Alisal Street Complete Streets Before and After Study

Final

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SALINAS
RICH IN LAND | RICH IN VALUES

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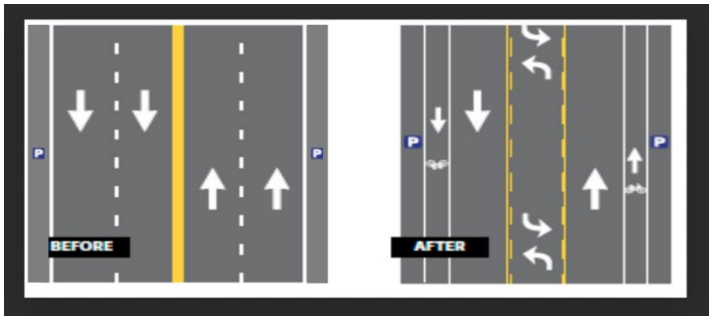
Executive Summary

This report summarizes traffic and economic conditions before and after the project implementation of the Alisal Street Complete Streets Project. This project is phase I of the Downtown Salinas Complete Streets Project funded by a federal grant from the Highway Safety Improvement Program (HSIP) and a grant from the Transportation Agency for Monterey County (TAMC) for design.

The project included road diet and other improvements along 1.37 miles of Alisal Street between Acacia Street and Front Street. Alisal Street is in a residential neighborhood providing access to a post office, college, court, school district, etc. The project included the following improvements focusing on bicycle and pedestrian safety.



1. Travel lanes reduction from two lanes in each direction to one lane in each direction with a center turn lane. This lane reduction facilitated the accommodation of bike lanes in each direction.
2. High visibility crosswalks with Americans with Disabilities Act (ADA) pedestrian ramps at
    1. Front Street
    2. Homestead Avenue
    3. Acacia Street
3. Curb bulb-outs were included at Homestead Avenue to decrease the crossing distance.
4. Traffic signal improvements throughout the corridor.

The expected benefits from the project improvements are as follows:

- Improved safety through the reduction of crashes and severity of crashes
- Create a calmer traffic environment on Alisal Street through speed reduction
- Enhance travel experience for bicyclists
- Improved pedestrian safety

The project was implemented between April 2020 and April 2021. Traffic and economic data were collected before and after the project implementation in November 2019 (before the project) and in November 2021 (after the project) to assess the impacts of the project. The following data was used for the before and after data analysis:

1. Traffic Volume and Speed
2. Travel Time Runs Along Alisal Street Corridor
3. Vehicle, Bicycle, and Pedestrian Volumes at Intersections
4. Reported Crash Data
5. Sales Tax Receipt for Business Along Alisal Street

The traffic volumes and speeds are expected to decrease along Alisal Street due to the travel lane reductions with a potential concern of an increase in traffic volumes at the other corridors in the vicinity due to potential diversion of traffic from Alisal Street. However, the traffic volumes collected on adjacent corridors in November 2021 are lower than the traffic volumes collected in November 2019 indicating that the traffic conditions did not reach the pre-COVID-19 pandemic conditions. Because of this, the data analysis focused on differentiating project impacts and non-project impacts due to changed conditions where needed. Comparisons were made between the post-project conditions and pre-pandemic conditions in 2019 omitting the conditions in 2020 to avoid the effects of pandemic conditions on the data collected.

Based on the findings of the data analysis, the key conclusions were:

- There is an overall decrease in traffic volumes and speed on Alisal Street with the implementation of complete streets features.
- Traffic Speeds on Alisal Street have decreased but the prevailing speeds still justify keeping the posted speed limits.
- The number of vehicles traveling 10+ mph over the posted speed limit has decreased significantly on Alisal Street (61 percent) and the adjacent corridors (54 percent).
- The traffic volumes have decreased on adjacent corridors. There is no indication that the traffic is diverted from Alisal Street to the adjacent streets due to the roadway capacity reduction on Alisal Street.
- There is an overall decrease in pedestrian volumes along Alisal Street and other intersections by 38 percent. The overall reduction in pedestrian volumes indicates that the project improvements did not have a direct impact on changes in pedestrian volumes. Travel pattern changes due to the COVID-19 pandemic may be attributed to this change.
- The bicycle volume along Alisal Street decreased in the AM peak (31 percent) and mid-day peak (8 percent) periods, while the bicycle volume increased in the PM peak by 15 percent. The increase in the PM peak bicycle usage for recreational purposes along Alisal Street may be attributed to the project improvements but cannot be concluded without additional analysis.
- The average travel time has increased in both eastbound and westbound directions during the AM peak and Noon peak periods. The average travel time has decreased during the PM peak. The decrease in PM peak traffic volume is greater than the decrease in AM peak and noon peak traffic volumes. In addition to a travel lane removal, there are other factors like the exclusive pedestrian phase contributing to delay and subsequent reduction of travel times on Alisal Street. The following recommendations are made to mitigate the unnecessary delays.

    a. Remove the exclusive pedestrian phase
    b. Consider the implementation of Leading Pedestrian Interval (LPI)
    c. Consider adaptive signal timing strategies on Alisal Street Corridor
- A reduction of 63 percent in overall crashes is observed post-project implementation. The reduction of broadside crashes may be attributed to the new protected left-turn phase improvements. However, the sample size of crashes after the implementation of the project is small. It is recommended that the city continuously monitor the crashes to measure the safety benefits of the project.
- Sales tax receipts for businesses near Alisal Street Corridor have increased by five (5) percent. There may be various factors influencing this increase and may not be completely attributed to the project improvements.

Introduction

The Downtown Complete Streets Project intends to make travel on West Alisal Street and Lincoln Avenue corridors safer, and efficient, and serve all modes of transportation. The first phase included roadway re-striping, signal improvements, and crosswalk improvements along West Alisal Street from Acacia Street to Front Street. Figure 1 illustrates the roadway conditions before and after the improvements. The project is funded by a federal grant from the Highways Safety Improvement Program (HSIP) and a grant from the Transportation Agency for Monterey County (TAMC) for design. The second phase will include additional intersection improvements, continuing complete streets improvements, and enhanced bus service improvements along Lincoln Avenue.

This Report summarizes the traffic and economic conditions before and after the project implementation.

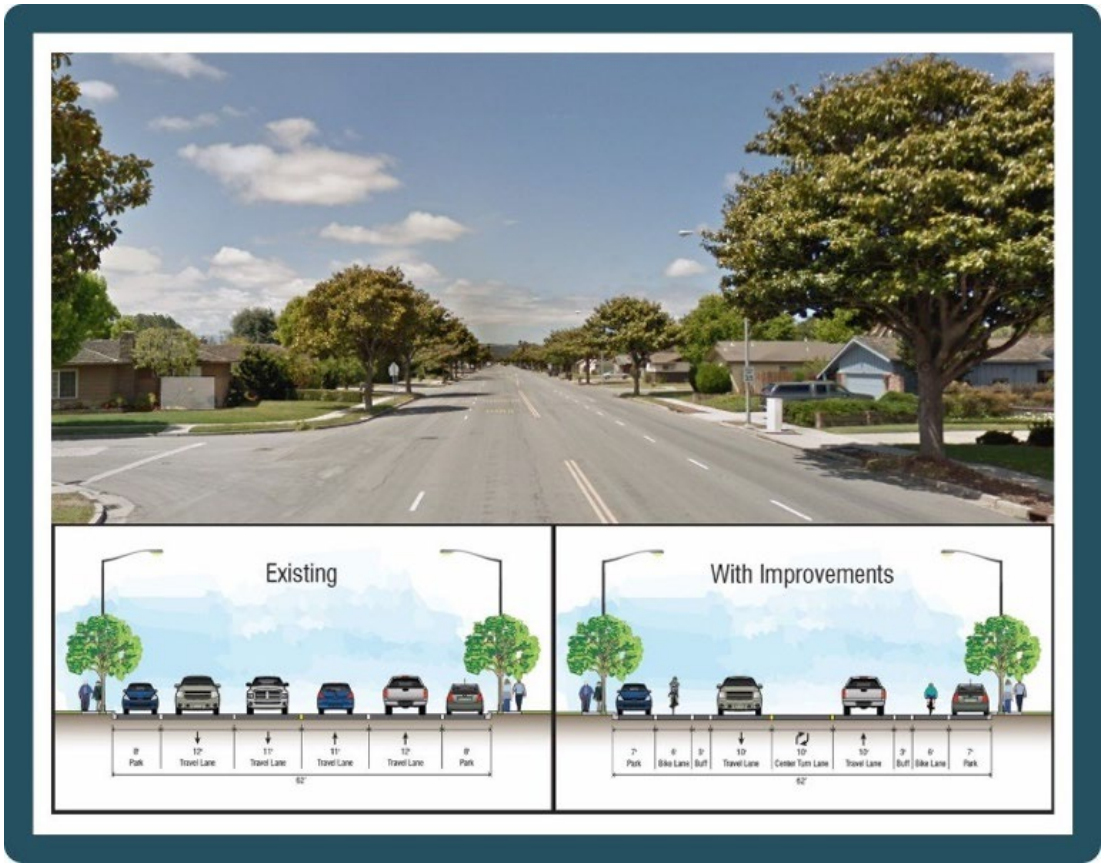


Figure 1: Roadway Configuration Before and After the improvements

PROJECT

The Downtown Salinas Complete Streets Improvements project is divided into two phases. Phase I improvements consisted of improvements along Alisal Street from Acacia Street to Front Street. Figure 2 illustrates the project limits and locations of pedestrian crosswalk improvements. Phase II of the complete streets project will include improvements on Lincoln Street and Main Street.

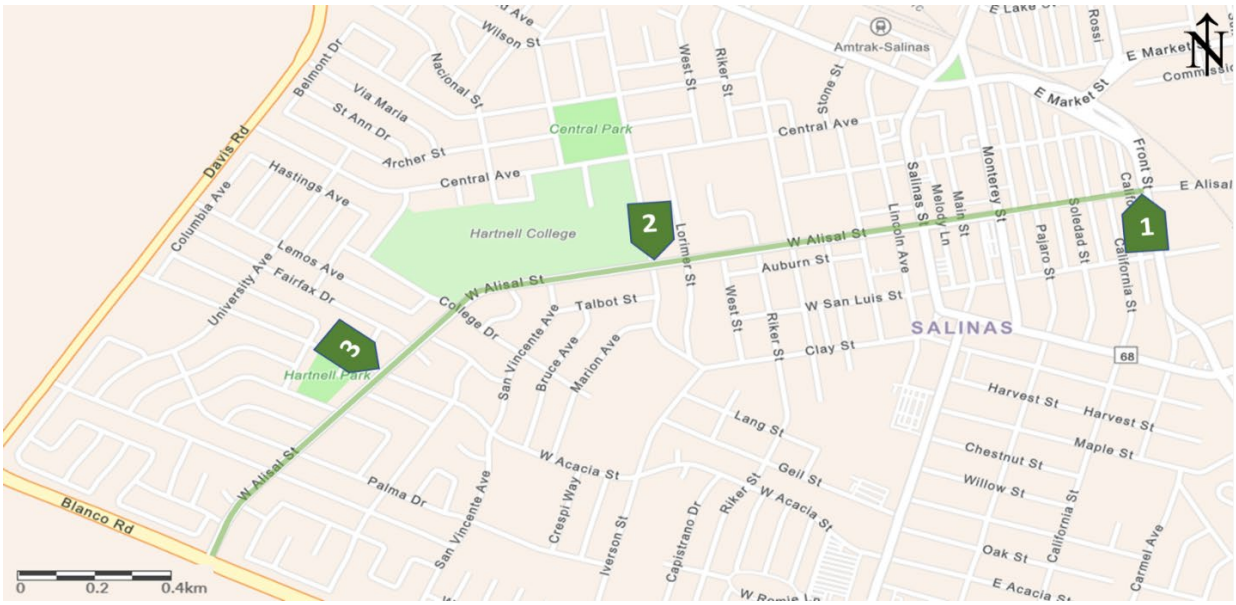


Figure 2: Project Limits and Study intersections

Phase I improvements along Alisal Street included the following:

1. Travel lanes reduction from two lanes in each direction to one lane in each direction with a center turn lane. This lane reduction facilitated the accommodation of bike lanes in each direction (refer to Figure 3).
2. High visibility crosswalks with Americans with Disabilities Act (ADA) pedestrian ramps at
    1. Front Street (refer to Figure 4)
    2. Homestead Avenue (refer to Figure 5)
    3. Acacia Street (refer to Figure 5)
3. Curb bulb-outs were included at Homestead Avenue to decrease the crossing distance.
4. Traffic signal improvements throughout the corridor.

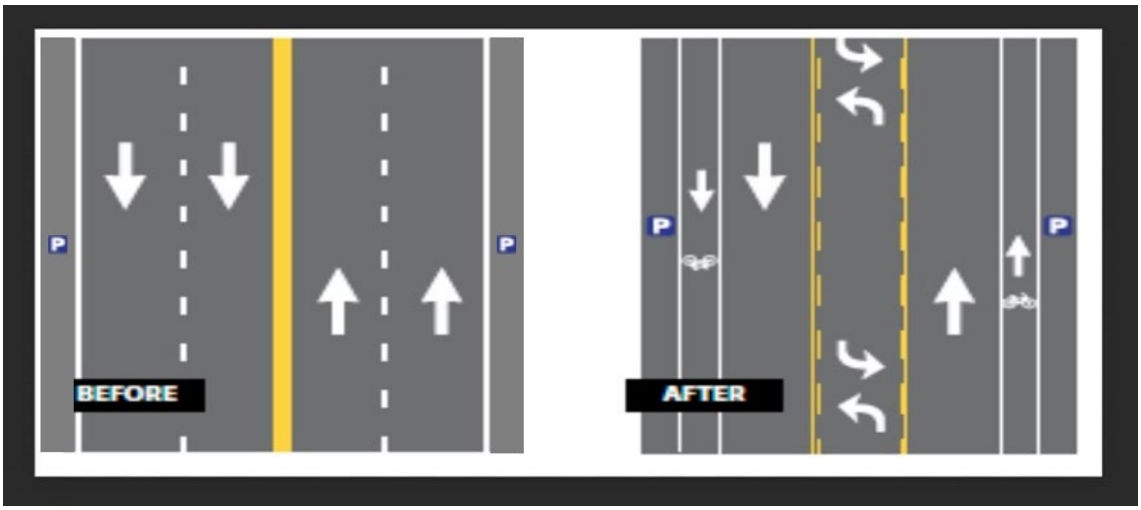


Figure 3: Roadway Reconfiguration

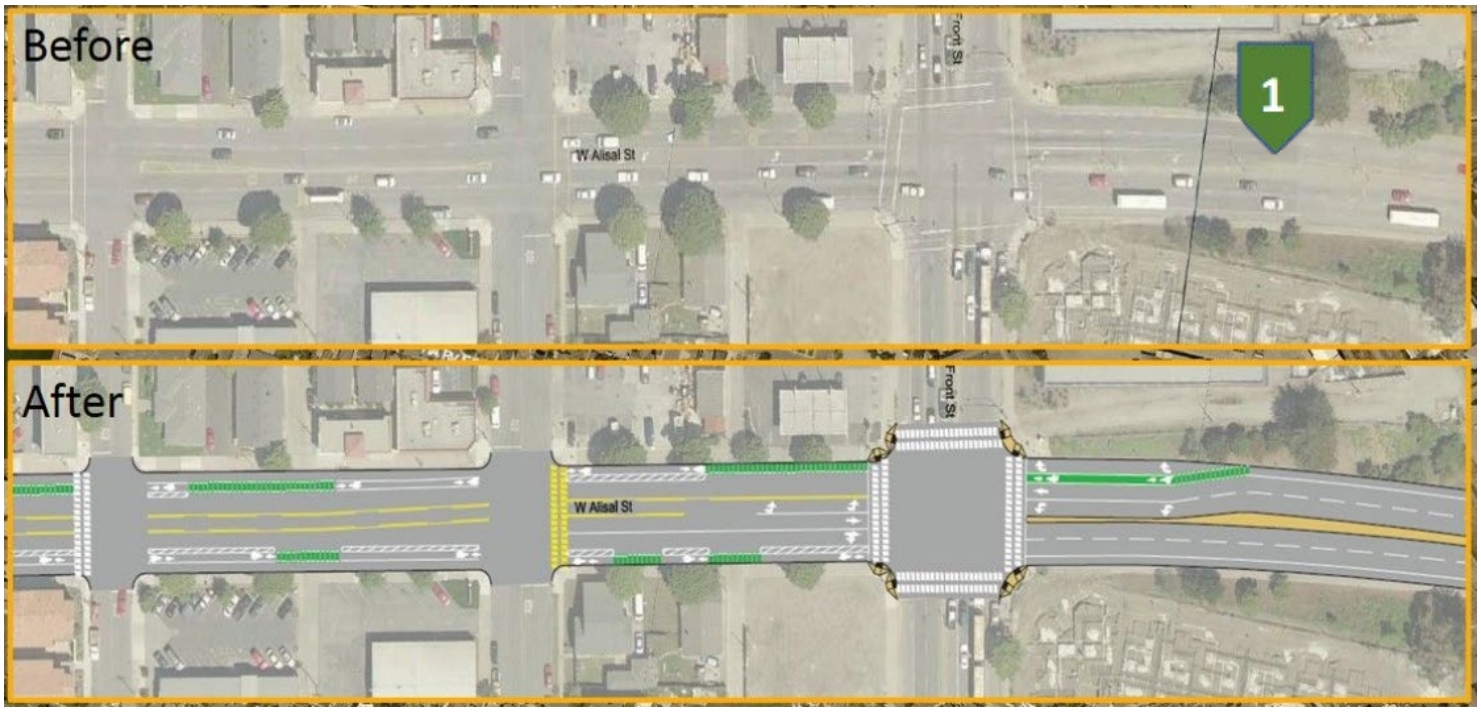


Figure 4: Improvements at Front Street

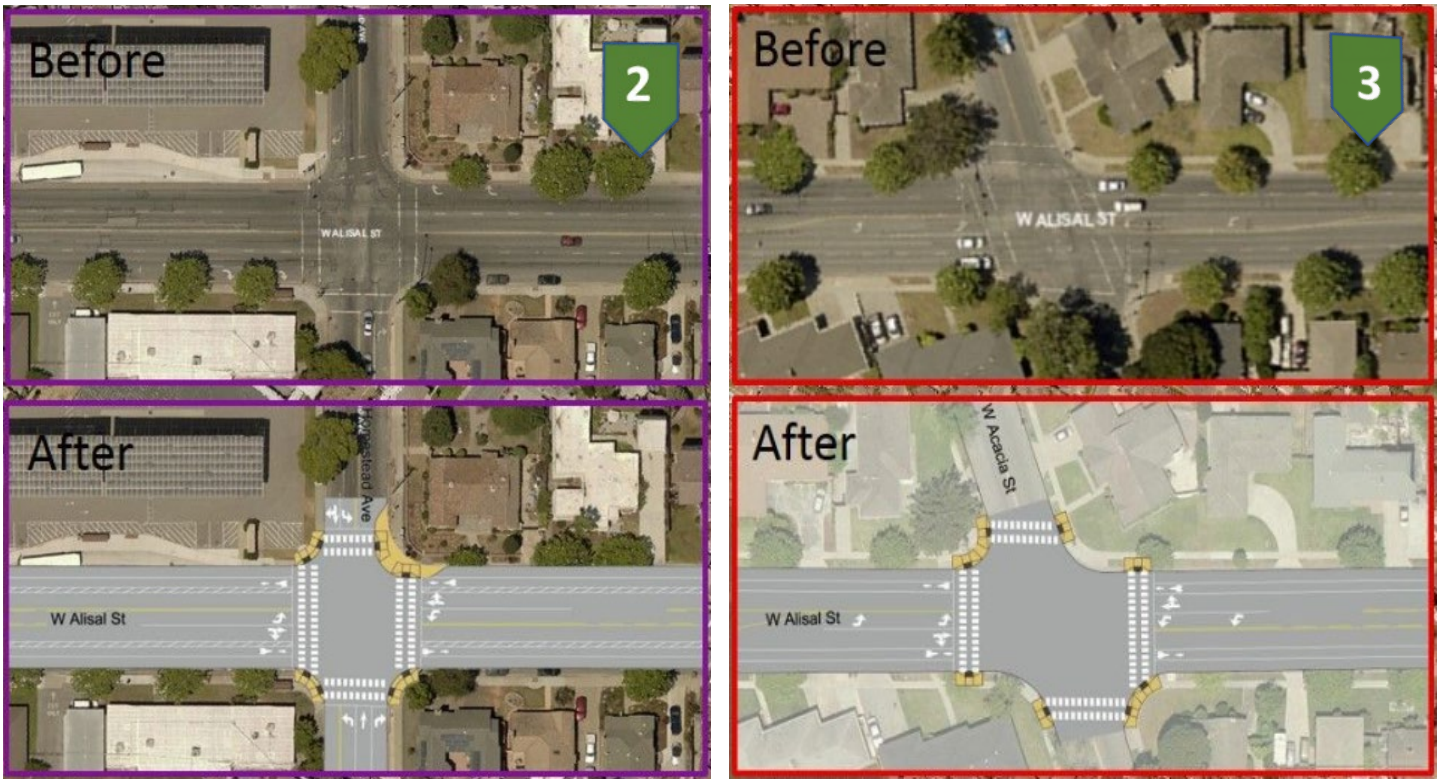


Figure 5: Improvements at Homestead Avenue and Acacia Street

EXPECTED BENEFITS OF THE PROJECT

The Downtown Complete Street Phase I project is essentially a "road diet" project along Alisal Street between Acacia Street and Front Street. Road diet projects are typically street reconfiguration projects that reduce the number of travel lanes in a street, most often reducing the number of travel lanes and adding a two-way center left-turn lane. According to Federal Highway Administration[1] (FHWA), there is strong research evidence that supports the following:

- Safety benefits can be achieved by converting four-lane undivided streets to three-lane cross-sections with two-way-left-turn lanes.
- The provision of a separate space for the exclusive use of bicycles improves safety over a shared travel lane alternative.
- Reduction in pedestrian crash risk can be achieved when crossing two- and three-lane roads compared to roads with four or more lanes.
- Reducing travel speeds helps to reduce the severity of crashes.

[1] https://safety.fhwa.dot.gov/provencountermeasures/road_diets.cfm#:~:text=Benefits%20of%20Road%20Diet%20installations,lanes%20for%20pedestrians%20to%20cross.

Data Collection

To evaluate the benefits of the road diet implementation on Alisal Street, the following data was collected in November 2019, before the project was implemented, and then again in November 2021, after the project was implemented. The data collection process followed the standard methodologies and practices commonly used by public agencies across the nation. Data were collected at locations directly impacted by the project and also at locations outside of the project limits to objectively differentiate the project impacts and changes that are non-project related. The following data sets were collected before and after the project implementation:

1. Traffic Volume and Speed
2. Travel Time Runs Along Alisal Street Corridor
3. Vehicle, Bicycle, and Pedestrian Volumes at Intersections
4. Reported Crash Data
5. Sales Tax Receipt for Business Along Alisal Street

Figure 6 shows the Average Daily Traffic (ADT) and speed data collection locations and the intersections where turning movement counts and pedestrian and bicycle counts were collected.

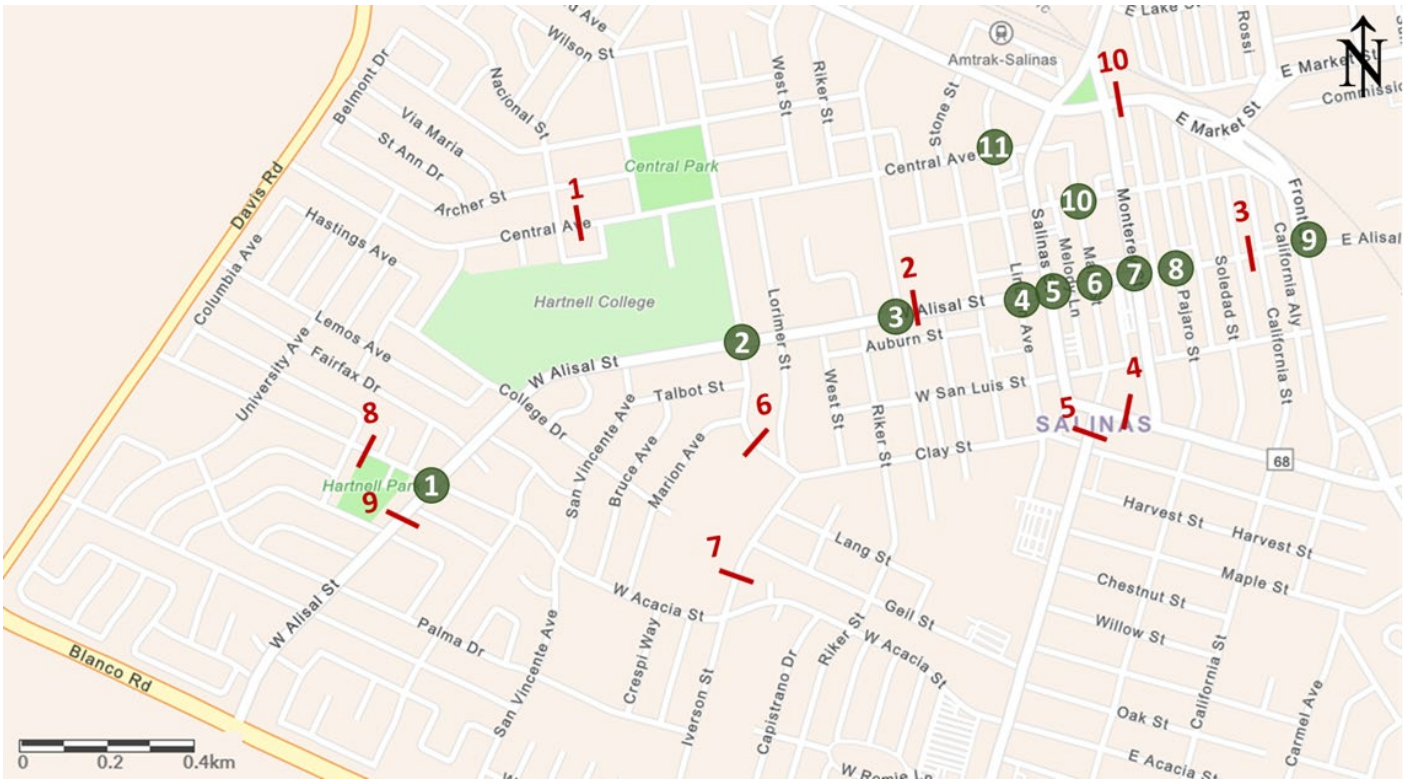


Figure 6: Data Collection Locations

List of ADT and speed data collection locations:

1. Central Avenue between Nacional Street and Cypress Street
2. W Alisal Street between Cayuga Street and Church Street
3. E Alisal Street between Soledad Street and California Street
4. John Street between Main Street and Monterey Street
5. Main Street between John Street and Winham Street
6. Homestead Avenue between Marion Avenue and Lorimer Street
7. Iverson Street between Geil Street and Acacia Street
8. Acacia Street between Camden Way and Chalon Circle
9. Alisal Street between Loma Vista Drive and Carmelita Drive
10. Market Street between Monterey Street and Pajaro Street

List of turning movement counts, pedestrian and bicycle counts were collected at intersections:

1. Alisal Street and Acacia Street
2. Alisal Street and Homestead Avenue
3. Alisal Street and Church Street
4. Alisal Street and Lincoln Avenue
5. Alisal Steet and Salinas Street
6. Alisal Street and Main Street
7. Alisal Street and Monterey Street
8. Alisal Street and Pajaro Street
9. Alisal Street and Front Street
10. East Gabilan Street and Main Street
11. Central Avenue and Lincoln Street

Mobility Trends – 2019 vs 2021

Traffic patterns have changed across the nation with changes in stay-at-home orders during the COVID-19 pandemic in 2020. Even after the restrictions are lifted, the lingering effects of the COVID-19 pandemic on roadway traffic can still be found in some places due to changes in employment and the provision of telecommuting options provided by many employers in the area. This section includes a comparison of mobility trends during the week of Jan 6, 2020 (pre-pandemic), and the week of November 15, 2021 (post-pandemic), in the City of Salinas, to gain insights into the effects of the COVID-19 pandemic on traffic data. These trends were reported by 'Replica[2]', a Big-Data tool that provides near-real-time information on traffic patterns, trends, and mobility preferences.

A summary of mobility trends is indicated in Figure 7 to Figure 9. As indicated by the mobility trends, work-based and home-based trips have increased in the City of Salinas, whereas trips for other purposes have decreased.

- Total trips in the city of Salinas have increased by approximately 34 percent.

[2] https://replicahq.com/

- Trips starting and ending within the City of Salinas have decreased by 2.5 percent.
- Home-based trips increased by 59 percent. Home-based trips have the home as either the origin or destination.
- Work-based trips increased by 71 percent. Work-based trips have the workplace as either the origin or destination.
- Trips for eating purposes decreased by 15 percent.
- Social trips have increased by 8 percent.
- Shopping trips have decreased by 2 percent.
- Recreational trips have decreased by 27 percent.
- The number of transit trips has decreased by 14 percent.

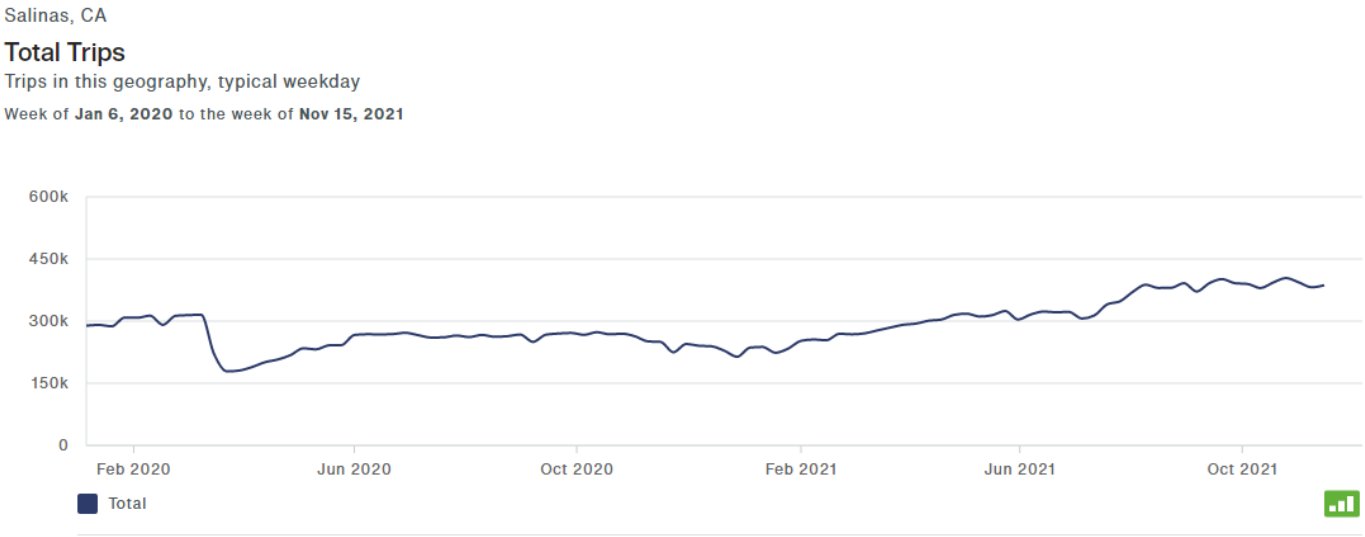


Figure 7: Total Trips in City of Salinas

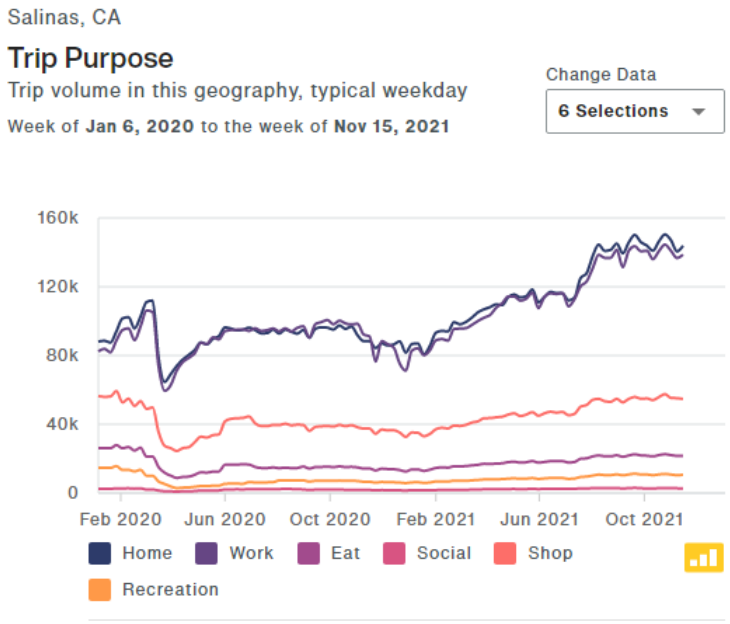


Figure 8: Number of Trips by Purpose

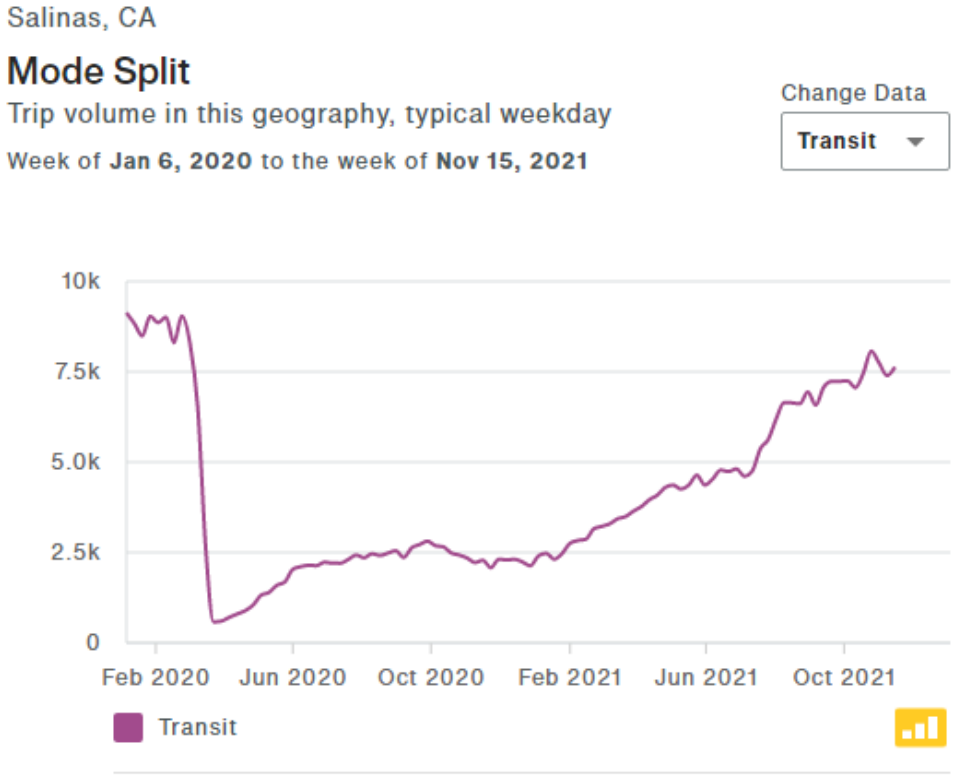


Figure 9: Transit Trends

As shown in Figure 10, the trip trends by the hour of the day have not changed much before and after the pandemic.

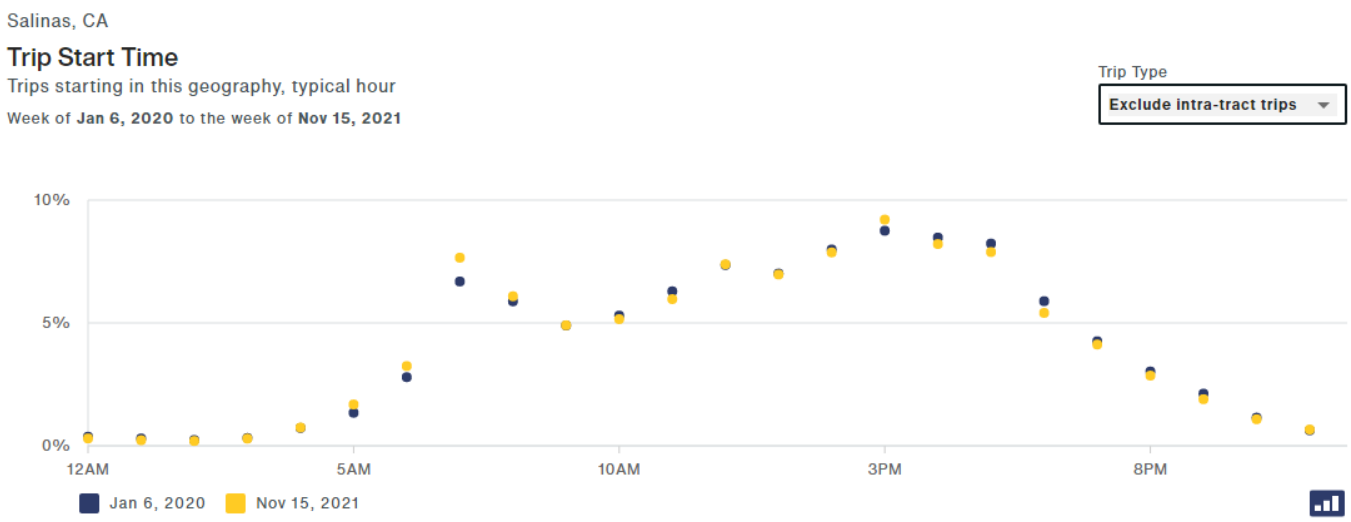


Figure 10: Trips by Hour of the Day

Data Analysis and Findings

TRAFFIC VOLUME AND SPEED DATA

24-hour Automatic recorder counts of traffic volume and speed were taken at ten (10) locations along Alisal Street and other corridors in the project vicinity for three (3) days in November 2019 and three (3) days in November 2021. With the road diet implementation, a reduction in traffic volume on Alisal Street is expected. Traffic volume and speeds on Alisal Streets and other segments in the vicinity were collected to capture the impacts of project implementation on traffic and speeds. The findings are summarized in Table 1.

Alisal Street Traffic Volume and Speed Findings

1. Traffic volumes within Alisal Street declined an average of 27 percent.
2. Speeds within Alisal Street decreased by an average of 2 mph.
3. The number of vehicles traveling at 10+ mph over the posted speed limit within Alisal Street decreased by 61 percent.

AreaTraffic Volume and Speed Findings

1. Traffic volumes within the vicinity of Alisal Street declined by an average of 13 percent.
2. Speeds within the adjacent corridors decreased by an average of 1 mph.
3. The number of vehicles traveling 10+ mph over the posted speed limit increased on John Street and Homestead Avenue while the number decreased for other locations.

The average percentage of vehicles traveling at 10+ mph over the posted speed limit in the area decreased by 54 percent.

There is an overall decrease in traffic volume and speed within Alisal Street and the adjacent corridors. There is no indication that the traffic is diverted from Alisal Street to the adjacent streets due to the capacity reduction on Alisal Street. Traffic speeds within Alisal Street have decreased but the prevailing speed would still justify maintaining the posted speed limits. The number of vehicles traveling at 10+ mph over the posted speed limit within Alisal Street and within the adjacent corridors declined significantly.

Table 1: Traffic Volumes and Speed

Street		Volume (ADT)	Volume Change		85% (mph)	10+ mph over speed limit	
			Vehicles	%		Vehicles	%
Central Ave	Before	6,130	-1,767	-29	34	52	-29
	After	4,364			34	37	
W Alisal St	Before	13,040	-4,115	-32	33	27	+
	After	8,926			31	47	
E Alisal St	Before	13,494	-3,739	-28	33	436	-67
	After	9,755			31	146	
John St	Before	13404	-1,095	-8	32	8	+
	After	12,309			30	39	
Main St	Before	24,230	-2,482	-10	29	33	-94
	After	21,749			26	2	
Homestead Ave	Before	3,626	-566	-16	30	13	+
	After	3,061			29	21	
Iverson St	Before	4,044	-343	-8	29	53	-75
	After	3,701			30	13	
Acacia St	Before	5,210	-671	-13	36	463	-78
	After	4,539			35	104	
Alisal St	Before	11,061	-2,266	-20	41	212	-58
	After	8,795			38	68	
Market St	Before	21,286	-3,185	-15	34	1,236	-48
	After	18,101			33	639	

TURNING MOVEMENT COUNTS AT INTERSECTIONS

Turning movement counts were collected at intersections along Alisal Street during the AM, mid-day, and PM peak periods on November 21, 2019, and November 16, 2021. These counts were collected at nine (9) intersections along Alisal Street and two (2) other intersections in the vicinity. The traffic volumes were tabulated and compared between before and after project conditions for Alisal Street intersections and non-Alisal Street intersections. Using the insights

provided by Replica's mobility trends, efforts were made to differentiate the impacts of the project and changes that are not project related.

Vehicular Traffic volumes

With the road diet implementation, the vehicular capacity of Alisal Street has decreased, and hence the traffic volumes are expected to decrease. The vehicular volumes are presented in Table 2 and the summary of the changes before and after the project implementation is provided in Table 3. The vehicular volumes at intersections at Alisal Street intersections are illustrated in Figure 11.

1. The traffic volume reduction on Alisal Street is observed more at the intersection located in the middle of the project limits as compared to the intersections in the outer project limits. This indicates that the volume reduction on Alisal Street intersections is due to the reduced capacity of the roadway.
2. The percentage reduction in traffic at the Alisal Street intersections is similar during all three peaks, including the AM Peak, mid-day peak, and PM peak.
3. The percentage reduction in traffic at non-Alisal Street intersections is significantly higher during the mid-day peak as compared to the AM and PM peaks. The higher decrease in mid-day peak could be attributed to the lower number of trips to restaurants in the downtown area because of the effects of the pandemic. The mid-day peak volumes may not be the best metric to evaluate the impacts of the project.

Table 2: Traffic Volumes at Intersections

Location	AM Peak		Noon Peak		PM Peak	
	Before	After	Before	After	Before	After
	Total Volume	Total Volume	Total Volume	Total Volume	Total Volume	Total Volume
Alisal Street Intersections						
1. Alisal St/Acacia St	1,436	1,229	1,037	921	1,638	1,264
2.Homestead Ave/ Alisal St	1,525	1,223	1,151	844	1,662	1,122
3.Church St/Alisal St	1,193	948	1,074	794	1,362	948
4.Lincoln Ave/Alisal St	1,465	1,075	1,428	1,007	1,737	1,140
5.Salinas St/Alisal St	2,027	1,407	1,946	1,332	2,302	1,392
6.Main St/Alisal St	1,196	828	1,394	966	1,578	1,047
7.Monterey St/Alisal St	1,628	1,193	1,767	1,419	2,127	1,665
8.Pajaro St/Alisal St	1,432	1,185	1,564	1,161	1,979	1,457
9.Front St/Alisal St	2,552	2,274	2,411	2,177	2,931	2,768
Non Alisal Street Intersections						
10.Main St/Gabilan St	397	381	602	463	594	504
11.Lincoln Ave/Central Ave	792	755	1607	638	916	745
Total	15643	12498	15981	11722	18826	14052

Table 3: Traffic Volumes at Intersections - After vs Before

Location	AM peak	Noon Peak	PM Peak	Daily
Alisal Street Intersections	-21%	-23%	-26%	-24%

Other Intersections	-4%	-50%	-17%	-29%
Total	**-20%**	**28%**	**-27%**	**-24%**

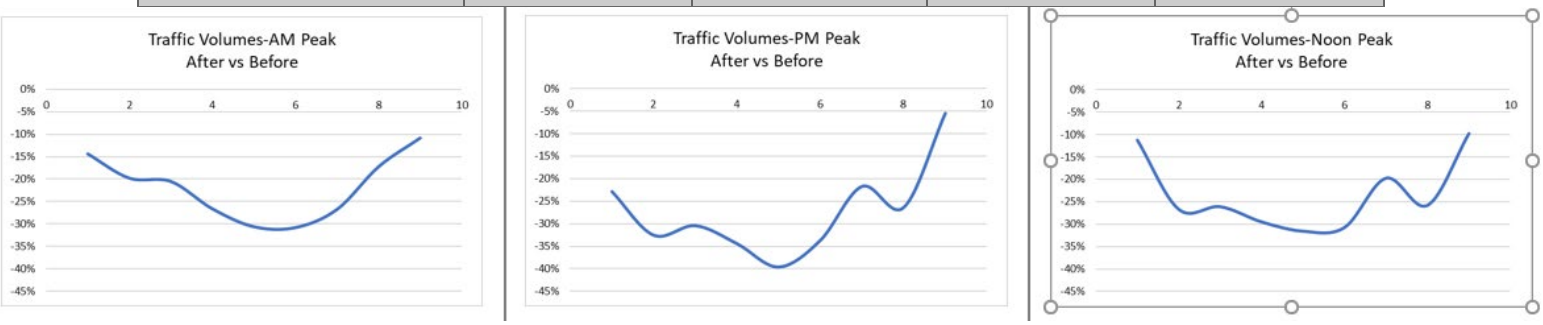


Figure 11: Traffic Volumes at Intersections

The decrease in vehicle traffic volumes both at Alisal Street intersections and at non-Alisal Street intersections indicates that the decrease in traffic volumes at Alisal Street intersections cannot be attributed to the project improvements alone. The lingering effects of the COVID-19 pandemic situation can be the additional cause for this decrease. The fact that the decrease in traffic at Alisal Street intersections during the AM Peak and PM Peak is more than the decrease in traffic at other intersections, it may be concluded that the project contributed to traffic volume reduction on Alisal Street, which was expected.

BICYCLE AND PEDESTRIAN VOLUMES

Bicycle and pedestrian volumes were collected at intersections along Alisal Street during the AM, mid-day, and PM peak periods on November 21, 2019, and November 16, 2021. For comparison purposes, bicycle and pedestrian volumes were collected at two other intersections outside of Alisal Street.

Pedestrian Volumes

The project improvements included pedestrian safety features such as high visibility crosswalks and ADA ramp improvements at Front Street, Homestead Avenue, and Acacia Street, and curb bulb-outs at Homestead Avenue. The project did not include any improvements that have the potential to increase the pedestrian volumes along the Alisal Corridor and hence increase in pedestrian volumes with the project implementation is not expected. The following observations can be made with the pedestrian counts collected at nine (9) intersections along Alisal Street and two (2) other intersections in the vicinity (Table 4).

1. Pedestrian volumes have decreased after the project both at intersections along Alisal Street and other intersections in the project vicinity by approximately 38 percent. The overall decline in pedestrian volumes indicates that the project improvements did not have a direct impact on changes in pedestrian volumes.

Table 4: Pedestrian Volumes

Location	AM Peak		Noon Peak		PM Peak	
	Before	After	Before	After	Before	After
	Total Volume	Total Volume	Total Volume	Total Volume	Total Volume	Total Volume
1.Alisal St/Acacia St	24	23	14	8	39	12
2.Homestead Ave/ Alisal St	61	47	69	40	69	22
3.Church St/Alisal St	142	57	144	72	87	37
4. Lincoln Ave/Alisal St	48	34	177	69	60	35
5. Salinas St/Alisal St	21	24	175	26	55	34
6.Main St/Alisal St	47	36	189	138	52	62
7.Monterey St/Alisal St	31	28	45	55	44	32
8.Pajaro St/Alisal St	16	21	29	18	27	19
9.Front St/Alisal St	22	14	13	19	19	19
10.Main St/Gabilan St	107	72	354	271	168	108
11.Lincoln Ave/Central Ave	64	41	77	53	32	28
Total	583	397	1286	769	652	408

Bicycle Volumes

The project improvements included the implementation of bicycle lanes along Alisal Street. While having a dedicated space for bicycles primarily increases the safety of bicyclists, it could also promote increased usage of the space by bicyclists. The following observations were made on how the bicycle volumes changed after the project is implemented in comparison to the bicycle volumes before the project (Table 5 and Table 6).

1. The bicycle counts along Alisal Street decreased in the AM peak significantly (31%).
2. The bicycle counts along Alisal Street decreased moderately (8%) at the noon peak.
3. The bicycle counts along Alisal Street increased at the PM peak (15%).

Table 5: Bicycle Volumes

Location	AM Peak		Noon Peak		PM Peak	
	Before	After	Before	After	Before	After
	Total Volume	Total Volume	Total Volume	Total Volume	Total Volume	Total Volume
1. Alisal St/Acacia St	3	1	5	2	3	9
2.Homestead Ave/ Alisal St	6	1	5	6	5	11
3.Church St/Alisal St	7	1	5	4	3	3
4.Lincoln Ave/Alisal St	8	2	11	6	3	4
5.Salinas St/Alisal St	1	6	5	3	5	6
6.Main St/Alisal St	1	2	5	9	4	3
7.Monterey St/Alisal St	2	1	6	9	2	4
8.Pajaro St/Alisal St	5	4	13	8	8	3
9.Front St/Alisal St	2	6	8	11	8	4
10.Main St/Gabilan St	6	1	5	8	6	5
11.Lincoln Ave/Central Ave	6	1	5	8	7	5
Total	47	26	73	74	54	57

Table 6: Bicycle Volumes at Intersections - After vs Before

Location	AM peak	Mid-Day	PM Peak	Daily
Alisal Street Intersections	-31%	-8%	15%	-7%

A decrease in bicycle volumes was observed along Alisal Street during the AM peak and noon peak, while there is an increase in bicycle volumes during the PM peak. The increase in PM peak bicycle usage along Alisal Street may indicate the use of the new bicycle lanes by recreational bicycle users but cannot be concluded without additional analysis.

TRAVEL TIME

With the project, the lane configuration on Alisal Street is changed reduced from two vehicle travel lanes in each direction with no center lanes to one lane in each direction with a center turn lane and bicycle lanes. With the decrease in vehicle roadway capacity, there is a concern of potential congestion and longer travel times. To evaluate the impact of modified lane configuration on Alisal Street, travel time runs were conducted along Alisal Street between Acacia Street and Front Street on November 19, 2019, and November 16, 2021. The stats analysis summary of travel time runs is summarized in Figure 12.

The results indicate that the average travel time has increased for both eastbound and westbound directions during the AM peak and mid-day peak but decreased during the PM peak. The combined increase in the travel time overall during the peak periods is five (5) percent. Average speed and total delay statistics indicate the same similar trend. With a combined decrease of four (4) percent decrease in average speed and five (5) percent decrease in total delay, the project implementation has a calming effect on Alisal Street traffic.

The differences in AM peak/Mid-day peak and PM peak travel time and delay results can be attributed to the differences in traffic signal operations by the time of day. Observations by city staff over the past two years from the onset of the COVID-19 pandemic indicate that the traffic conditions in the city have been highly volatile with drastic changes from week to week. This situation poses challenges with the traffic signal timings. The Alisal Street Corridor signals currently operate on a coordinated time of day plan during the PM peak and use peer-to-peer functions during all other hours of the day including AM peak and Mid-day peak hours.

In addition to the decrease in lane capacity, other reasons can be attributed to the delays on Alisal Street after project implementation. The traffic signals on Alisal Street now have longer red times when compared to before with the incorporation of a protected left-turn phase and exclusive pedestrian phase. The pedestrian exclusive phase is not well received by the users as indicated by the field observations made by the city staff and the feedback received by the city from the public. Field observations indicate that the compliance to the pedestrian exclusive phase is poor and that pedestrians still prefer to cross the streets with the traffic flow instead of waiting for the exclusive pedestrian phase.

The following recommendations are made to mitigate the increase in delays on Alisal Street.

1. Remove the exclusive pedestrian phase that is causing unnecessary delays to pedestrians and vehicles.
2. Consider a Leading Pedestrian Interval (LPI) on all crossings. An LPI typically gives pedestrians a 3-7 second head start before the vehicles are given a green indication. This head start can better establish the presence of pedestrians in the crosswalk before vehicles have priority to turn right or left.
3. To address the unpredicted traffic conditions, adaptive traffic signal timing is recommended on Alisal Street. Adaptive signal control technology adjusts the timing of red, yellow, and green lights to accommodate changing traffic patterns and ease traffic congestion.

Figure 12: Travel Time Runs - Before and After

REPORTED CRASHES

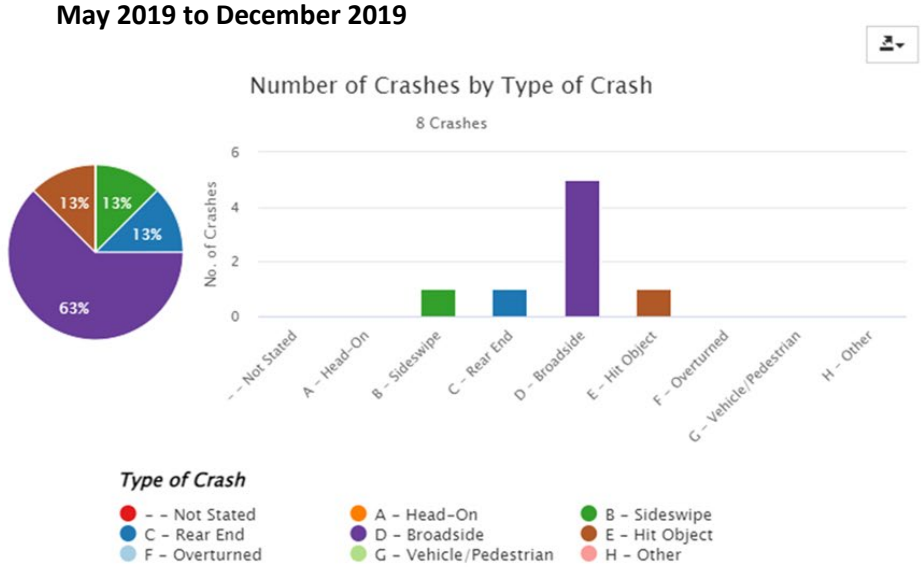
The timeline of the project's construction was from April 2020 to April 2021. Reported crashes were evaluated in the months from May to December before and after the implementation of a new roadway configuration using crash records from the Statewide Integrated Traffic Records System (SWITRS) and the Salinas Police Department. There were 8 reported crashes along Alisal Street from Acacia Street to Front Street in eight months of 2019, and 12 reported crashes in

eight months of 2020. This number has been reduced to three (3) in 2021. This accounts for a 63 percent reduction of crashes in 2021 when compared to crashes in 2019.

Transportation Injury Mapping System[3] data was used to analyze the type of crashes reported during these three years. The year 2020 was skipped for comparisons to avoid any impacts of the COVID-19 pandemic. Figure 13 illustrates the type of crashes reported on Alisal Street in the years 2019 and 2021. The decrease in broadside crashes may indicate benefits from the new protected left-turn phase. This is a small sample size that does not indicate definitive safety benefits of project implementation. It is recommended that the city continues to collect collision data to measure the safety effectiveness of the project.

[3] https://tims.berkeley.edu/

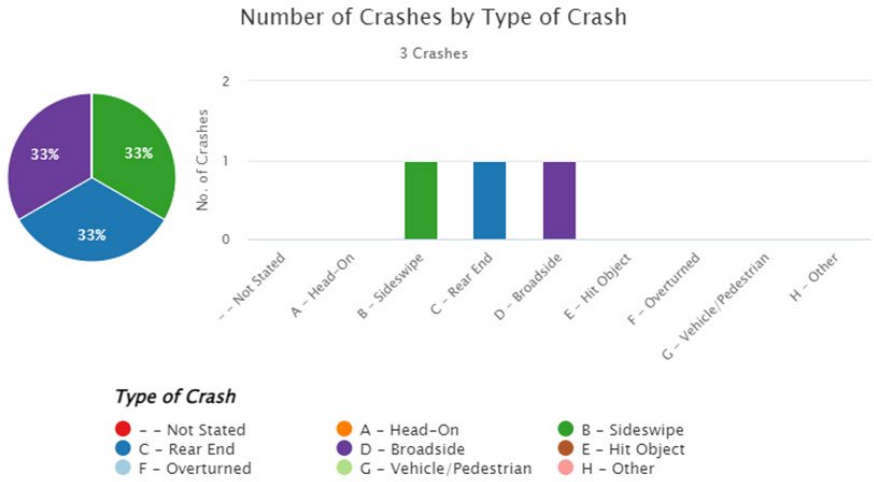
May 2019 to December 2019



Show Zero

Type of Crash	Count	%
- - Not Stated	0	0.00%
A - Head-On	0	0.00%
B - Sideswipe	1	12.50%
C - Rear End	1	12.50%
D - Broadside	5	62.50%
E - Hit Object	1	12.50%
F - Overturned	0	0.00%
G - Vehicle/Pedestrian	0	0.00%
H - Other	0	0.00%

May 2021 to December 2021



Show Zero

Type of Crash	Count	%
- - Not Stated	0	0.00%
A - Head-On	0	0.00%
B - Sideswipe	1	33.33%
C - Rear End	1	33.33%
D - Broadside	1	33.33%
E - Hit Object	0	0.00%
F - Overturned	0	0.00%
G - Vehicle/Pedestrian	0	0.00%
H - Other	0	0.00%

Figure 13: Reported Crashes – Before vs After

ECONOMIC EFFECTS

Sales tax receipts were analyzed to evaluate the impacts of the project on businesses along Alisal Street. This dataset is the best available indicator of economic activity in the area. However, it does not reflect business activity in the area that is not subject to sales tax, such as personal services (lawyer, dentist, plumber, etc.). Sales tax data for four quarters in three categories were compared before and after the project's implementation. The three categories are Food Products, General Retail, and All Others.

1. **Food Products:** Category that includes food stores (non-grocery), quick service restaurants, grocery stores, casual dining, and wineries.

2. **General Retail:** Category that includes women's apparel, art/gift/novelty stores, sporting goods/bike stores, jewelry stores, and specialty stores.
3. **All Others:** Category that includes all other businesses that are not included in the Food Products and General Retail categories.

Figure 14 summarizes the sales tax receipts for businesses near Alisal Street Corridor. Below are the key findings of the analysis:

1. Sales tax receipts in 2020 are significantly lower than in other years and are not used for comparison purposes.
2. Sales tax receipts in the "Food Products" category in 2021 are one (1) percent less than that of 2019.
3. Sales tax receipts in the "General Retail" category in 2021 are twelve percent less than that in 2019.
4. Sales tax receipts in the "All Others" category in 2021 are eight (8) percent more than that of 2019.
5. Over Sales tax receipts in 2021 is five (5) percent more than that of in 2019.

There may be several factors influencing the sales tax revenues. A substantial decrease in sales tax revenue in 2020 indicates that the COVID-19 pandemic did affect the sales tax revenues. The economy has re-opened in 2021 and the effects of the COVID-19 pandemic on sales are presumed to be subsided. However, the 5 percent increase in sales tax revenue may not be completely attributed to the project improvements.

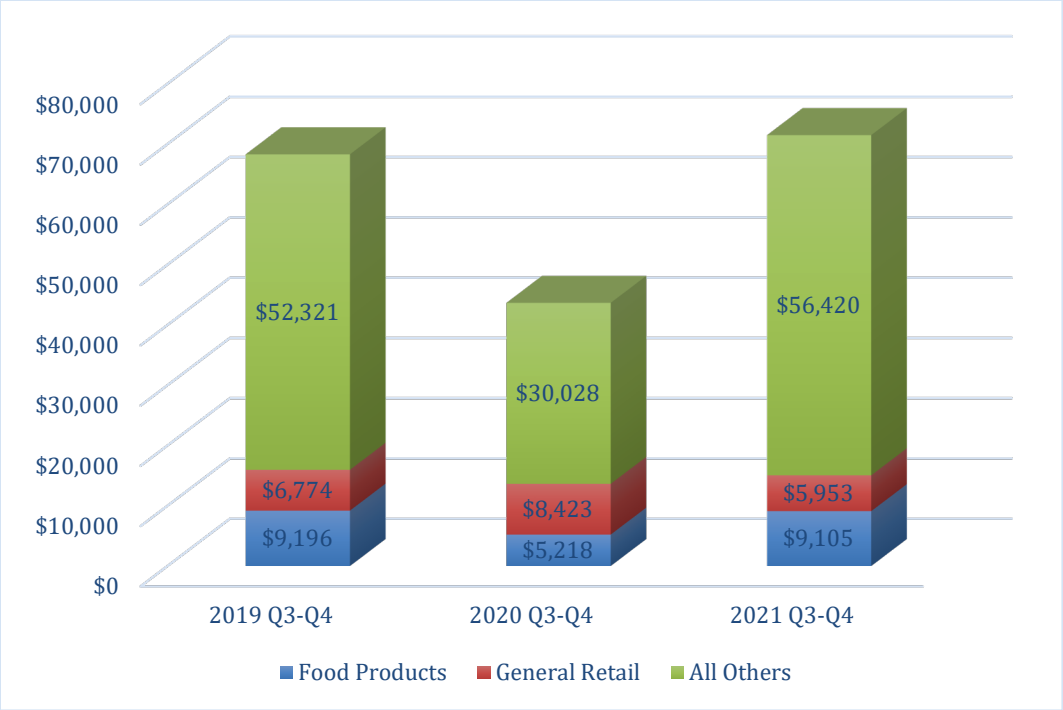


Figure 14: Summary of Sales Tax Receipts

Conclusions

The Alisal Street Complete Streets project is a road diet project with the following assumed benefits.

- Improved safety through the reduction of crashes and severity of crashes
- Create a calmer traffic environment on Alisal Street through speed reduction
- Enhance travel for bicyclists
- Improved pedestrian safety

While this report attempts to quantify the benefits of the project improvements on Alisal Street, an attempt has been made to assess the project impacts on traffic volumes and speeds on adjacent streets as well.

It should also be noted that the project is implemented during the COVID-19 pandemic when traffic on roadways is lower than usual conditions. The traffic volumes collected on Alisal Street and adjacent corridors in November 2021 are lower than the traffic volumes collected in November 2019 indicating that the traffic conditions did not reach the pre-pandemic conditions even when the data from Replica indicated that there is an overall increase in trips to and from Salinas in 2021. Because of this the data analysis also focused on differentiating project impacts and non-project impacts where needed. Comparisons were made between the post-project

conditions and pre-pandemic conditions in 2019 omitting the conditions in 2020 to avoid the effects of pandemic conditions on the data collected.

Based on the findings of the data analysis, the key conclusions are:

- There is an overall decrease in traffic volumes and speed within Alisal Street with the implementation of complete streets features.
- The project implementation did contribute to traffic calming on Alisal Street.
- Traffic Speeds on Alisal Street have declined but the prevailing speeds would still justify keeping the posted speed limits.
- The number of vehicles traveling 10+ mph over the posted speed limit declined significantly within Alisal Street (61 percent) and the adjacent corridors (54 percent).
- The traffic volumes have decreased on adjacent corridors. There is no indication that the traffic is diverted from Alisal Street to the adjacent streets due to the roadway capacity reduction on Alisal Street.
- There is an overall decline in pedestrian volumes along Alisal Street and other intersections by 38 percent. The overall decline in pedestrian volumes indicates that the project improvements did not have a direct impact on changes in pedestrian volumes. Travel pattern changes due to the COVID-19 pandemic may be attributed to this change.
- The bicycle counts along Alisal Street decreased in the AM peak (31 percent) and mid-day peak (8 percent) while the bicycle counts increased in the PM peak by 15 percent. The increase in the PM peak bicycle usage for recreational purposes along Alisal Street may be attributed to the project improvements but cannot be concluded without additional analysis.
- The average travel time has increased in both eastbound and westbound directions during the AM peak and Noon peak. The average travel time has decreased during the PM peak. The decrease in PM peak traffic volume is more than the decrease in AM peak and noon peak traffic volumes. In addition to a travel lane removal, there are other factors like the exclusive pedestrian phase contributing to delay and subsequent reduction of travel times on Alisal Street. The following recommendations are made to mitigate the unnecessary delays.
    a. Remove the exclusive pedestrian phase
    b. Consider the implementation of LPI
    c. Consider adaptive signal timing strategies on Alisal Street Corridor
- A reduction of 63 percent in overall crashes is observed post-project implementation. The reduction of broadside crashes may be attributed to new protected left-turn phase improvements. However, the sample size of crashes is small. It is recommended that the city continuously monitor the crashes to measure the safety effectiveness of the project.
- Sales tax receipts for businesses near Alisal Street Corridor have increased by five (5) percent. There may be various factors influencing this increase and may not be attributed to project improvements.