100%	yes	no	30 min	100.0%	31.3%	60.1%
12	East Fork Bridge	100%	Primrose	100%	no	no	30 min	100.0%	35.8%	65.2%
13	East Fork Bridge	100%	Teklanika Flats	100%	yes	yes	30 min	100.0%	8.0%	52.3%
14	East Fork Bridge	100%	Teklanika Flats	100%	no	yes	30 min	100.0%	11.4%	57.3%
15	East Fork Bridge	100%	Teklanika Flats	100%	yes	no	30 min	100.0%	7.5%	61.8%
16	East Fork Bridge	100%	Teklanika Flats	100%	no	no	30 min	100.0%	10.6%	66.6%
17	Teklanika rest stop	100%	Primrose	100%	yes	yes	15 min	100.0%	26.1%	99.4%
18	Teklanika rest stop	100%	Primrose	100%	no	yes	15 min	100.0%	31.9%	99.7%
19	Teklanika rest stop	100%	Primrose	100%	yes	no	15 min	100.0%	22.2%	99.7%
20	Teklanika rest stop	100%	Primrose	100%	no	no	15 min	100.0%	27.9%	99.8%
21	Teklanika rest stop	100%	Teklanika Flats	100%	yes	yes	15 min	100.0%	6.9%	99.5%
22	Teklanika rest stop	100%	Teklanika Flats	100%	no	yes	15 min	100.0%	8.2%	99.5%

Scenario	Variable 1 Long Tour Destination	Variable 2 Long Tour Schedule	Variable 3 Short Tour Destination	Variable 4 Short Tour Schedule	Variable 5 Admin Access*	Variable 6 Toilets at EFB	Variable 7 Long Tour 15 min OR 30min at Tek	Tek RS % time meeting VMP	Hogan Creek SG (mile 21) % time meeting VMP (1yr)	Tattler Creek SG (mile 37) % time meeting VMP (1yr)
23	Teklanika rest stop	100%	Teklanika Flats	100%	yes	no	15 min	100.0%	6.2%	99.7%
24	Teklanika rest stop	100%	Teklanika Flats	100%	no	no	15 min	100.0%	7.4%	100.0%
25	Teklanika rest stop	100%	Primrose	100%	yes	yes	30 min	100.0%	28.4%	99.2%
26	Teklanika rest stop	100%	Primrose	100%	no	yes	30 min	100.0%	32.4%	99.4%
27	Teklanika rest stop	100%	Primrose	100%	yes	no	30 min	100.0%	26.4%	99.6%
28	Teklanika rest stop	100%	Primrose	100%	no	no	30 min	100.0%	31.4%	99.8%
29	Teklanika rest stop	100%	Teklanika Flats	100%	yes	yes	30 min	100.0%	6.9%	99.2%
30	Teklanika rest stop	100%	Teklanika Flats	100%	no	yes	30 min	100.0%	9.3%	99.5%
31	Teklanika rest stop	100%	Teklanika Flats	100%	yes	no	30 min	100.0%	6.0%	99.7%
32	Teklanika rest stop	100%	Teklanika Flats	100%	no	no	30 min	100.0%	7.1%	99.9%
33	Teklanika rest stop	100%	Primrose	100%	yes	yes	15 min	100.0%	5.1%	99.9%
34	Teklanika rest stop	100%	Primrose	100%	yes	yes	30 min	100.0%	5.0%	100.0%
35	Teklanika rest stop	88%	Primrose	100%	yes	yes	15 min	100.0%	4.3%	99.9%
36	Teklanika rest stop	88%	Primrose	100%	yes	yes	30 min	100.0%	5.2%	99.9%
37	Teklanika rest stop	100%	Primrose	88%	yes	yes	15 min	100.0%	3.7%	100.0%
38	Teklanika rest stop	100%	Primrose	88%	yes	yes	30 min	100.0%	5.3%	99.9%
39	Teklanika rest stop	88%	Primrose	88%	yes	yes	15 min	100.0%	4.0%	99.9%
40	Teklanika rest stop	88%	Primrose	88%	yes	yes	30 min	100.0%	5.6%	99.9%
41	Teklanika rest stop	Alternate	Primrose	100%	yes	yes	15 min	100.0%	12.6%	100.0%
42	Teklanika rest stop	Alternate	Primrose	100%	yes	yes	30 min	99.9%	10.5%	100.0%
43	Teklanika rest stop	Alternate	Primrose	88%	yes	yes	15 min	100.0%	11.9%	99.9%
44	Teklanika rest stop	Alternate	Primrose	88%	yes	yes	30 min	99.9%	10.9%	99.9%
45	Teklanika rest stop	80%	Primrose	88%	yes	yes	15 min	100.0%	4.6%	99.9%
46	Teklanika rest stop	80%	Primrose	88%	yes	yes	30 min	100.0%	6.8%	99.9%
47	Teklanika rest stop	100%	Teklanika Flats	100%	yes	yes	15 min	100.0%	0.3%	100.0%
48	Teklanika rest stop	100%	Teklanika Flats	100%	yes	yes	30 min	100.0%	0.5%	100.0%

Scenario	<i>Variable 1 Long Tour Destination</i>	<i>Variable 2 Long Tour Schedule</i>	<i>Variable 3 Short Tour Destination</i>	<i>Variable 4 Short Tour Schedule</i>	<i>Variable 5 Admin Access*</i>	<i>Variable 6 Toilets at EFB</i>	<i>Variable 7 Long Tour 15 min OR 30min at Tek</i>	<i>Tek RS % time meeting VMP</i>	Hogan Creek SG (mile 21) % time meeting VMP (1yr)	Tattler Creek SG (mile 37) % time meeting VMP (1yr)
49	Teklanika rest stop	88%	Teklanika Flats	100%	yes	yes	15 min	100.0%	0.3%	99.9%
50	Teklanika rest stop	88%	Teklanika Flats	100%	yes	yes	30 min	100.0%	0.6%	99.9%
51	Teklanika rest stop	100%	Teklanika Flats	88%	yes	yes	15 min	100.0%	0.4%	99.9%
52	Teklanika rest stop	100%	Teklanika Flats	88%	yes	yes	30 min	100.0%	0.6%	99.9%
53	Teklanika rest stop	88%	Teklanika Flats	88%	yes	yes	15 min	100.0%	0.7%	99.9%
54	Teklanika rest stop	88%	Teklanika Flats	88%	yes	yes	30 min	100.0%	0.6%	99.9%
55	Teklanika rest stop	Alternate	Teklanika Flats	100%	yes	yes	15 min	100.0%	2.1%	99.9%
56	Teklanika rest stop	Alternate	Teklanika Flats	100%	yes	yes	30 min	99.9%	1.3%	100.0%
57	Teklanika rest stop	Alternate	Teklanika Flats	88%	yes	yes	15 min	100.0%	2.3%	99.9%
58	Teklanika rest stop	Alternate	Teklanika Flats	88%	yes	yes	30 min	99.9%	1.8%	99.9%
59	Teklanika rest stop	80%	Teklanika Flats	100%	yes	yes	15 min	100.0%	0.5%	100.0%
60	Teklanika rest stop	80%	Teklanika Flats	100%	yes	yes	30 min	100.0%	0.9%	99.9%
61	Igloo campground	Alternate 70%	Primrose	100%	yes	yes	15 min	100.0%	76.6%	100.0%
62	Igloo campground	Alternate 80%	Primrose	100%	yes	yes	15 min	100.0%	72.4%	100.0%
63	Igloo campground	Alternate 70%	Primrose	70%	yes	yes	15 min	100.0%	76.6%	99.9%
64	Igloo campground	Alternate 80%	Primrose	70%	yes	yes	15 min	100.0%	72.8%	99.8%
65	Igloo campground	Alternate 70%	Teklanika Flats	100%	yes	yes	15 min	100.0%	30.2%	99.9%
66	Igloo campground	Alternate 80%	Teklanika Flats	100%	yes	yes	15 min	100.0%	26.2%	99.9%
67	Igloo campground	Alternate 70%	Teklanika Flats	70%	yes	yes	15 min	100.0%	40.8%	100.0%
68	Igloo campground	Alternate 80%	Teklanika Flats	70%	yes	yes	15 min	100.0%	38.0%	99.9%
69	Igloo campground	Alternate 50%	Teklanika Flats	50%	yes	yes	15 min	100.0%	52.4%	99.9%
70	East Fork Bridge	Alternate 70%	Primrose	100%	yes	yes	15 min	100.0%	74.3%	94.3%
71	East Fork Bridge	Alternate 80%	Primrose	100%	yes	yes	15 min	100.0%	71.3%	91.2%
72	East Fork Bridge	Alternate 70%	Primrose	70%	yes	yes	15 min	100.0%	75.0%	93.6%
73	East Fork Bridge	Alternate 80%	Primrose	70%	yes	yes	15 min	100.0%	70.2%	91.0%
74	East Fork Bridge	Alternate 70%	Teklanika Flats	100%	yes	yes	15 min	100.0%	27.9%	93.4%

Scenario	<i>Variable 1 Long Tour Destination</i>	<i>Variable 2 Long Tour Schedule</i>	<i>Variable 3 Short Tour Destination</i>	<i>Variable 4 Short Tour Schedule</i>	<i>Variable 5 Admin Access*</i>	<i>Variable 6 Toilets at EFB</i>	<i>Variable 7 Long Tour 15 min OR 30min at Tek</i>	<i>Tek RS % time meeting VMP</i>	Hogan Creek SG (mile 21) % time meeting VMP (1yr)	Tattler Creek SG (mile 37) % time meeting VMP (1yr)
75	East Fork Bridge	Alternate 80%	Teklanika Flats	100%	yes	yes	15 min	100.0%	25.3%	91.0%
76	East Fork Bridge	Alternate 70%	Teklanika Flats	70%	yes	yes	15 min	100.0%	37.5%	93.4%
77	East Fork Bridge	Alternate 80%	Teklanika Flats	70%	yes	yes	15 min	100.0%	37.0%	90.8%
78	East Fork Bridge	Alternate 50%	Teklanika Flats	50%	yes	yes	15 min	100.0%	51.8%	95.2%
79	Igloo campground	Alternate 50%	Primrose	50%	yes	yes	15 min	100.0%	78.9%	99.9%
80	East Fork Bridge	Alternate 50%	Primrose	50%	yes	yes	15 min	100.0%	74.5%	94.5%

* Administrative access may include: employee access (return to work), right-of-way access, fuel deliveries, etc.

Appendix B. Bus Schedules

Appendix B Table 1. Transit schedule as advertised for 2020, unmodified except by implementing new final destination and elimination of overnight bus.

Depart RC CG	Depart DBD	Depart Savage CG	Depart Sanctuary CG	Depart Tek CG	Depart Tek RS	Depart Igloo CG	Arrive EFB	Depart EFB	Depart Igloo CG	Depart Tek RS	Depart Tek CG	Depart Sanctuary CG	Depart Savage CG	Arrive DBD
	5:15 AM	5:45 AM	6:10 AM	6:25 AM	6:40 AM	6:50 AM	7:30 AM	7:40 AM	8:20 AM	8:40 AM	8:45 AM	9:00 AM	9:20 AM	9:55 AM
	6:00 AM	6:30 AM	6:55 AM	7:10 AM	7:25 AM	7:35 AM	8:15 AM	8:25 AM	9:05 AM	9:25 AM	9:30 AM	9:45 AM	10:05 AM	10:40 AM
	6:15 AM	6:45 AM	7:10 AM	7:25 AM	7:40 AM	7:50 AM	8:30 AM	8:40 AM	9:20 AM	9:40 AM	9:45 AM	10:00 AM	10:20 AM	10:55 AM
	6:30 AM	7:00 AM	7:25 AM	7:40 AM	7:55 AM	8:05 AM	8:45 AM	8:55 AM	9:35 AM	9:55 AM	10:00 AM	10:15 AM	10:35 AM	11:10 AM
	6:45 AM	7:15 AM	7:40 AM	7:55 AM	8:10 AM	8:20 AM	9:00 AM	9:10 AM	9:50 AM	10:10 AM	10:15 AM	10:30 AM	10:50 AM	11:25 AM
6:55 AM	7:00 AM	7:30 AM	7:55 AM	8:10 AM	8:25 AM	8:35 AM	9:15 AM	9:25 AM	10:05 AM	10:25 AM	10:30 AM	10:45 AM	11:05 AM	11:40 AM
	7:05 AM	7:40 AM	8:10 AM	8:25 AM	8:40 AM	8:50 AM	9:25 AM	9:35 AM	10:15 AM	10:35 AM	10:40 AM	10:55 AM	11:15 AM	11:50 AM
	7:15 AM	7:45 AM	8:10 AM	8:25 AM	8:40 AM	8:50 AM	9:30 AM	9:40 AM	10:20 AM	10:40 AM	10:45 AM	11:00 AM	11:20 AM	11:55 AM
	7:30 AM	8:00 AM	8:25 AM	8:40 AM	8:55 AM	9:05 AM	9:45 AM	9:55 AM	10:35 AM	10:55 AM	11:00 AM	11:15 AM	11:35 AM	12:10 PM
	7:45 AM	8:15 AM	8:40 AM	8:55 AM	9:10 AM	9:20 AM	10:00 AM	10:10 AM	10:50 AM	11:10 AM	11:15 AM	11:30 AM	11:50 AM	12:25 PM
	8:00 AM	8:30 AM	8:55 AM	9:10 AM	9:25 AM	9:35 AM	10:15 AM	10:25 AM	11:05 AM	11:25 AM	11:30 AM	11:45 AM	12:05 PM	12:40 PM
	8:30 AM	9:00 AM	9:25 AM	9:40 AM	9:55 AM	10:05 AM	10:45 AM	10:55 AM	11:35 AM	11:55 AM	12:00 PM	12:15 PM	12:35 PM	1:10 PM
	8:45 AM	9:15 AM	9:40 AM	9:55 AM	10:10 AM	10:20 AM	11:00 AM	11:10 AM	11:50 AM	12:10 PM	12:15 PM	12:30 PM	12:50 PM	1:25 PM
	9:00 AM	9:30 AM	9:55 AM	10:10 AM	10:25 AM	10:35 AM	11:15 AM	11:25 AM	12:05 PM	12:25 PM	12:30 PM	12:45 PM	1:05 PM	1:40 PM
	9:15 AM	9:45 AM	10:10 AM	10:25 AM	10:40 AM	10:50 AM	11:30 AM	11:40 AM	12:20 PM	12:40 PM	12:45 PM	1:00 PM	1:20 PM	1:55 PM
	9:30 AM	10:00 AM	10:25 AM	10:40 AM	10:55 AM	11:05 AM	11:45 AM	11:55 AM	12:35 PM	12:55 PM	1:00 PM	1:15 PM	1:35 PM	2:10 PM
	10:00 AM	10:30 AM	10:55 AM	11:10 AM	11:25 AM	11:35 AM	12:15 PM	12:25 PM	1:05 PM	1:25 PM	1:30 PM	1:45 PM	2:05 PM	2:40 PM
	10:15 AM	10:45 AM	11:10 AM	11:25 AM	11:40 AM	11:50 AM	12:30 PM	12:40 PM	1:20 PM	1:40 PM	1:45 PM	2:00 PM	2:20 PM	2:55 PM
	11:00 AM	11:30 AM	11:55 AM	12:10 PM	12:25 PM	12:35 PM	1:15 PM	1:25 PM	2:05 PM	2:25 PM	2:30 PM	2:45 PM	3:05 PM	3:40 PM
10:55 AM	11:05 AM	11:35 AM	12:00 PM	12:15 PM	12:30 PM	12:40 PM	1:20 PM	1:30 PM	2:10 PM	2:30 PM	2:35 PM	2:50 PM	3:10 PM	3:45 PM
	12:00 PM	12:30 PM	12:55 PM	1:10 PM	1:25 PM	1:35 PM	2:15 PM	2:25 PM	3:05 PM	3:25 PM	3:30 PM	3:45 PM	4:05 PM	4:40 PM
	12:15 PM	12:45 PM	1:10 PM	1:25 PM	1:40 PM	1:50 PM	2:30 PM	2:40 PM	3:20 PM	3:40 PM	3:45 PM	4:00 PM	4:20 PM	4:55 PM
	1:00 PM	1:30 PM	1:55 PM	2:10 PM	2:25 PM	2:35 PM	3:15 PM	3:25 PM	4:05 PM	4:25 PM	4:30 PM	4:45 PM	5:05 PM	5:40 PM
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1:55 PM	2:05 PM	2:40 PM	3:10 PM	3:25 PM	3:40 PM	3:50 PM	4:25 PM	4:35 PM	5:15 PM	5:35 PM	5:40 PM	5:55 PM	6:15 PM	6:50 PM
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3:55 PM	4:05 PM	4:35 PM	5:00 PM	5:15 PM	5:30 PM	5:40 PM	6:15 PM	6:25 PM	7:05 PM	7:25 PM	7:30 PM	7:45 PM	8:05 PM	8:40 PM
4:55 PM	5:05 PM	5:35 PM	6:00 PM	6:15 PM	6:30 PM	6:40 PM	7:20 PM	7:30 PM	8:10 PM	8:30 PM	8:35 PM	8:50 PM	9:10 PM	9:45 PM

Appendix B Table 2. Modified 2020 Transit schedule based on new extent of service to East Fork Bridge.

Depart RC CG	Depart DBD	Depart Savage CG	Depart Sanctuary CG	Depart Tek CG	Depart Tek RS	Depart Igloo CG	Arrive EFB	Depart EFB	Depart Igloo CG	Depart Tek RS	Depart Tek CG	Depart Sanctuary CG	Depart Savage CG	Arrive DBD
	6:00 AM	6:30 AM	6:55 AM	7:10 AM	7:25 AM	7:35 AM	8:15 AM	8:25 AM	9:05 AM	9:25 AM	9:30 AM	9:45 AM	10:05 AM	10:40 AM
	6:30 AM	7:00 AM	7:25 AM	7:40 AM	7:55 AM	8:05 AM	8:45 AM	8:55 AM	9:35 AM	9:55 AM	10:00 AM	10:15 AM	10:35 AM	11:10 AM
	6:45 AM	7:15 AM	7:40 AM	7:55 AM	8:10 AM	8:20 AM	9:00 AM	9:10 AM	9:50 AM	10:10 AM	10:15 AM	10:30 AM	10:50 AM	11:25 AM
	7:10 AM	7:40 AM	8:05 AM	8:20 AM	8:35 AM	8:45 AM	9:25 AM	9:35 AM	10:15 AM	10:35 AM	10:40 AM	10:55 AM	11:15 AM	11:50 AM
	7:30 AM	8:00 AM	8:25 AM	8:40 AM	8:55 AM	9:05 AM	9:45 AM	9:55 AM	10:35 AM	10:55 AM	11:00 AM	11:15 AM	11:35 AM	12:10 PM
	8:00 AM	8:30 AM	8:55 AM	9:10 AM	9:25 AM	9:35 AM	10:15 AM	10:25 AM	11:05 AM	11:25 AM	11:30 AM	11:45 AM	12:05 PM	12:40 PM
	8:30 AM	9:00 AM	9:25 AM	9:40 AM	9:55 AM	10:05 AM	10:45 AM	10:55 AM	11:35 AM	11:55 AM	12:00 PM	12:15 PM	12:35 PM	1:10 PM
	9:00 AM	9:30 AM	9:55 AM	10:10 AM	10:25 AM	10:35 AM	11:15 AM	11:25 AM	12:05 PM	12:25 PM	12:30 PM	12:45 PM	1:05 PM	1:40 PM
	9:30 AM	10:00 AM	10:25 AM	10:40 AM	10:55 AM	11:05 AM	11:45 AM	11:55 AM	12:35 PM	12:55 PM	1:00 PM	1:15 PM	1:35 PM	2:10 PM
	10:00 AM	10:30 AM	10:55 AM	11:10 AM	11:25 AM	11:35 AM	12:15 PM	12:25 PM	1:05 PM	1:25 PM	1:30 PM	1:45 PM	2:05 PM	2:40 PM
	10:15 AM	10:45 AM	11:10 AM	11:25 AM	11:40 AM	11:50 AM	12:30 PM	12:40 PM	1:20 PM	1:40 PM	1:45 PM	2:00 PM	2:20 PM	2:55 PM
	10:50 AM	11:20 AM	11:45 AM	12:00 PM	12:15 PM	12:25 PM	1:05 PM	1:15 PM	1:55 PM	2:15 PM	2:20 PM	2:35 PM	2:55 PM	3:30 PM
11:15 AM	11:25 AM	11:55 AM	12:20 PM	12:35 PM	12:50 PM	1:00 PM	1:40 PM	1:50 PM	2:30 PM	2:50 PM	2:55 PM	3:10 PM	3:30 PM	4:05 PM
	12:00 PM	12:30 PM	12:55 PM	1:10 PM	1:25 PM	1:35 PM	2:15 PM	2:25 PM	3:05 PM	3:25 PM	3:30 PM	3:45 PM	4:05 PM	4:40 PM
	12:15 PM	12:45 PM	1:10 PM	1:25 PM	1:40 PM	1:50 PM	2:30 PM	2:40 PM	3:20 PM	3:40 PM	3:45 PM	4:00 PM	4:20 PM	4:55 PM
	12:30 PM	1:00 PM	1:25 PM	1:40 PM	1:55 PM	2:05 PM	2:45 PM	2:55 PM	3:35 PM	3:55 PM	4:00 PM	4:15 PM	4:35 PM	5:10 PM
	1:00 PM	1:30 PM	1:55 PM	2:10 PM	2:25 PM	2:35 PM	3:15 PM	3:25 PM	4:05 PM	4:25 PM	4:30 PM	4:45 PM	5:05 PM	5:40 PM
	1:30 PM	2:00 PM	2:25 PM	2:40 PM	2:55 PM	3:05 PM	3:45 PM	3:55 PM	4:35 PM	4:55 PM	5:00 PM	5:15 PM	5:35 PM	6:10 PM
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	2:30 PM	3:00 PM	3:25 PM	3:40 PM	3:55 PM	4:05 PM	4:45 PM	4:55 PM	5:35 PM	5:55 PM	6:00 PM	6:15 PM	6:35 PM	7:10 PM
	2:45 PM	3:15 PM	3:40 PM	3:55 PM	4:10 PM	4:20 PM	5:00 PM	5:10 PM	5:50 PM	6:10 PM	6:15 PM	6:30 PM	6:50 PM	7:25 PM
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3:05 PM	3:15 PM	3:50 PM	4:20 PM	4:35 PM	4:50 PM	5:00 PM	5:35 PM	5:45 PM	6:25 PM	6:45 PM	6:50 PM	7:05 PM	7:25 PM	8:00 PM
3:55 PM	4:05 PM	4:35 PM	5:00 PM	5:15 PM	5:30 PM	5:40 PM	6:15 PM	6:25 PM	7:05 PM	7:25 PM	7:30 PM	7:45 PM	8:05 PM	8:40 PM
	4:20 PM	4:50 PM	5:15 PM	5:30 PM	5:45 PM	5:55 PM	6:35 PM	6:45 PM	7:25 PM	7:45 PM	7:50 PM	8:05 PM	8:25 PM	9:00 PM
4:55 PM	5:05 PM	5:35 PM	6:00 PM	6:15 PM	6:30 PM	6:40 PM	7:20 PM	7:30 PM	8:10 PM	8:30 PM	8:35 PM	8:50 PM	9:10 PM	9:45 PM
	6:00 PM	6:30 PM	6:55 PM	7:10 PM	7:25 PM	7:35 PM	8:15 PM	8:25 PM	9:05 PM	9:25 PM	9:30 PM	9:45 PM	10:05 PM	10:40 PM
	6:45 PM	7:15 PM	7:40 PM	7:55 PM	8:10 PM	8:20 PM	9:00 PM	9:10 PM	9:50 PM	10:10 PM	10:15 PM	10:30 PM	10:50 PM	11:25 PM

Appendix B Table 3. Modeled Long Tour bus quantities.

Number of Buses	Reduced By			
	0% (no change from 2019 numbers)	12%	20%	50%
--				
minimum	16	16	16	16
maximum	36	32	29	18
average (rounded to nearest whole)	26	23	21	16

Appendix B Table 4. Modeled Long Tour bus schedules.

Time	Probability (percent chance) a bus passes the Savage Check Station	Time	Probability (percent chance) a bus passes the Savage Check Station
0530	0.32	1100	1.77
0545	0.73	1115	1.29
0600	2.34	1130	0.73
0615	4.43	1145	0.40
0630	2.90	1200	0.08
0645	3.63	1215	0.08
0700	3.79	1230	0.00
0715	2.18	1245	0.24
0730	4.27	1300	0.16
0745	4.27	1315	0.73
0800	4.19	1330	0.73
0815	3.95	1345	1.77
0830	3.95	1400	2.34
0845	5.48	1415	3.22
0900	3.95	1430	3.14
0915	5.00	1445	3.71
0930	2.82	1500	1.93
0945	4.11	1515	1.85
1000	2.74	1530	0.48
1015	3.30	1545	0.32
1030	2.82	1600	0.08
1045	3.71	1615	0.08

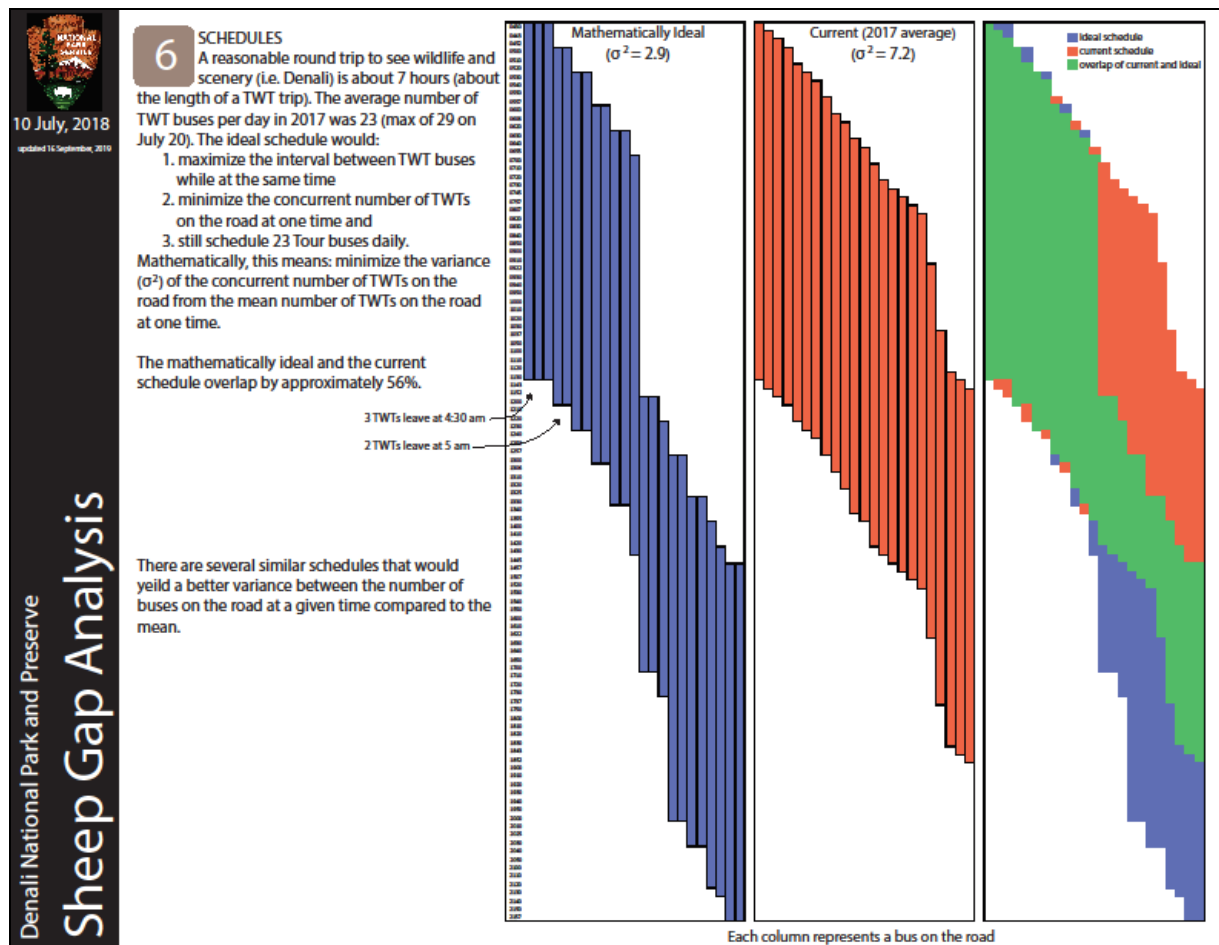
Table B 1. Modeled Short Tour bus quantities.

Number of Buses	Reduced By			
--	0% (no change from 2019 numbers)	12%	30%	50%
minimum	7	7	7	7
maximum	24	21	18	12
average (rounded to nearest whole)	16	14	12	8

Table B 2. Modeled Short Tour bus schedules.

Time	Probability (percent chance) a bus passes the Savage Check Station	Time	Probability (percent chance) a bus passes the Savage Check Station
0700	0.26	1230	0.26
0715	0.13	1245	0.00
0730	0.53	1300	0.00
0745	0.66	1315	0.00
0800	1.98	1330	0.00
0815	3.43	1345	0.13
0830	4.22	1400	1.06
0845	5.54	1415	2.51
0900	3.69	1430	2.64
0915	7.39	1445	4.35
0930	2.90	1500	4.49
0945	8.58	1515	5.28
1000	3.83	1530	3.96
1015	6.33	1545	4.75
1030	2.77	1600	1.19
1045	6.33	1615	3.03
1100	2.24	1630	0.40
1115	2.37	1645	0.26
1130	0.66	1700	0.00
1145	1.06	1715	0.00
1200	0.00	1730	0.40
1215	0.26	1745	0.13

Figure B 1. Excerpt from a previous sheep gap analysis that describes an Alternative schedule that minimizes the number of Long Tours on the Denali Park Road at a given time. This schedule would help Denali meet VMP goals without reducing the number of Long Tour permits.



Appendix C. Scenario Variable Definitions

Iteration One

Applies to all scenarios

- Transit:
 - Destination node = EFB
 - Arrival/departure time at EFB is based on Polychrome arrival/departure time
 - Follows schedule and stops at all CGs etc. as normal
- Other Vehicle Types:
 - Unless mentioned in this document, all other vehicle types will behave as constructed in the updated table database (after edits offered on Dec 14 are implemented) from your email on December 13, 2019.

Variable 1: LongTour destination

- Options to model: EFB or TekRS
 - When modeling to TekRS, LongTour turns around at TekRS and heads eastbound to SCS
 - When modeling to EFB, LongTour stops at TekRS (for 15 or 30 min – see variable 5), then continues to EFB where it turns around, heads eastbound, and makes a second stop at TekRS (for only 8-10 minutes – see variable 5), then continues eastbound to SCS

Variable 2: ShortTour Destination

- Options to model: Primrose or TekFlat
 - When modeling to Primrose, ShortTour turns around at Primrose and heads eastbound SCS
 - When modeling to TekFlat, ShortTour stops at Primrose for defined amount of time (25-35 centered on 30 minutes) turns around at TekFlat (for defined time already provided) and does not stop at Primrose on the eastbound trip to SCS

Variable 3: Administrative Access

- Options to model: Yes or No
 - When modeling Yes, the following vehicles are included in the model
 - Kantishna ROW
 - Return to Work, Tok (Maint, Interp, AKGO)
 - Fuel Truck (Wednesday 8/10 & 2/3)
 - When modeling No, the following vehicles are not included in model scenarios
 - Kantishna ROW
 - Return to Work, Tok (Maint, Interp, AKGO)
 - Fuel Truck (Wednesday 8/10 & 2/3)

Variable 4: Toilets at EFB

- Options to model: Yes or No
 - When modeling Yes, the two pumper and two cleaning vehicles will continue as scheduled to TekRS, then continue to EFB and spend 45 minutes at the node. Then return to SCS.
 - When modeling No, the two pumper and two cleaning vehicles will continue as scheduled to TekRS, then return to SCS.

Variable 5: LongTour time at TekRS

- Options to model: 15 min or 30 min
 - When the LongTour stops at TekRS (whether its final destination node is TekRS or EFB) it stays for 10-20 centered on 15 minutes, but only when headed westbound. When eastbound, the LongTour stops at TekRS for 8-12 centered on 10 minutes.
 - When the LongTour stops at TekRS (whether its final destination node is TekRS or EFB) it stays for 25-35 centered on 30 minutes, but only when headed westbound. When eastbound, the LongTour stops at TekRS for 8-12 centered on 10 minutes.

Definition of Terms

CGs – campgrounds

EFB – East Fork Bridge

SCS – Savage Check Station

TekRS – Teklanika Rest Stop

Iteration Two

Applies to all scenarios

- Transit:
 - Destination node = EFB
 - Arrival/departure time at EFB is based on Polychrome arrival/departure time
 - Follows new schedule provided (Attachment 3 - IterationTwo EFB Transit_peak_schedule_Jan15_2020.xlsx) and stops at all CGs etc. as normal
- Other Vehicle Types:
 - Unless mentioned in this document, all other vehicle types will behave as constructed in the updated table database (after edits offered on Dec 14 are implemented) from your email on December 13, 2019.
- Administrative Access
 - Options to model: Yes (no longer not considering “No” to this variable)
 - When modeling Yes, the following vehicles are included in the model
 - Kantishna ROW
 - Return to Work, Tok (Maint, Interp, AKGO)
 - Fuel Truck (Wednesday 8/10 & 2/3)
 - Probability of stopping: 2% - this should reflect that policy will be that stopping is not allowed except for exceptional circumstances
 - Duration of stop: 3-5 minutes, average 4 minutes

Variable 1: LongTour destination

- Options to model: TekRS
 - When modeling to TekRS, LongTour turns around at TekRS and heads eastbound to SCS

Variable 2: LongTour schedule

- Three new schedules provided:
 - 88% – 12% fewer vehicles, on average. Not temporally adjusted.
 - 80% – 20% fewer vehicles, on average. Not temporally adjusted.
 - Alternate – a temporally-adjusted schedule. No reduction in max, min, or average.

Variable 3: ShortTour Destination

- Options to model: Primrose or TekFlat
 - When modeling to Primrose, ShortTour turns around at Primrose and heads eastbound SCS
 - When modeling to TekFlat, ShortTour stops at Primrose for defined amount of time (25-35 centered on 30 minutes) turns around at TekFlat (for defined time already provided) and does not stop at Primrose on the eastbound trip to SCS

Variable 4: ShortTour schedule

- One new schedule provided:
 - 88% - 12% fewer vehicles, on average. Not temporally adjusted.

Variable 5: Toilets at EFB

- Options to model: Yes
 - When modeling Yes, the two pumper and two cleaning vehicles will continue as scheduled to TekRS, then continue to EFB and spend 45 minutes at the node. Then return to SCS.

Variable 6: LongTour time at TekRS

- Options to model: 15 min
 - When the LongTour stops at TekRS (whether its final destination node is TekRS or EFB) it stays for 10-20 centered on 15 minutes, but only when headed westbound. When eastbound, the LongTour stops at TekRS for 8-12 centered on 10 minutes.
 - When the LongTour stops at TekRS (whether its final destination node is TekRS or EFB) it stays for 25-35 centered on 30 minutes, but only when headed westbound. When eastbound, the LongTour stops at TekRS for 8-12 centered on 10 minutes.

Definition of Terms

CGs – campgrounds

EFB – East Fork Bridge

SCS – Savage Check Station

TekRS – Teklanika Rest Stop

Iteration Three

Applies to all scenarios

- Transit:
 - Destination node = EFB
 - Arrival/departure time at EFB is based on Polychrome arrival/departure time
 - Follows schedule provided for model iteration 2 (Attachment 3 - IterationTwo EFB Transit_peak_schedule_Jan15_2020.xlsx) and stops at all CGs etc. as normal
- Other Vehicle Types:
 - Unless mentioned in this document, all other vehicle types will behave as constructed in the updated table database (after edits offered on Dec 14 are implemented) from your email on December 13, 2019.
- Administrative Access
 - Options to model: Yes
 - When modeling Yes, the following vehicles are included in the model
 - Kantishna ROW
 - Return to Work, Tok (Maint, Interp, AKGO)
 - Fuel Truck (Wednesday 8/10 & 2/3)
 - Probability of stopping: 2% - this should reflect that policy will be that stopping is not allowed except for exceptional circumstances
 - Duration of stop: 3-5 minutes, average 4 minutes

Variable 1: LongTour destination

- Options to model: EFB or Igloo CG
 - When modeling to EFB, LongTour stops at TekRS (for 15), then continues to EFB where it turns around, heads eastbound, and makes a second stop at TekRS (for only 8-10 minutes), then continues eastbound to SCS
 - When modeling to Igloo CG, LongTour **DOES NOT STOP** at TekRS, it goes to Igloo CG, stops for 15 minutes, turns around, heads eastbound to SCS. It does not stop at TekRS in either direction.

Variable 2: LongTour schedule

- Three new schedules provided:
 - Alternative 80% – combination of temporally-adjusted schedule with 20% fewer vehicles on average.
 - Alternative 70% – combination of temporally-adjusted schedule with 30% fewer vehicles on average.
 - Alternative 50% – combination of temporally-adjusted schedule with 50% fewer vehicles on average.

Variable 3: ShortTour Destination

- Options to model: Primrose or TekFlat
 - When modeling to Primrose, ShortTour turns around at Primrose and heads eastbound SCS
 - When modeling to TekFlat, ShortTour stops at Primrose for defined amount of time (25-35 centered on 30 minutes) turns around at TekFlat (for defined time already provided) and does not stop at Primrose on the eastbound trip to SCS

Variable 4: ShortTour schedule

- Two new schedules provided:
 - 70% - 30% fewer vehicles, on average. Not temporally adjusted.

- 50% - 50% fewer vehicles, on average. Not temporally adjusted.

Variable 5: Toilets at EFB

- Options to model: Yes
 - When modeling Yes, the two pumper and two cleaning vehicles will continue as scheduled to TekRS, then continue to EFB and spend 45 minutes at the node. Then return to SCS.

Variable 6: LongTour time at Igloo CG

- Options to model: 15 min
 - When the LongTour stops at Igloo CG it stays for 10-20 centered on 15 minutes

Definition of Terms

CGs – campgrounds

EFB – East Fork Bridge

SCS – Savage Check Station

TekRS – Teklanika Rest Stop

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 184/154655, June 2019

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