

SMART – San Rafael

2nd and 3rd Street Gate Down

Timing Study – April 4, 2022



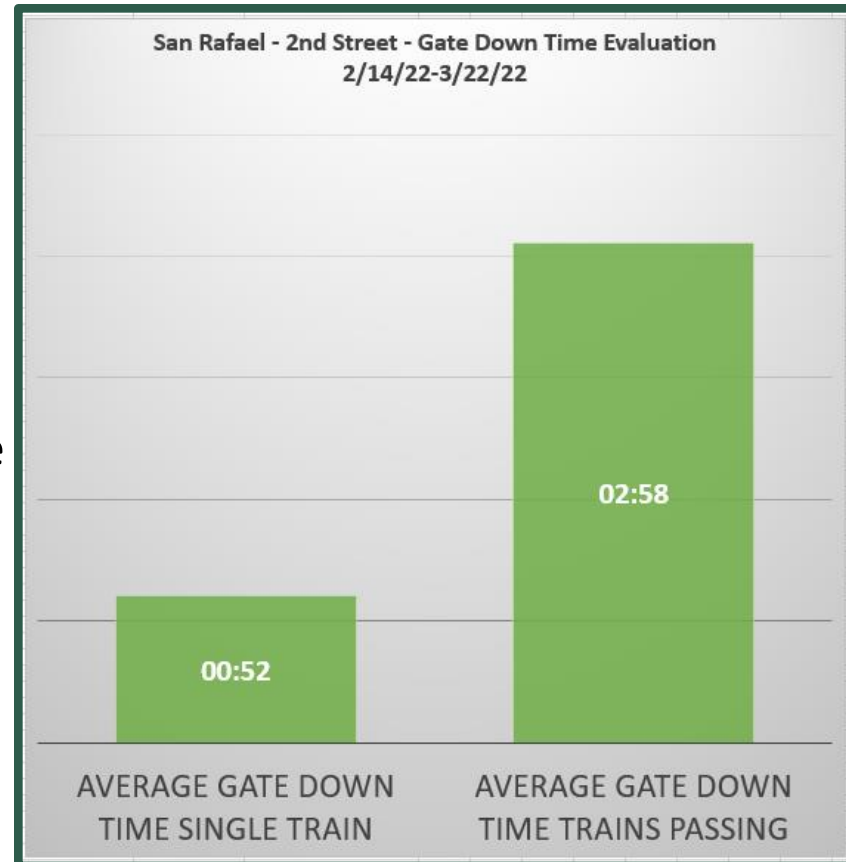
Overview

- SMART has been studying the gate town timing associated with train movements through the at-grade crossings at 2nd and 3rd Street in San Rafael
- Goals of Study
 - Catalog “Gate Down” times
 - Focused on 2nd Street
 - Sees most traffic
 - Study train movements associated with minimum and maximum gate down times
 - Understand why certain train movements posed less of an impact to traffic than others
 - Revise operational practices where possible to help minimize gate down times and minimize impact to traffic
 - Improvements made at 2nd Street will also improve 3rd Street



Study Data – Average Gate Down Times

- SMART reviewed over 580 activations of the warning system at 2nd Street
- Activations were divided into two categories
 - Single Train
 - Trains Passing
- What did we learn?
 - Single Train - Average Gate Down Time
 - 52 seconds
 - Passing Trains - Average Gate Down Time
 - 2 minutes and 58 seconds
- On average, gate down times for passing trains were over 3x higher than single train movements



Study Data – Minimum Gate Down Times

- What did we learn?
 - Single Train - Minimum Gate Down Time
 - 35 seconds
 - Passing Trains - Minimum Gate Down Time
 - 1 minute and 6 seconds
- We studied the single train movement with the shortest gate down time
 - This southbound train dwelled for ~50 seconds
- We studied the passing train movement with the shortest gate down time
 - This involved the southbound and northbound trains passing one another just south of 2nd street.
 - The northbound train left Larkspur ~2 minutes after the scheduled departure



Key Takeaways

- Southbound trains that have longer than normal dwell times at San Rafael Station result in longer gate down times
 - Long dwell times can result from southbound trains arriving early, and waiting at the station in order to depart on time
- Trains that pass one another at San Rafael Station can cause longer gate down times due to the time required for the southbound train to stop, dwell at the station, and clear the crossings
 - This can be compounded by southbound trains arriving early at San Rafael Station



Improvement plan

1. Arrive southbound at San Rafael Station on time instead of early

42 Seconds

- Manage travel time in between Civic Center Station and San Rafael Station
- Allow for a 50-60 second dwell at most when possible
- Review improvement to gate down times
- Monitor schedule adherence

32 Seconds

10-20 SECOND
REDUCTION

20-40%
IMPROVEMENT

TARGETED AVERAGE
GATE DOWN TIME
FOR SINGLE TRAINS

2. Delay northbound departures from Larkspur by ~2 minutes

- Start with informal adjustments via internal train crew schedule, and inform passengers departing Larkspur
- Review improvement to gate down times
- Monitor schedule adherence
- Incorporate permanent changes with release of updated schedule

2 Minutes

1 Minute

30 Seconds

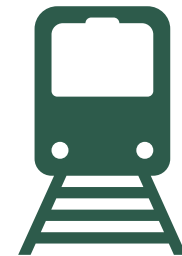
60-90 SECOND
REDUCTION

30-50%
IMPROVEMENT

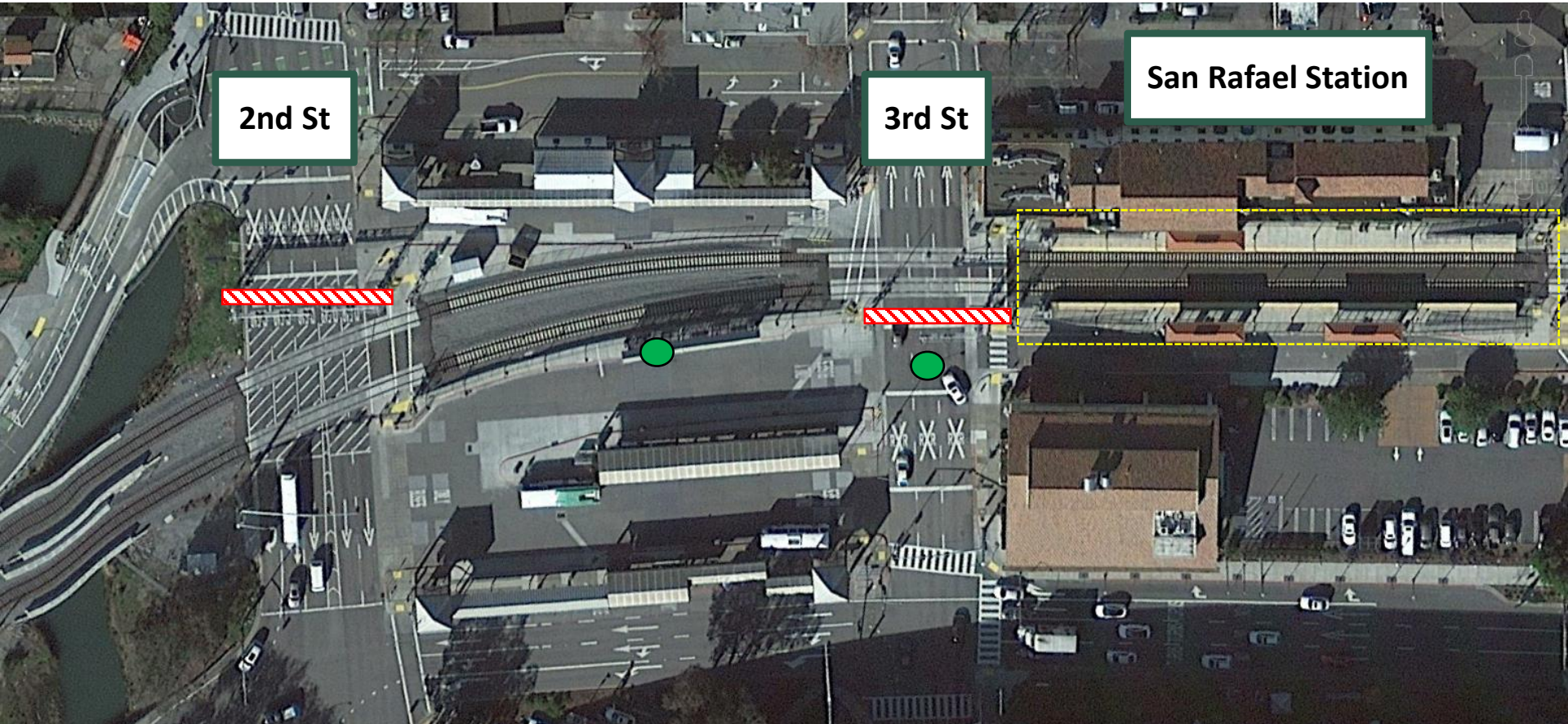
TARGETED AVERAGE
GATE DOWN TIME
FOR PASSING TRAINS

Potential Improvement

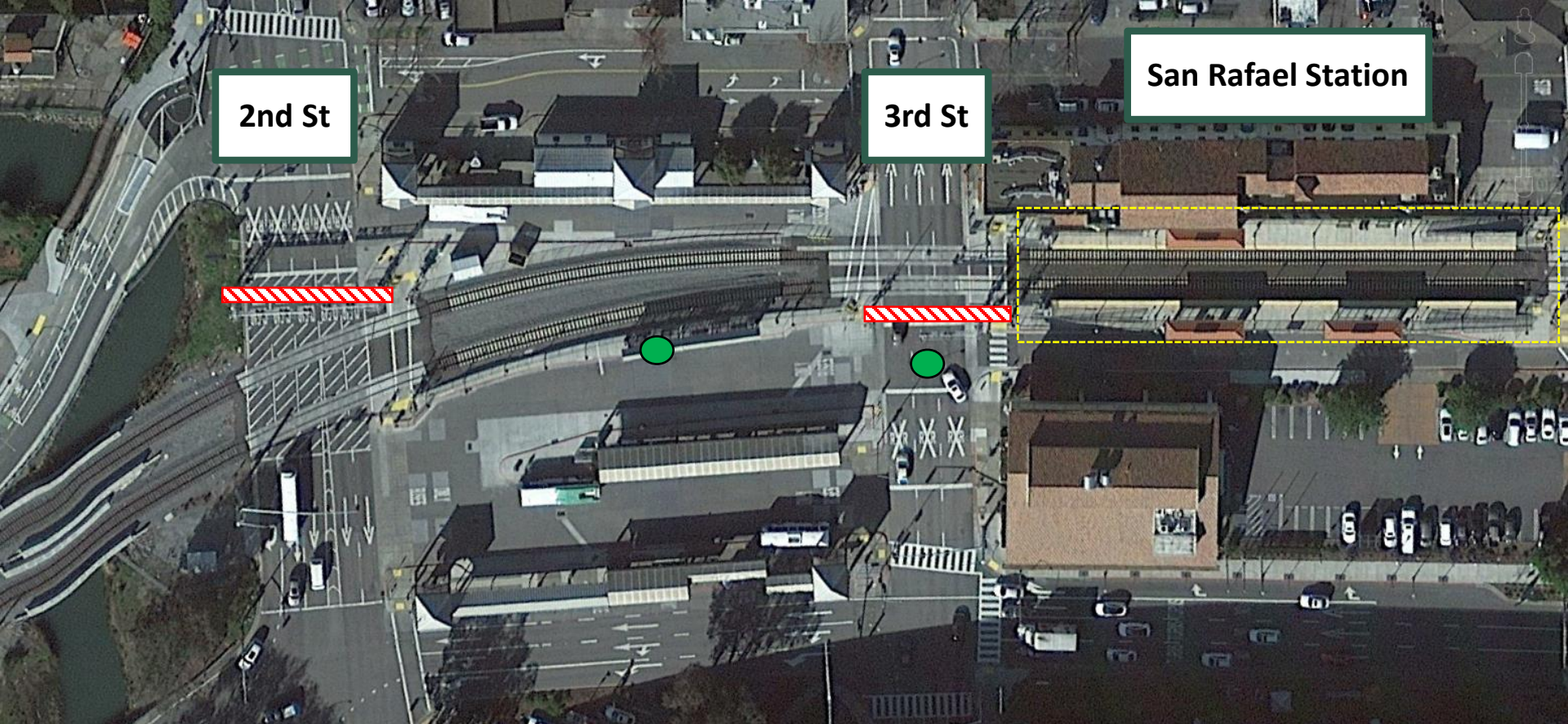
- SMART's current weekday schedule includes 3 activations that involve trains passing at San Rafael
 - Operational changes could reduce traffic impacts by 3-4.5 minutes per day
- When SMART returns to its pre-pandemic schedule, trains will pass in San Rafael as many as fourteen times a day
 - Operational changes could reduce traffic impacts by 14 to 21 minutes per day



Current Operation – Trains Pass at Station



Proposed Operation – Trains Pass at 2nd Street



Questions?