



Around Montana in 76 Shows

PROPOSED 2018 MONTANA SHAKESPEARE IN THE PARKS
SCHEDULE

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Introduction

Every summer, Montana Shakespeare in the Parks (MSIP) offers free and live theatrical productions of Shakespeare and other classics to over 60 communities throughout Montana, northern Wyoming, eastern Idaho, western North Dakota, and eastern Washington. Their mission is to expose as much of the public as possible to the beauty of Shakespeare through live theatrical performance, highlighting rural areas and the importance of accessibility to all. We have developed a model for the company's summer tour schedule for 2018. In 2017, the MSIP traveled over 7,800 miles during the season to the many towns distributed throughout and near Montana. Traveling to so many towns spread across Montana, and a select few in neighboring states, can be time consuming and expensive. MSIP wants to limit the number of miles traveled to a maximum of 200 miles for the drive between any two shows, while preserving specific dates for specific locations (e.g. Bozeman for the Sweet Pea Festival in early August, Bozeman for the first 8 shows at the Duck Pond). The goal is to develop a more ideal schedule for 2018 that limits the number of miles traveled, reserves specific dates for certain towns, and exposes as much of the public to Shakespeare as possible.

The Model

While beginning to form ideas for a travel schedule for MSIP, we first began by looking at the number of shows they perform per season and at the towns they visit every year. Our main considerations were:

- Keeping under 200 miles traveled between consecutive shows
- Keeping traditional locations while maintaining time frame
- Recognizing the optimal way to get to and from each location (logical flow of travel)
- Attempting to keep locations scheduled near the prior year's dates or in the same month
 - Starting similar to previous seasons
 - Scheduling around set dates for specific locations
- Scheduling days off at the start of the season between shows in Bozeman, two days off in July, and two days off in August

Our main goal was to limit the repetition of routes from the constant back and forth travel across Montana. To help reach this goal, we divided the season into five parts as labeled in Figure 1 below.

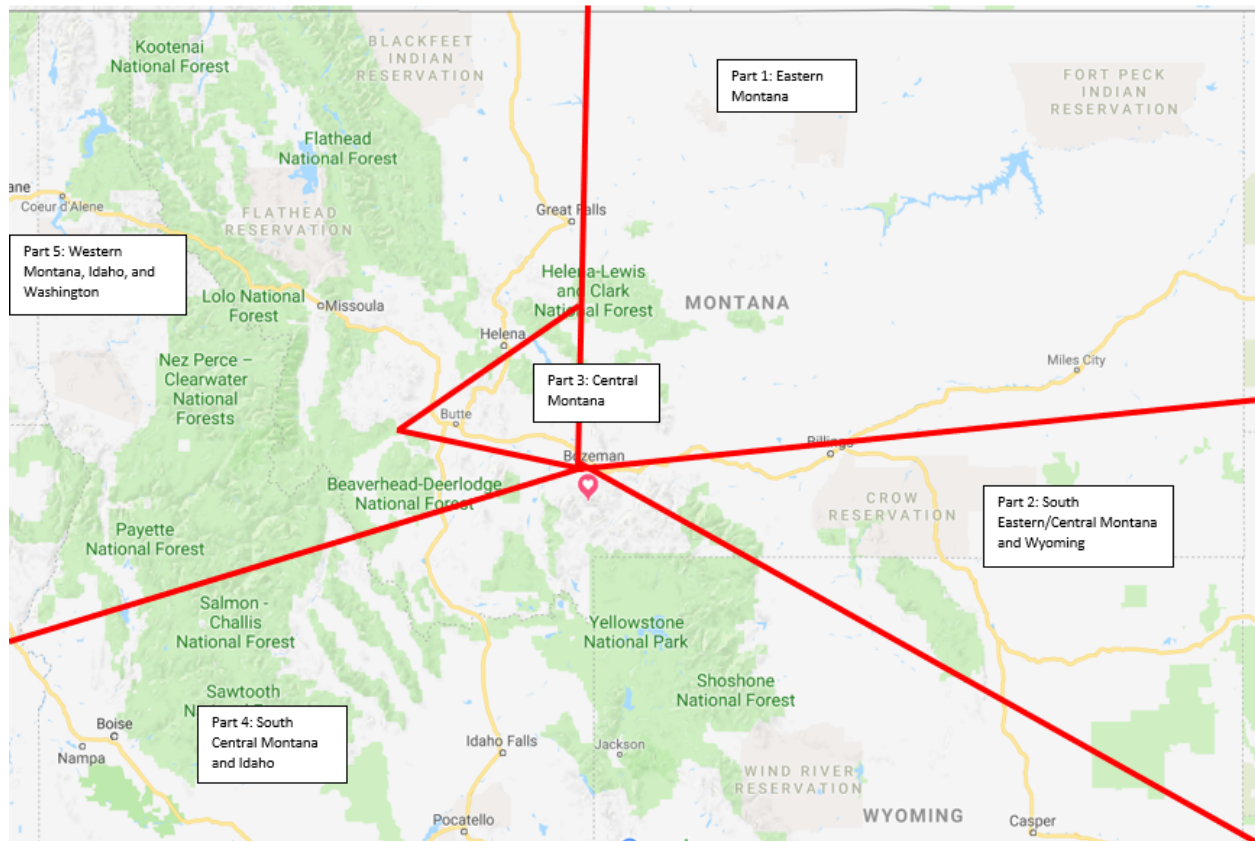


Figure 1: Regional Parts of the Season

To begin this journey, the MSIP team will start their adventure in Bozeman like usual. To attempt to keep a similar pattern to that of previous years, we chose a route north to Utica/Hobson into Part 1: Eastern Montana. From here, we decided to shuffle the towns from the 2017 season by having the towns go in the order in which they are passed through. The eastern Montana route contains some of the largest distances between the towns visited. The route proceeds from Lewistown to Beach, ND, in the 2017 season, with several days in June above 150 miles traveled per day. By performing in the towns as they are passed through, the daily miles can be reduced to around 100-120 each day. From there, Part 2 begins by finishing southern Montana and heading west, then traveling down through Wyoming and back into central Montana. We had a week and a half before the Sweet Pea obligation in Bozeman, so we completed the central Montana route, Part 3, of the state and then back to Bozeman for the two Sweet Pea performances. From there, it was time for the last bit of the season, starting with Part 4 including the Idaho shows and then heading up north to the beautiful western part of Montana, Washington, and Idaho that is compiled in Part 5 of the season. The last shows will be in Bozeman, with one in Big Sky, to round out the season close to home. In conclusion, we emphasized doing the state in 5 sections--starting with the eastern half and Wyoming, then to central Montana, from there down into Idaho, then winding down the season in North Western

Montana, and then finally heading back down to the Bozeman area with the last show in Big Sky.

To determine which location to go to next, we examined the number of miles between towns for the next three locations on a potential route. Using Google Maps to identify the shortest route from one town to the next, we identified which locations from the 2017 tour schedule would continue the flow of travel to different parts of Montana and neighboring states. For instance, when determining which date would fit best to go to Liberty Lake, WA, we first identified which route to Liberty Lake from towns in close proximity would produce the shortest distance. From there, we selected the next location for that set of towns. In addition, we vastly reduced the mileage traveled to and from Deer Lodge by changing the town before it in the route to Anaconda and the one after it to Helena from the 2017 locations of Salmon, ID, and St. Ignatius, respectively. The proposed route is displayed in Figure 2 with the proposed schedule in Figure 3.



Figure 2: Proposed 2018 Season Schedule

Figure 3: The Proposed Schedule for the 2018 Season:

June		July	
1		1	Beach, ND
2		2	Ekalaka
3		3	Miles City
4		4	OFF
5		5	Forsyth
6		6	Hardin
7		7	Birney
8		8	Sheridan, WY
9		9	Worland, WY
10		10	Powell, WY
11		11	Cody, WY
12		12	Cooke City/ Silver Gate
13	Bozeman	13	Red Lodge
14	Bozeman	14	Billings
15	Bozeman	15	Billings
16	Bozeman	16	Roundup
17	OFF	17	Laurel
18	OFF	18	Columbus
19	OFF	19	Absarokee
20	Bozeman	20	Big Timber
21	Bozeman	21	Livingston
22	Bozeman	22	Manhattan
23	Bozeman	23	OFF
24	OFF	24	Whitehall
25	Hobson/Utica	25	Boulder
26	Lewistown	26	Butte
27	Malta	27	Dillon
28	Wolf Point	28	Anaconda
29	Sidney	29	Deer Lodge
30	Glendive	30	Helena
		31	Helena

August		September	
1	Townsend	1	Fort Benton
2	Belgrade	2	Greatfalls
3	Sweet Pea	3	Bozeman
4	OFF	4	Big Sky
5	Sweet Pea	5	
6	Chico Hot Springs	6	
7	Gardiner	7	
8	West Yellowstone	8	
9	Driggs, ID	9	
10	Thayne, WY	10	
11	Pocatello, ID	11	
12	Idaho Falls, ID	12	
13	Salmon, ID	13	
14	Hamilton	14	
15	Seeley Lake	15	
16	Missoula	16	
17	Missoula	17	
18	Superior	18	
19	Liberty Lake, WA	19	
20	Sandpoint, ID	20	
21	Trout Creek	21	
22	Plains	22	
23	St. Ignatius	23	
24	Charlo	24	
25	Kalispell	25	
26	Libby	26	
27	Eureka	27	
28	OFF	28	
29	Cutbank	29	
30	Conrad	30	
31	Choteau		

Through the use of this calendar, MSIP would travel roughly 4,400 miles throughout the season, which is a 3,400-mile reduction (Appendix A). This saves MSIP and the actors time, energy and money. The main reason this reduction of mileage is possible is due to changes in the route so that the MSIP staff are less likely to travel the same roads repeatedly throughout the season. To show the differences, compare Figure 2, our proposed season for 2018, and Figure 4, the MSIP route from 2017.

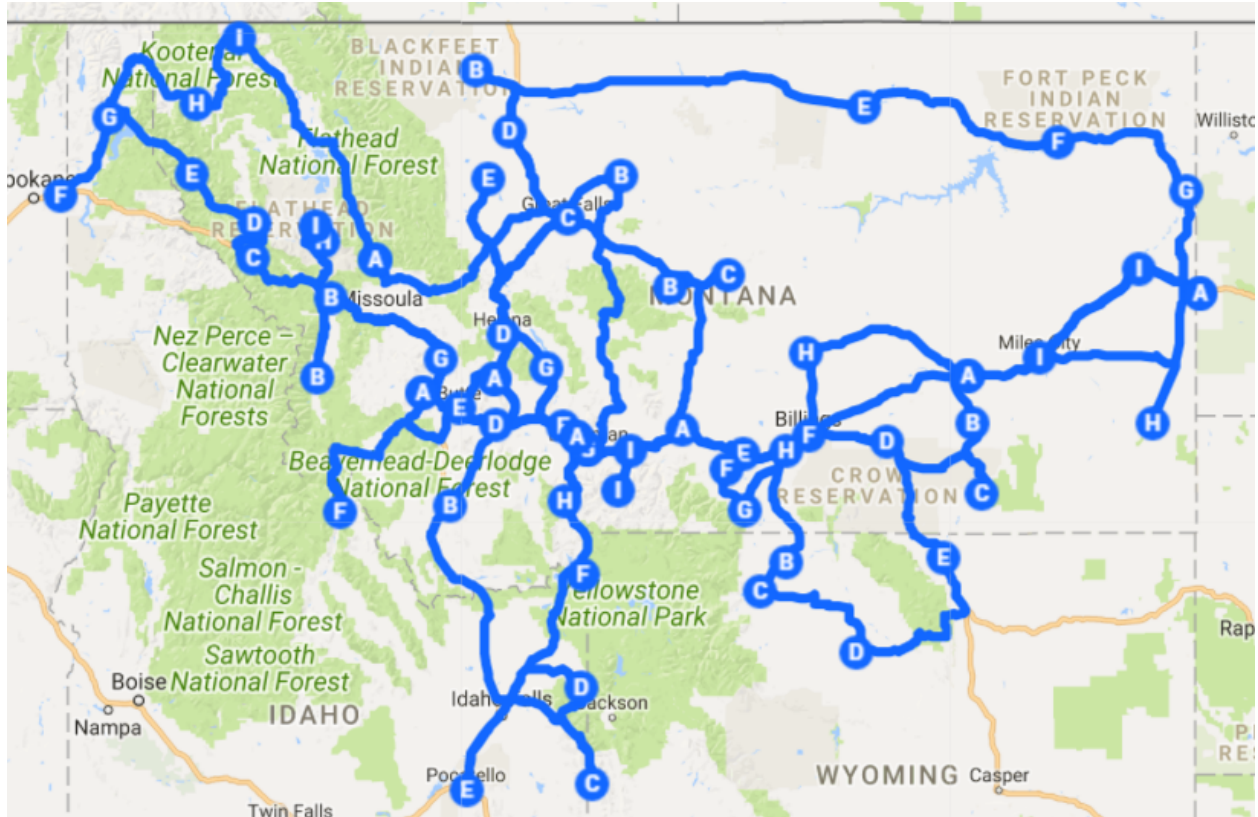
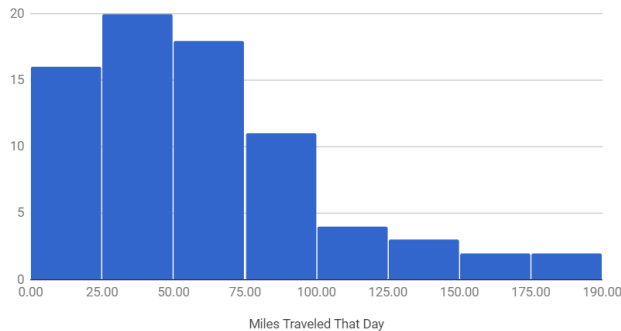


Figure 3: MSIP 2017 Season Route

Furthermore, by looking at the bar charts below which display travel distances in miles per day and the histograms of overall travel distances for the season below, you can see that our model has all days under 200 miles along with the vast majority being below 100 per day, approximately 85% of shows. Whereas the 2017 schedule had eight days above 200 miles and approximately 50% of the shows under 100 miles.

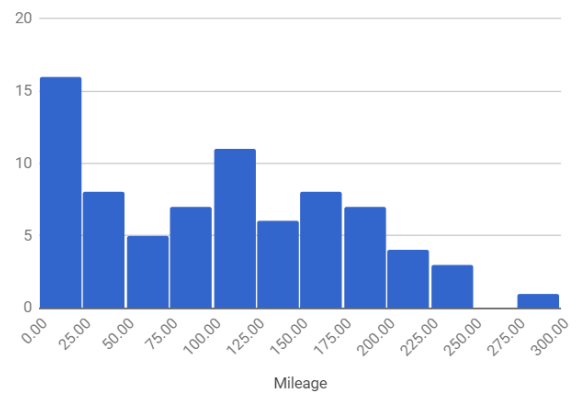
Our Model (Proposed 2018 Season)

Histogram of Miles Traveled That Day: Proposed 2018 Season

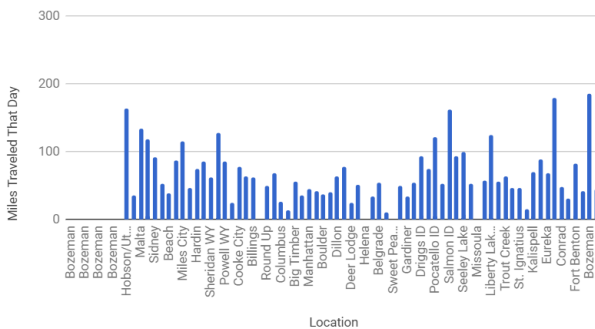


2017 Season Data

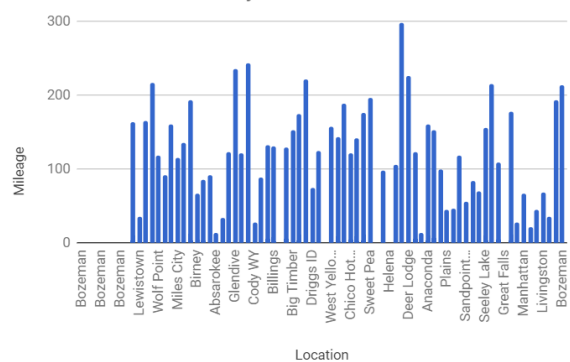
Histogram of Miles Traveled That Day: MSIP 2017



Miles Traveled That Day: Proposed 2018 Season



Miles Traveled That Day: MSIP 2017 Season



Recommendations

We recommend that MSIP do the following for their 2018 summer schedule:

- Add Kalispell and Gardiner
- Remove Colstrip and one day in Great Falls
- Divide the two days spent in Pocatello, ID into one day in Pocatello, ID and one day in Idaho Falls, ID

Upon examination of average audience counts within the last 10 years and the revenue for the town, we found that some towns cost more money to travel to than they were actually worth in exposing as many people to Shakespeare as possible. Gardiner's population is approximately three times smaller than the population of Colstrip, yet the average audience count

is 218 compared to 81. Despite Kalispell's massive population size in comparison to these two towns, only an average of 405 individuals attend the shows. We selected this location regardless as the most probable to have a large audience count in comparison to other towns in Montana that were not yet part of the schedule. Both Gardiner and Kalispell reached a revenue of over \$1,000, while Colstrip made less than \$200.

Kalispell was also advantageous because of its close proximity to Glacier National Park during the tourist season in August. Our model was created in hopes of catching tourists to and from their vacations, making Whitefish and Columbia Falls prime locations as well. Kalispell was chosen over these two towns because of the location's larger population, its success in years prior, and its previously established relationship with MSIP. Since Gardiner is an entrance into Yellowstone National Park and is also a prime tourist location in August, we chose this location in favor of Colstrip.

MSIP staff has discussed interest in returning to Kalispell, as the company goes to few towns near that location and many individuals in the area have expressed their desire for MSIP to revisit. We were able to include both Kalispell and Gardiner into the tour schedule of our model since MSIP staff believes they will only visit Great Falls for one day in the 2018 summer schedule.

Additionally, we decided to divide the two days spent in Pocatello, ID into one day in Pocatello, ID and one day in Idaho Falls as an attempt to reach more of the population. The towns are 52 miles apart, and MSIP must pass through Idaho Falls to reach Salmon, ID to reach optimal mileage for the drive. The division allows for the trip to be cut into two separate drives, so the actors have a small break from being on the road for as long.

Limitations

The main limitations of this model are the unpredicted changes in the attendance due to switching the order of the shows. Many small towns like to keep the days that MSIP performs for them the same, but with our parameters and restrictions set, this did not work for all places. Specifically, Conrad will now be in the later part of the season instead of the earlier part due to eliminating backtracking during the front end of the season. The other limitation of this model is that it does not adjust for the smokey season which occurs heavily during August. The MSIP staff will be in the most mountainous area of the state and could be affected. The reason that we did take the smoke into consideration, was due to keeping the beginning of the season as similar to previous years. Also, August is a heavy tourist season for the Northwestern part of Montana since it is warmer and Glacier National Park has the Going to the Sun Road open. This could help increase the chance that the shows might be exposed to more tourists.

Conclusion

The major benefit of our model is its natural flow, which significantly cuts down the mileage and money spent traveling from town to town. As a result, the MSIP staff is spending less time on the road and doing more of what they are passionate about. Our model contains both locations that are dependable supporters of MSIP and revisited or new locations that have the potential for exposing Shakespeare to a greater part of the public in and around Montana.

Appendices

Appendix A: Traveled Miles

Location	Miles Traveled That Day
Bozeman	0
Bozeman	0
Bozeman	0
Bozeman	0
Bozeman	0
Bozeman	0
Bozeman	0
Bozeman	0
Hobson/Utica	163
Lewistown	35
Malta	134
Wolf Point	119
Sidney	91
Glendive	53.2
Beach	38.9
Ekalaka	86.6
Miles City	115
Forsyth	45.8
Hardin	74.1
Birney	86
Sheridan WY	62
Worland WY	127
Powell WY	85.4
Cody WY	24.1
Cooke City	77
Red Lodge	63

Billings	61.8
Billings	0
Round Up	49.4
Laurel	68.9
Columbus	26.7
Absarokee	14
Big Timber	55.3
Livingston	34.6
Manhattan	45.3
Whitehall	40.9
Boulder	37.5
Butte	39.8
Dillon	63.8
Anaconda	77.3
Deer Lodge	25
Helena	50.4
Helena	0
Townsend	33.4
Belgrade	54.6
Sweet Pea (Bozeman)	10.5
Sweet Pea (Bozeman)	0
Chico	48.8
Gardiner	34.3
West Yellowstone	54
Driggs ID	94
Thayne WY	75
Pocatello ID	121
Idaho Falls ID	52
Salmon ID	162

Hamilton	92.8
Seeley Lake	100
Missoula	53
Missoula	0
Superior	57.5
Liberty Lake, WA	125
Sandpoint, ID	56.3
Trout Creek	63.7
Plains	46.7
St. Ignatius	45.5
Charlo	14.2
Kalispell	70.1
Libby	88.8
Eureka	68.7
Cutbank	179
Conrad	47.8
Choteau	31.4
Fort Benton	81.6
Greatfalls	42.3
Bozeman	185
Big Sky	44.1
<i>Total Miles</i>	<i>4403.9</i>

Appendix B: MSIP Data from Prior Years

COMMUNITY	AC-2009	AC-2010	AC-2011	AC-2012	AC-2013	AC-2014	AC-2015	AC-2016	AC-2017	Average
COLSTRIP	65	105		57	67	87	83		102	81
GARDINER	278	227	248	276	140	252	153	171		218
KALISPELL	287	347	307	275	620	333	544	525		405

COMMUNITY	Town Population	2016 AC	% of Pop. At Shows	2017 AC	% of Pop. At Shows
COLSTRIP	2,336	83	3.6%	102	4.4%

DATE	TOWN	AUDIENCE COUNT	DONATION AMOUNT	DONATIONS SENT TO FOUNDATION	DONATION TOTAL	CASH MERCH SALES	CC MERCH SALES	MERCH TOTAL		TOWN \$ TOTAL	
Sunday, July 17, 2016	Gardiner	171	\$544.00	\$110.00	\$654.00	\$37.00	\$318.00	\$355.00		\$1,009.00	
Wednesday, August 24, 2016	Kalispell	525	\$849.35	\$190.00	\$1,039.35	\$279.00	\$266.00	\$545.00		\$1,584.35	
DATE	TOWN	AUDIENCE COUNT	DONATION AMOUNT	DONATIONS SENT TO FOUNDATION	CC & Cash Donations at Merch Table	DONATION TOTAL	CASH MERCH SALES	CC MERCH SALES	MERCH TOTAL		TOWN \$ TOTAL
Thursday, July 6, 2017	Colstrip	102	\$181.00	\$0.00	\$0.00	\$181.00	\$3.00	\$0.00	\$3.00		\$184.00