

Exhibit C

On-site vehicle survey

METHODS: Surveying

- Survey conducted onsite from 10:00am to 6pm PST on 3/6/2021.
- The number of passengers were counted in exiting vehicles.
 - While not initially an objective of the survey, this source of data became apparent to the observer beginning at 1:35pm.
- Photographs and video were taken of most vehicle entry and exit events as evidence.
 - Observer was positioned in personal vehicle watching entries down the north-south portion of Liberty Island Road. Some vehicles parked along Shag Slough immediately behind observer and were thus out of view for a photograph.
 - Observer was speaking with other users at various points between 10am-11:30am, and thus photographs were not taken for entries and exits during that time interval.
 - Photo/video data is not attached due to size but is available upon request.

METHODS: Surveying

Example of photograph taken during vehicle survey. View is southward on Liberty Island Road. Picture location is at the southward turn in the road.



METHODS: Analysis

The Google Places API allows users to access some of the same data that is available on its web-based Google Maps service. One data source (popular times) is often used for locations with lots of visitor traffic, like restaurants, bars, etc (see Fig 1)

The Shag Slough Bridge area (Fig 2) is one such location because it receives consistently high visitor traffic. This means that the Google Places API saves data related to visitor traffic and makes that data accessible to anyone with a Google account. This data gives recent information about the average traffic at a site 24/7.

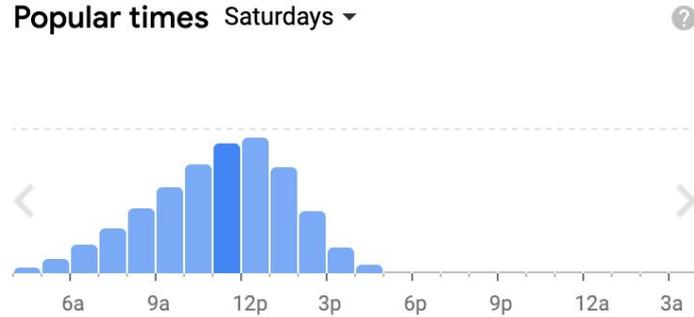


Fig 1. Popular times data for Liberty Island Ecological Reserve



Fig 2. Liberty Island Ecological Reserve Google Maps pin location

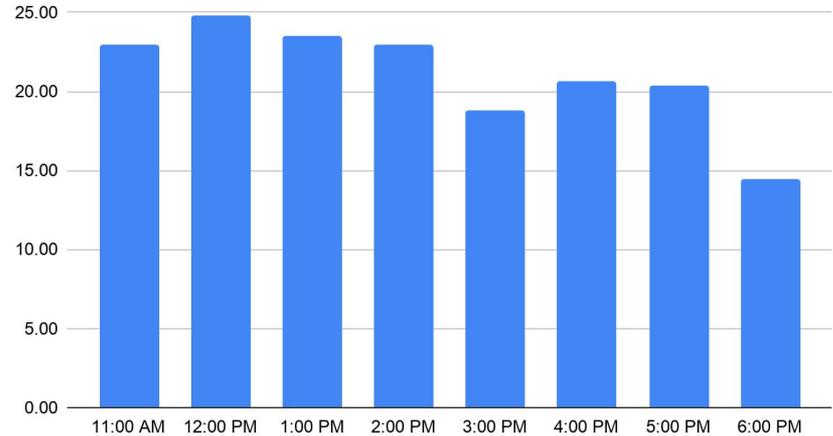
METHODS: Analysis

We can use the Google Places API data to help us intelligently extrapolate the survey data collected on a single Saturday.

Considerations:

1. The visitation data from the Google Maps API is normalized to 100 against the heaviest traffic 1hr period in a week. This means the busiest time during a week (Saturday from 11am-noon) is valued at 100.
2. The Google Places API data is updated daily for some moving average window of unknown length. Google [sources](#) state that this window is around 4-6 weeks.
3. The Google Places API data is for a proportion of the population that has the Google Maps app installed, and in this case only tracks users who are in close proximity to the eastern side of the Shag Slough bridge (likely for users within a ~100m radius).

Average cars present during each 1hr interval of survey



METHODS: Analysis

Our assumptions:

1. Visitors tracked by the Google API have a length of visit similar to users elsewhere along Shag Slough / Liberty Island.
2. Visitors patterns tracked by the Google API are a similar proportion of the total Shag Slough / LIER visitation throughout the week. This means that if 40% of total visitors are being tracked by the Google API on Saturday, then we assume 40% of the total users are being tracked on Tuesday as well.
3. The average number of people observed per vehicle is similar throughout the week.

METHODS: Analysis

Our code:

1. Used an open source project to pull popular times data from the Google Places API:
<https://github.com/m-wrzt/populartimes>
2. Wrote a python script (right) that performs scaling against the extracted popular times data and extrapolates the observed survey data in order to find total weekly site visits.

```
#####
#
# USAGE: >>> python3 visitation_analysis.py
#
#####

import populartimes

# Liberty Island Ecological Reserve popular times data fro API call
# LIERdata=populartimes.get_id("YOUR_GOOGLE_PLACES_API_KEY", "ChJOWo95o01hYARtsdLKEbBTQw")

# Data below collected using the Google Places API call shown above on 3/10/21 16:00PST
LIERdata={"id": 'ChJOWo95o01hYARtsdLKEbBTQw', 'name': 'Liberty Island Ecological Reserve', 'address': 'Liberty Island Rd, Dixon, CA 95620, USA', 'types': ['park', 'point_of_interest', 'establishment'], 'coordinates': {'lat': 38.30639059999999, 'lng': -121.6917046}, 'rating': 4.1, 'rating_n': 30, 'populartimes': [{'name': 'Monday', 'data': [0, 0, 0, 0, 0, 1, 8, 16, 23, 29, 29, 26, 21, 16, 11, 8, 4, 1, 0, 0, 0, 0, 0, 0]}, {'name': 'Tuesday', 'data': [0, 0, 0, 0, 0, 0, 5, 12, 18, 22, 23, 21, 16, 18, 29, 29, 11, 0, 5, 11, 0, 0, 0]}, {'name': 'Wednesday', 'data': [0, 0, 0, 0, 0, 0, 1, 5, 11, 14, 14, 12, 12, 16, 18, 14, 4, 0, 0, 0, 0, 0, 0]}, {'name': 'Thursday', 'data': [0, 0, 0, 0, 0, 2, 5, 8, 11, 15, 19, 25, 28, 28, 26, 21, 16, 11, 7, 2, 0, 0, 0, 0]}, {'name': 'Friday', 'data': [0, 0, 0, 0, 0, 2, 5, 9, 15, 22, 29, 33, 32, 25, 16, 7, 0, 0, 0, 0, 4, 5]}, {'name': 'Saturday', 'data': [5, 1, 0, 0, 4, 5, 9, 16, 32, 57, 84, 100, 95, 71, 42, 19, 5, 0, 0, 0, 0, 0, 0]}, {'name': 'Sunday', 'data': [0, 0, 0, 1, 2, 8, 14, 22, 29, 39, 47, 54, 59, 57, 50, 42, 30, 19, 9, 2, 0, 0, 0, 0]}]}

#####
# Google Maps API data
saturday_google_data=LIERdata["populartimes"][5]["data"] # Select data for Saturday
google_hourly_integral=sum(saturday_google_data[10:18]) # Integrate over the visitors Google Places API detects during the survey period

# Observed data
observed_hourly_integral=161.86 # We converted our observed data into the same format that the Google API data is presented in (average number of visitors present during each hour interval). We then integrated over the time window that the survey occurred in.
observed_cars=69 # Observed vehicle entries during survey
people_per_car=1.97 # Observed number of people per car (average).

# The Google API data is normalized to 100. We need to find a scaling metric between the Google API and observed data so that we can use the Google API data to estimate visitation during the periods not surveyed.
scaling_factor = google_hourly_integral/observed_hourly_integral
# We actually measured vehicles, not people like the Google API does. We scale back to car count.
scaling_factor2 = observed_hourly_integral/observed_cars

google_est_car_totals_week = []
for i in range(0,7):
    sum_google_people_daily=sum(LIERdata["populartimes"][i]["data"])
    sum_google_cars_est_daily=sum_google_people_daily/scaling_factor/scaling_factor2
    google_est_car_totals_week.append(sum_google_cars_est_daily)

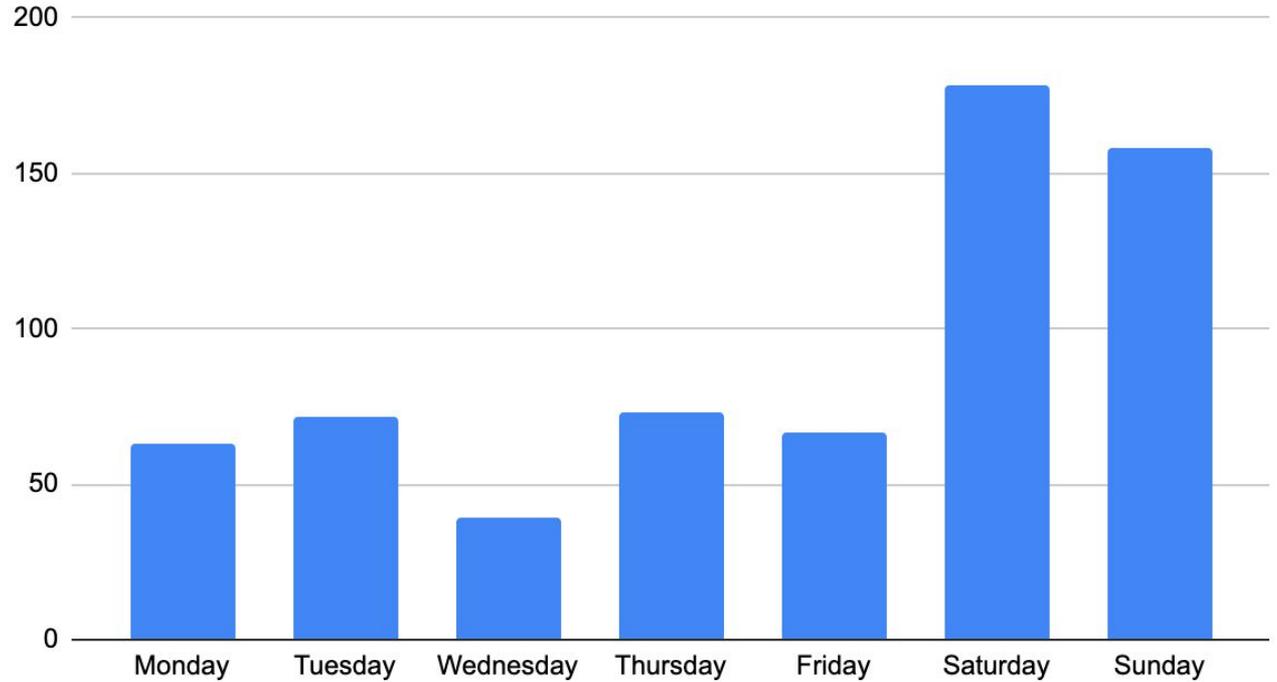
total_est_people_per_week = sum(google_est_car_totals_week)*people_per_car
print(google_est_car_totals_week)
print(" TOTAL ESTIMATED WEEKLY VISITORS: ", total_est_people_per_week)
```

RESULTS

TOTAL ESTIMATED
WEEKLY VISITORS:

650.57

Extrapolated visitor count from Google Places API analysis



time	change in cars observed	# people observed	Notes
10:00:00 AM	23		Initial count while driving down length of Shag Slough levee from the turn south until the LIER property.
10:20:00 AM	-2		
10:20:00 AM	3		
10:30:00 AM	1		
10:30:00 AM	-3		
11:20:00 AM	1		
11:30:00 AM	2		
11:30:00 AM	1		
11:35:00 AM	-1		
11:35:00 AM	-1		
11:36:00 AM	1		
11:37:00 AM	1		
11:38:00 AM	-1		
11:44:00 AM	-1		
11:59:00 AM	1		
12:01:00 PM	-1		
12:07:00 PM	-1		
12:09:00 PM	1		
12:18:00 PM	1		
12:27:00 PM	-1		
12:31:00 PM	-1		
12:36:00 PM	1		
12:41:00 PM	-1		
12:44:00 PM	-1		
1:01:00 PM	-1		
1:06:00 PM	-1		
1:12:00 PM	1		
1:21:00 PM	-1		
1:23:00 PM	1		
1:24:00 PM	1		
1:29:00 PM	1		
1:36:00 PM	1		
1:37:00 PM	1		
1:41:00 PM	-1	1	Began counting people inside exiting vehicles at this point.
1:42:00 PM	-1	2	The number of persons noted here may be attributed to the 1:42pm vehicle entry
1:44:00 PM	1		The number of persons noted here may be attributed to the 1:41pm vehicle entry
1:46:00 PM	1		
1:48:00 PM	1		
1:52:00 PM	-1	1	
1:53:00 PM	-1	3	
1:57:00 PM	-1	2	
1:57:00 PM	-1		
2:07:00 PM	-1		
2:13:00 PM	-1		
2:14:00 PM	-1		
2:16:00 PM	1		
2:17:00 PM	1		
2:17:00 PM	-1		
2:29:00 PM	-1	3	
2:30:00 PM	-1	3	
2:31:00 PM	-1	3	
2:33:00 PM	-1	2	
2:33:00 PM	1	2	Backseat view obscured, so potentially more people in vehicle
2:39:00 PM	1		
2:39:00 PM	1		
2:39:00 PM	1		
2:47:00 PM	-1	2	
2:47:00 PM	-1	3	
2:47:00 PM	-1	2	
2:47:00 PM	1		
2:48:00 PM	1		
2:49:00 PM	-1		
2:59:00 PM	2		
3:12:00 PM	1		
3:27:00 PM	-1	2	
3:29:00 PM	-1	1	
3:29:00 PM	1		
3:30:00 PM	-1	1	
3:31:00 PM	-1	2	
3:38:00 PM	2		
3:41:00 PM	1		
3:41:00 PM	1	3	
3:51:00 PM	1		
3:51:00 PM	-1	1	
3:53:00 PM	-1	3	
3:58:00 PM	1	2	Backseat view obscured, so potentially more people in vehicle
4:01:00 PM	1	1	
4:07:00 PM	-1	2	Backseat view obscured, so potentially more people in vehicle
4:09:00 PM	-1	3	

4:11:00 PM	1	1					
4:16:00 PM	-1	3					
4:22:00 PM	-1	1					
4:31:00 PM	1						
4:32:00 PM	-1	2					
4:37:00 PM	-1	1					
4:38:00 PM	1						
4:49:00 PM	-1	2					
4:55:00 PM	-1	2					
4:55:00 PM	1						
5:03:00 PM	-1	4					
5:13:00 PM	-1	2					
5:13:00 PM	-1	1					
5:15:00 PM	-1	2					
5:34:00 PM	-1	2					
5:54:00 PM	-1	1					
5:54:00 PM	-1	2					
5:54:00 PM	-1	1					