

## Draft Memorandum

Date: 10/18/2022

To: Douglas Krauss, Environmental Programs Manager– City of Hermosa Beach

From: Seth Contreras, Senior Planner, and Michael Kennedy, Principal – Fehr & Peers

**Subject: Summary of Changes in Vehicular, Bicycle, and Pedestrian Volumes and Speed Post-Pilot Installation in Downtown, including Big Data**

LB21-0029.02

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## Post-Project Data Summary & Comparison Using Big Data

### Downtown Key Takeaways

- When comparing the mid-day peak hour July 2022 counts with the 2015 counts from the 2017 Pier & Strand Hotel Traffic Study, vehicular volumes increased overall by 6%, with some segments experiencing more significant increases from pre-COVID / pre-pilot conditions, indicating that the counts reflected a likely return to pre-COVID level traffic volumes
- The data collected in August 2021 and July 2022 indicated that the lane reduction pilot may have contributed to a 33% increase in walking and a 26% increase in biking, which was not observed for the City overall; and therefore may not be driven primarily by COVID related reopenings.
- The data collected in August 2021 and July 2022 also indicated that the pilot may have contributed to 5% slower speeds observed on the roadways, which has a safety benefit for people who walk and/or bike.
- **Big Data** – An additional Smartphone-based travel data source (called StreetLight Data) was used to evaluate the potential for traffic diversion along primary and secondary routes used to travel to and from Downtown as a result of the lane reductions on Pier Avenue and Hermosa Avenue. Weekend day StreetLight Data was gathered for the months of July and August 2019, 2020, and 2021, expanding the sample size to assess summer travel patterns. Overall activity in Downtown decreased by approximately 20% from summer 2019 to summer 2021. However, from summer 2020 to summer 2021 activity increased by 34%, indicating that activity trends and restaurant visitations in Downtown were returning to pre-COVID conditions. StreetLight Data was also used to evaluate trip distribution along primary and secondary routes for trips traveling to or from Downtown. Distribution on both lane reduction segments (Pier Avenue and Hermosa Avenue) remained the same or increased from summer 2019 to summer 2021,



while secondary routes (potential diversion) routes experienced a decrease in distribution. 27<sup>th</sup> Street experienced a 1% decrease in distribution, making it unlikely that the lane reductions diverted traffic onto 27<sup>th</sup> Street.

Additionally, weekend day activity was analyzed for each of the summer periods along 27<sup>th</sup> Street. Overall, 27<sup>th</sup> Street activity decreased by approximately 15% from summer 2019 to summer 2021. Of the total trips using 27<sup>th</sup> Street, roughly 21% started or ended in Downtown in summer 2019, and 17% in summer 2021. In conclusion, the assessment of overall activity in Downtown, along primary and secondary routes used to travel to Downtown, and along 27<sup>th</sup> Street during each summer period likely indicates that travel patterns and volumes are returning to pre-COVID conditions, and the lane reductions are not contributing significant traffic diversions onto secondary routes and 27<sup>th</sup> Street.

## Big Data Using StreetLight

### *StreetLight Big Data Methodology*

StreetLight Data applies proprietary machine-learning algorithms to measure travel patterns and makes them available on-demand via StreetLight InSight®, the world's first SaaS platform for mobility. StreetLight provides powerful analyses for a wide variety of transportation studies including volume, counts, O-D and more. StreetLight algorithmically transforms trillions of location data points into contextualized, aggregated, and normalized travel pattern data to deliver insights into how vehicles, bikes, pedestrians, and bus and rail passengers move on virtually every road and Census Block. StreetLight Data collects all its transportation data as Location Based Services (LBS) data which are services based on the location of a mobile device. They obtain "low fidelity" cell phone data scrubbed of all Personally Identifiable Information (PII), and pair it with data with "high fidelity" data from GPS devices.

StreetLight Data was used to evaluate vehicular traffic volumes, distribution, and overall activity before and after the pilot in Downtown. Three date periods for weekend days (Saturday & Sunday) were defined for each of the StreetLight analyses:

1. Summer 2019: Pre-Pilot (July-August 2019)
2. Summer 2020: Post-Pilot (July-August 2020)
3. Summer 2021: Post -Pilot (July-August 2021)

### *Downtown Activity*

A zone activity analysis was conducted to assess the potential change in Downtown visitation and overall activity from summer 2019 to summer 2021. **Table 1** shows from summer 2019 to summer 2021, overall activity in Downtown decreased by approximately 20% for the all-day period. However, from summer 2020 to summer 2021, overall activity increased by approximately 34%. While the overall change in volume from summer 2019 conditions to summer 2021 decreased,



the increase from summer 2020 to summer 2021 indicates that Downtown activity and visitation is likely returning to pre-COVID conditions.

**Table 1 – Downtown activity from Summer 2019 to Summer 2021**

<b>Day Part</b>	<b>Summer 2019</b>	<b>Summer 2020</b>	<b>Summer 2021</b>
	<b>ADT</b>	<b>ADT</b>	<b>ADT</b>
All Day (12am - 12am)	26413	15865 (-40%)	21233 (-20%)
Peak AM (6am - 10am)	2761	1725 (-38%)	2272 (-18%)
Mid-Day (10am-3pm)	7831	5648 (-28%)	7048 (-10%)
Peak PM (3pm-7pm)	7263	4764 (-34%)	6001 (-17%)

Source: StreetLight, Inc.

*Trip Distribution*

An Origin-Destination analysis was conducted to assess trip distribution along potential primary and secondary routes for trips starting or ending in Downtown during the three summer date periods. Origin-Destination zones were placed at the following locations within Downtown:

1. 27<sup>th</sup> Street w/o Morningside Drive
2. 8<sup>th</sup> Street w/o Valley Drive
3. Hermosa Avenue n/o 16th Street
4. Hermosa Avenue n/o 8th Street
5. Manhattan Avenue n/o Pier Avenue
6. Manhattan Avenue s/o Pier Avenue
7. Monterey Boulevard n/o Pier Avenue
8. Monterey Boulevard s/o Pier Avenue
9. Pier Avenue w/o Valley Boulevard

**Table 2** shows from summer 2019 to summer 2021, distribution of trips along primary and secondary routes used to travel to and from Downtown remained consistent. More than 95% of trips traveling to or from Downtown in the summer periods used at least one of these routes. The Pier Avenue and Hermosa Avenue segments, where the lane reductions were implemented, accounted for approximately 74% of trips in summer 2019, increasing to roughly 79% in summer 2020 and summer 2021. Other secondary routes used as potential diversion routes such as Monterey Boulevard and Manhattan Avenue did not see an increase in trips from pre- to post-pilot conditions. Additionally, 27<sup>th</sup> Street experienced a decrease in trips from pre- to post-pilot.

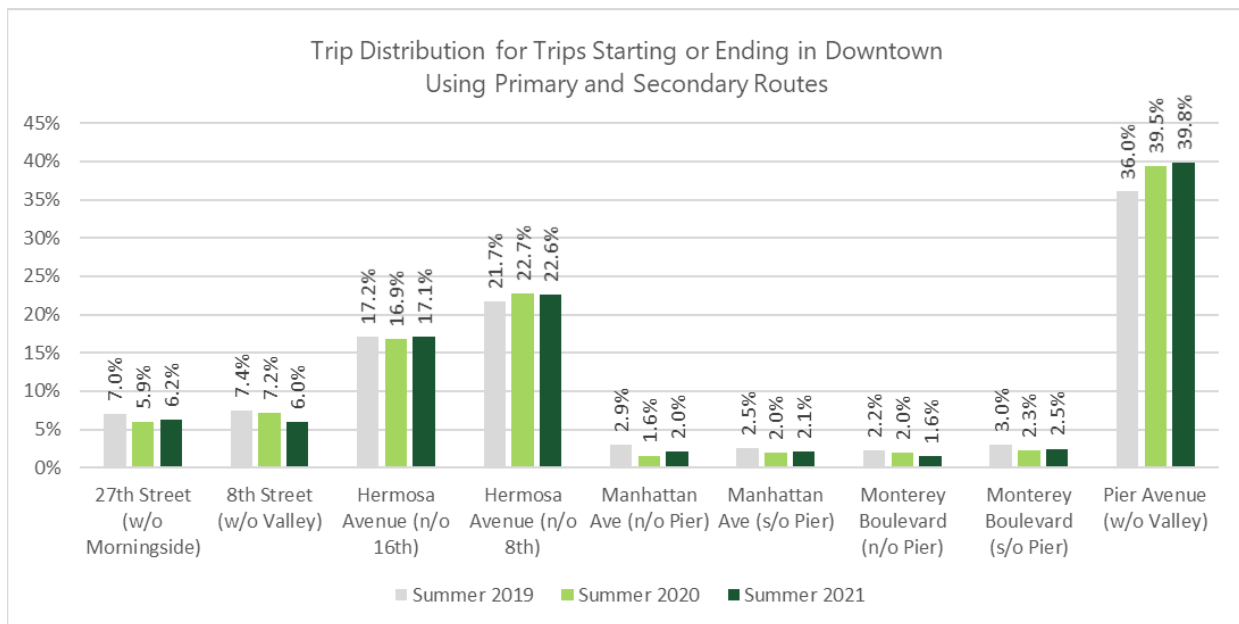
**Table 2 – Downtown trip distribution along primary and secondary routes from Summer 2019 to Summer 2021**

<b>Zone ID</b>	<b>Zone Name</b>	<b>Trip Distribution</b>
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		Summer 2019	Summer 2020	Summer 2021
		%	%	%
1	27th Street (w/o Morningside)	7.0%	5.9%	6.2%
2	8th Street (w/o Valley)	7.4%	7.2%	6.0%
3	Hermosa Avenue (n/o 16th)	17.2%	16.9%	17.1%
4	Hermosa Avenue (n/o 8th)	21.7%	22.7%	22.6%
5	Manhattan Ave (n/o Pier)	2.9%	1.6%	2.0%
6	Manhattan Ave (s/o Pier)	2.5%	2.0%	2.1%
7	Monterey Boulevard (n/o Pier)	2.2%	2.0%	1.6%
8	Monterey Boulevard (s/o Pier)	3.0%	2.3%	2.5%
9	Pier Avenue (w/o Valley)	36.0%	39.5%	39.8%

Source: StreetLight, Inc.



**Figure 1 – Downtown trip distribution along primary and secondary routes from Summer 2019 to Summer 2021**

*27<sup>th</sup> Street Diversion*

A zone activity analysis was conducted to assess overall activity along 27<sup>th</sup> Street from summer 2019 to summer 2021. **Table 3** shows from summer 2019 to summer 2021, 27<sup>th</sup> Street experienced a decrease in overall activity from pre-COVID / pre-pilot conditions. Additionally,



roughly 21% of trips traveling along 27<sup>th</sup> Street originated or ended in Downtown in summer 2019, decreasing to 17% in summer 2021.

**Table 3 – 27<sup>th</sup> Street activity from Summer 2019 to Summer 2021**

<i>Day Part</i>	Summer 2019	Summer 2020	Summer 2021
	ADT	ADT	ADT
All Day (12am - 12am)	10061	7935 (-21%)	8545 (-15%)
Peak AM (6am - 10am)	1147	794 (-31%)	890 (22%)
Mid-Day (10am-3pm)	3421	2915 (-15%)	3014 (-12%)
Peak PM (3pm-7pm)	2959	2586 (-13%)	2458 (-17%)

Source: StreetLight, Inc.

### Traffic Count Overview

This memorandum summarizes observed changes in traffic volumes and bicycle/pedestrian activity along several Downtown streets in Hermosa Beach after the installation of the pilot project. The pilot project involved a one lane reduction in both directions of travel along Hermosa Avenue (from 8<sup>th</sup> Street to 14<sup>th</sup> Street) and Pier Avenue (from Hermosa Avenue to Valley Drive) in Downtown. The counts were taken in July 2022 which were collected on a Saturday per the City's request to capture summer visitation and activity to Downtown. The July 2022 counts were compared to the August 2021 counts for the same locations to assess the adjusted effects of the lane reductions along Hermosa Avenue and Pier Avenue. Additionally, the July 2022 counts were compared to the August 2015 counts from the 2017 Pier & Strand Hotel Traffic Study to evaluate changes from pre-COVID-19 volumes. For this comparison, three additional locations were added to the July 2022 counts along Manhattan Avenue and Monterey Boulevard to assess potential traffic diversion as a result of the lane reductions.

**Table 4** below provides a summary of the overall change in daily traffic volumes between August 2021 and July 2022 in Downtown at six selected street segments:

1. 8<sup>th</sup> Street between Hermosa Avenue and Monterey Boulevard (start of lane reduction)
2. Hermosa Avenue at 11<sup>th</sup> Street (lane reduction section)
3. Hermosa Avenue at 13<sup>th</sup> Street (lane reduction section)
4. Pier Avenue between Hermosa Avenue and Monterey Boulevard (lane reduction section)
5. Monterey Boulevard between 11<sup>th</sup> and Pier Avenue (adjacent to lane reduction section)
6. Pier Avenue west of Valley Drive (major gateway for the City)



Overall, the six Downtown locations saw an average increase of 32% in daily vehicular volumes from August, 2021 to July, 2022, as traffic continued to return to pre-COVID-19 conditions and restaurant visitations.

However, **Table 5** below provides a summary of the overall change in daily traffic volumes between July 2022 midday peak period counts and August 2015 midday peak period counts in Downtown at the six selected street segments analyzed across pre- and post-pilot conditions (1-6) and three additional segments to evaluate potential traffic diversion (7-9):

1. 8<sup>th</sup> Street between Hermosa Avenue and Monterey Boulevard (start of lane reduction)
2. Hermosa Avenue at 11<sup>th</sup> Street (lane reduction section)
3. Hermosa Avenue at 13<sup>th</sup> Street (lane reduction section)
4. Pier Avenue between Hermosa Avenue and Monterey Boulevard (lane reduction section)
5. Monterey Boulevard between 11<sup>th</sup> and Pier Avenue (adjacent to lane reduction section)
6. Pier Avenue west of Valley Drive (major gateway for the City)
7. Manhattan Avenue between Pier Avenue and 14<sup>th</sup> Street (traffic diversion section)
8. Manhattan Avenue between Pier Avenue and 10<sup>th</sup> Street (traffic diversion section)
9. Monterey Boulevard between Pier Avenue and 16<sup>th</sup> Street (traffic diversion section)

Overall, the nine Downtown locations saw an average increase of 6% in daily vehicular volumes from August, 2015 to July, 2022. This negligible overall increase in volumes is indicative of travel patterns, restaurant visitation, and overall Downtown activity returning to Pre-COVID conditions. Both Manhattan Avenue and Monterey Boulevard segments experience considerable increases in volume while the lane reduction sections (Hermosa Avenue and Pier Avenue) experienced minimal change, with most experiencing a slight decrease in volumes. One possible explanation for this decrease along the lane reduction sections and increase on traffic diversion sections is visitors opting for alternative routes into Downtown. 8<sup>th</sup> Street experienced the highest increase in volume (42%) which may explain the increased volumes along Manhattan Avenue and Monterey Boulevard.

**Table 4 – Observed Daily Traffic Volumes in Downtown in August, 2021 and July, 2022**

<b>Downtown</b>		<b>2021 Post-Pilot August Traffic Volumes (Saturday)</b>			<b>2022 Post-Pilot July Traffic Volumes (Saturday)</b>			
<b>No.</b>	<b>Street Segment</b>	<b>August 2021 NB/EB</b>	<b>August 2021 SB/WB</b>	<b>August 2021 Total Segment Volumes</b>	<b>July 2022 NB/EB</b>	<b>July 2022 SB/WB</b>	<b>July 2022 Total Segment Volumes</b>	<b>% Change in Total Volumes</b>
1	8 <sup>th</sup> St between Hermosa Ave & Monterey Blvd	1,285	1,424	2,709	1,806	1,960	3,766	39%
2	Hermosa Ave at 11 <sup>th</sup> St	4,034	3,839	7,873	6,074	5,675	11,749	49%
3	Hermosa Ave at 13 <sup>th</sup> St	4,549	3,479	8,028	6,160	4,837	10,997	37%
4	Pier Ave between Hermosa Ave & Monterey Blvd	3,786	4,507	8,293	5,083	5,976	11,059	33%
5	Monterey Blvd between 11 St & Pier Ave	1,620	1,080	2,700	2,128	1,371	3,499	30%
6	Pier Ave west of Valley Dr	5,774	6,672	12,446	6,955	7,314	14,269	15%
							<i>Total Average % Change</i>	<b>+32%</b>

NB = Northbound, EB = Eastbound, SB = Southbound, WB = Westbound

**Table 5 – Observed Midday Peak Hour (1:45 pm – 2:45 pm) Traffic Volumes in Downtown in August, 2015 and July, 2022**

<b>Downtown</b>		<b>2015 August Traffic Volumes (Saturday)</b>			<b>2022 Post-Pilot July Traffic Volumes (Saturday)</b>			
<b>No.</b>	<b>Street Segment</b>	<b>August 2015 NB/EB</b>	<b>August 2015 SB/WB</b>	<b>August 2015 Total Segment Volumes</b>	<b>July 2022 NB/EB</b>	<b>July 2022 SB/WB</b>	<b>July 2022 Total Segment Volumes</b>	<b>% Change in Total Volumes</b>
1	8 <sup>th</sup> St between Hermosa Ave & Monterey Blvd	92	100	192	121	151	272	42%
2	Hermosa Ave north of 11 <sup>th</sup> St	418	438	856	409	400	809	-5%
3	Hermosa Ave north of 13 <sup>th</sup> St	432	363	795	523	370	893	12%
4	Pier Ave between Hermosa Ave & Monterey Blvd	353	399	752	390	412	802	7%



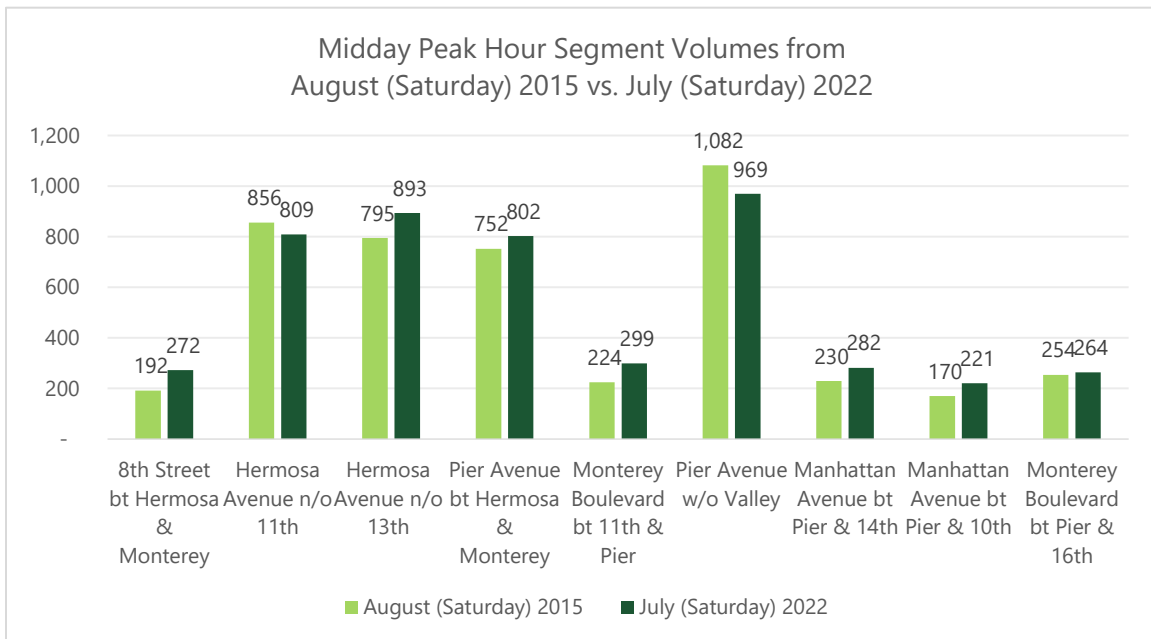
5	Monterey Blvd between 11 St & Pier Ave	138	86	224	181	118	299	33%
6	Pier Ave west of Valley Dr	531	551	1,082	475	494	969	-10%
7	Manhattan Ave between Pier Ave & 14th St	101	129	230	127	155	282	23%
8	Manhattan Ave between Pier Ave & 10th St	69	101	170	125	96	221	30%
9	Monterey Blvd between Pier Ave & 16th St	139	115	254	145	119	264	4%

NB = Northbound, EB = Eastbound, SB = Southbound, WB = Westbound

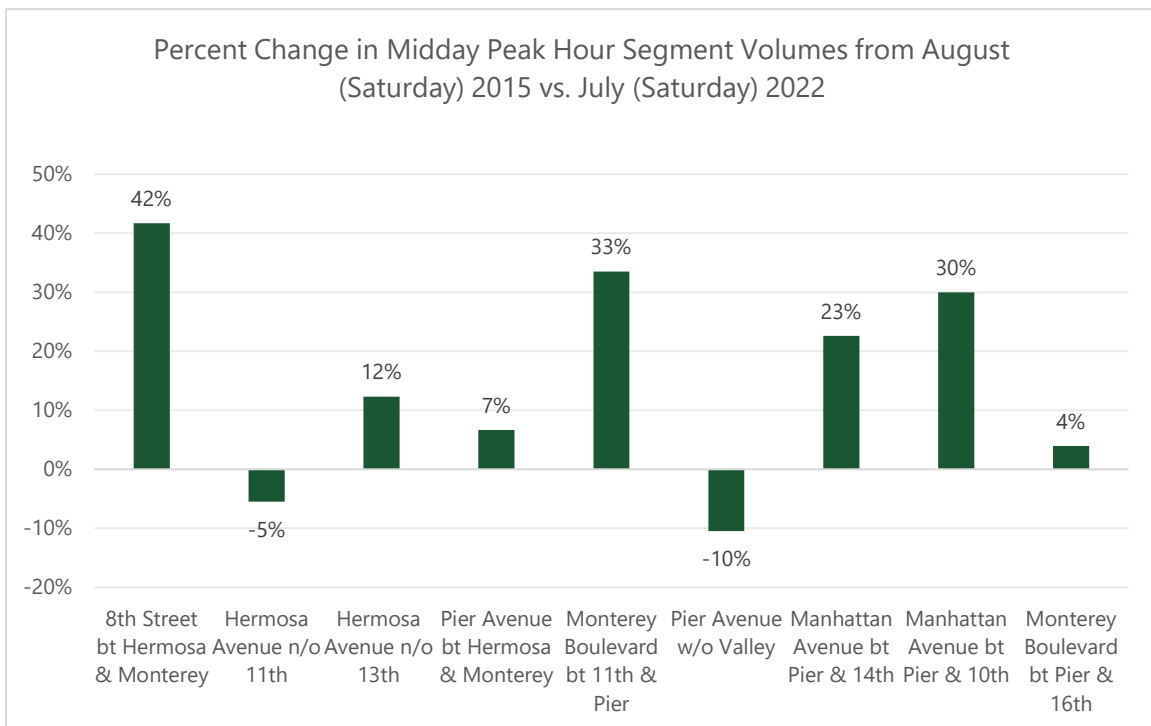
*Total Average % Change* **+6%**

When looking closer at the vehicular volumes in Tables 1-2 for Hermosa Avenue July, 2022, the total segment volumes after the pilot installation were 6% higher than the volumes observed in 2015 (pre-COVID, and without lane reductions) as part of the 2017 Pier & Strand Hotel Traffic Study.

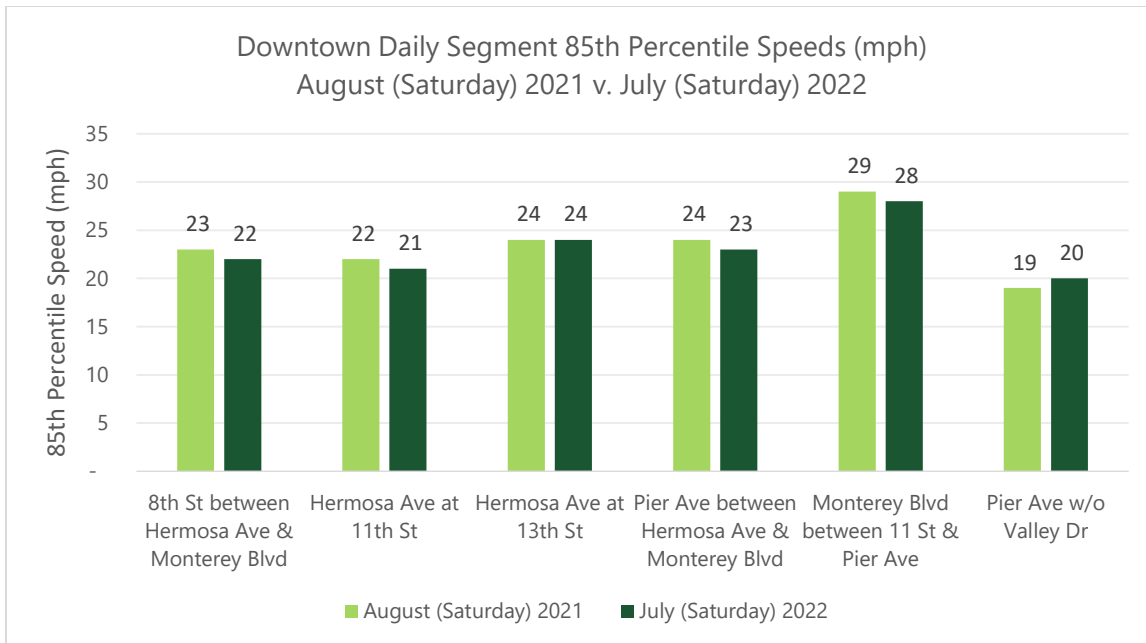




**Figure 2**

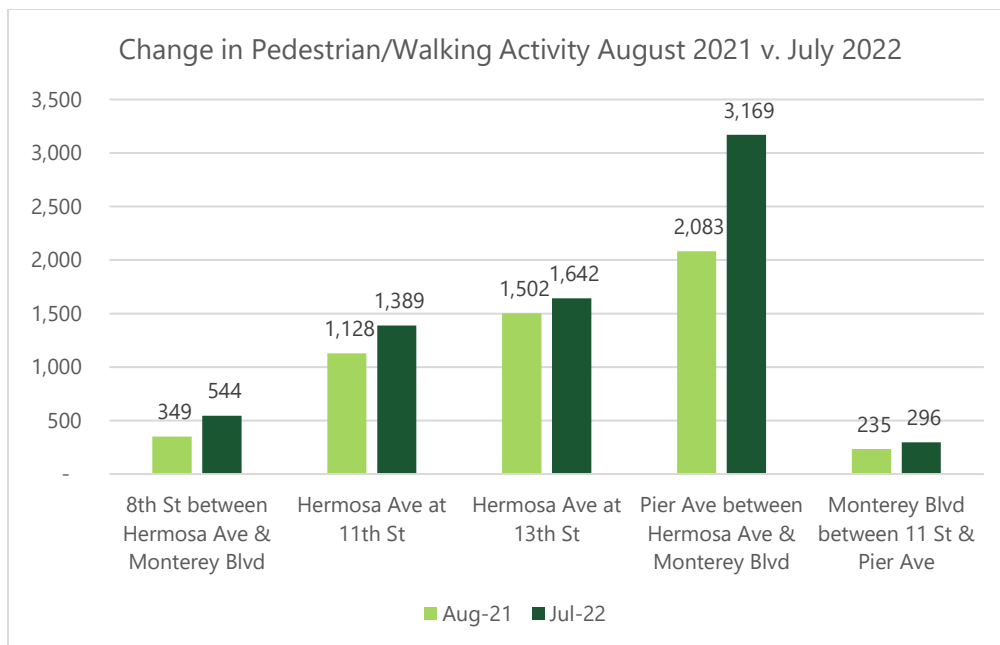


**Figure 3**

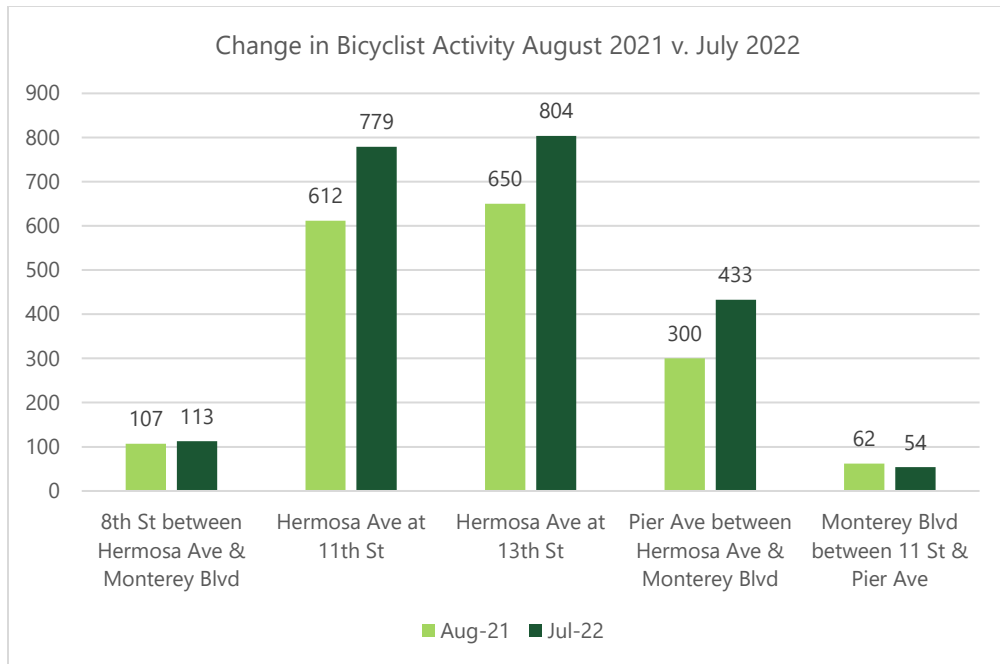


**Figure 4**

**Figure 4** above shows the 85<sup>th</sup> percentile speed for each road segment (for both directions of travel) in August, 2021 and July, 2022. Most of the segments saw minor decreases (or no change) in speed. The Pier Avenue segment west of Valley Drive saw a slight increase in speed (of 1 mph) compared to August, 2021. Overall, speeds were 2% slower after the pilot.



**Figure 5** (collected using cameras, and includes skateboarders)

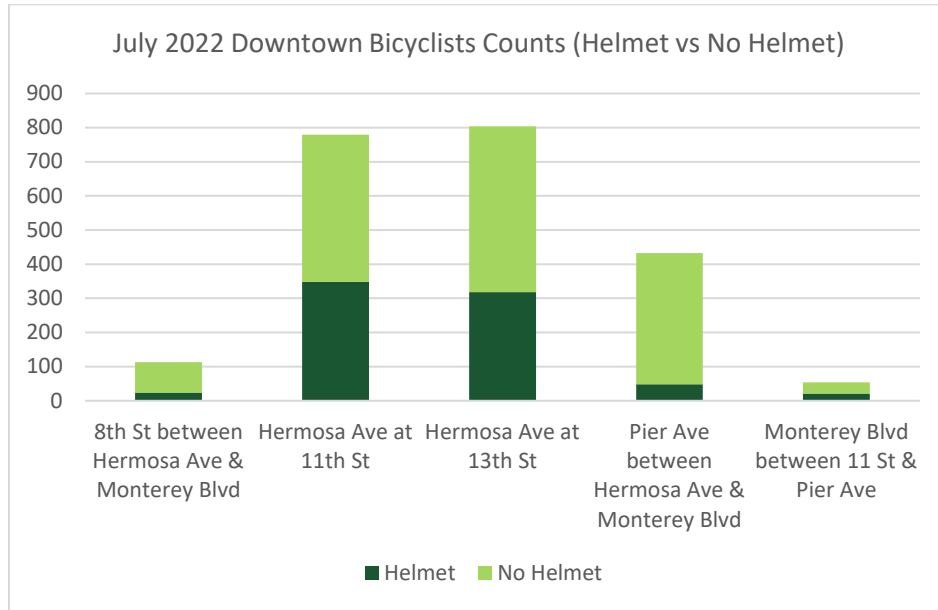


**Figure 6** (collected using cameras; Scooters were not counted)

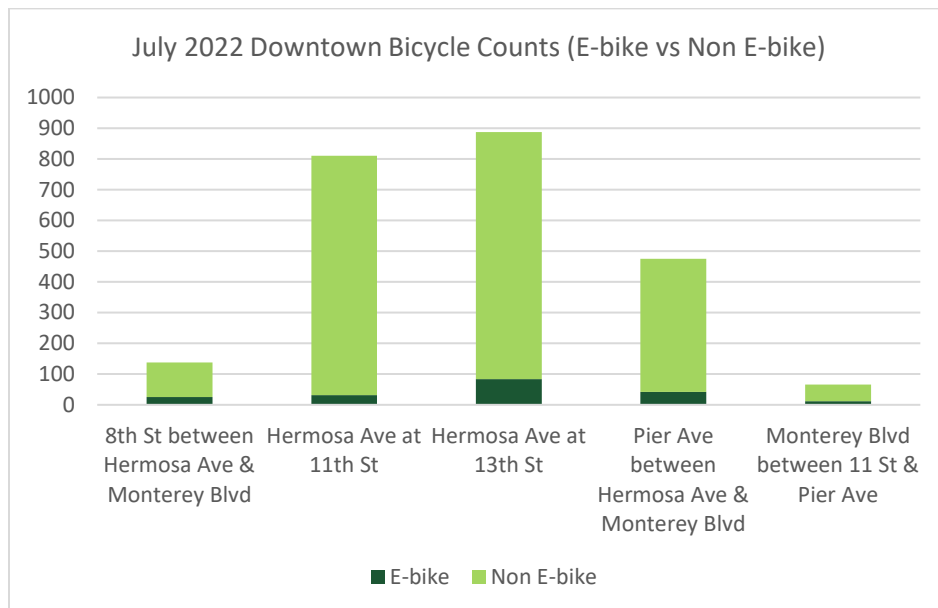
**Figure 5** shows the change in pedestrian/walking activity, and **Figure 6** shows the change in bicycle activity in Downtown. Pedestrian walking activity increased in Downtown by approximately 33% in July, 2022 versus August, 2021, and bicycle activity increased by approximately 26%. Individually, there were no decreases in biking or walking at any of the observed locations from August, 2021 to July, 2022.



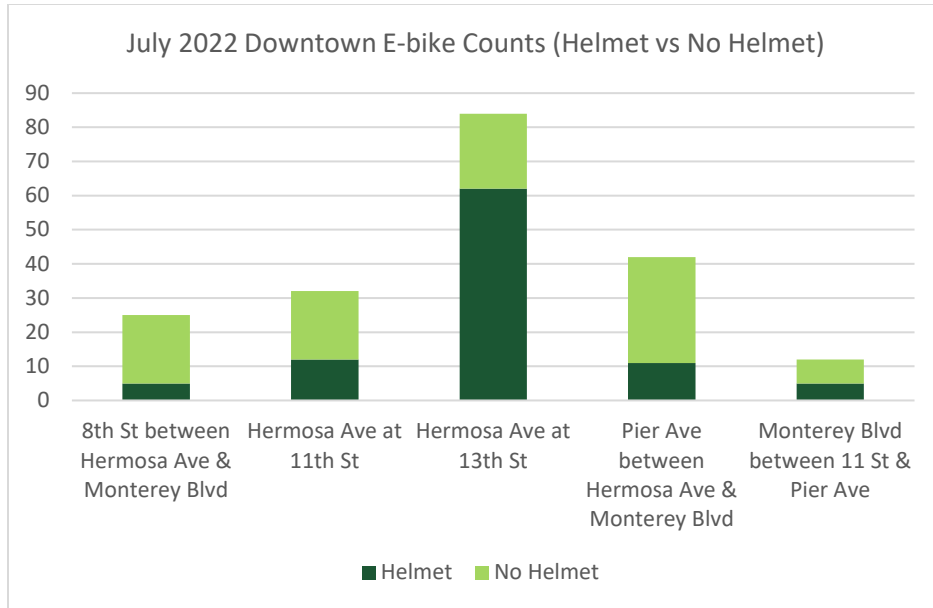
### Helmet Wearing and e-Bike Data



**Figure 7** (collected using cameras and then post-processed)



**Figure 8** (collected using cameras and then post-processed)



**Figure 9** (collected using cameras and then post-processed)

**Figures 7-9** show the percentage of bicyclists who were observed wearing a helmet, along with whether the bicycle was an e-bike (pedal-assisted or fully powered by an electric motor). Approximately 65% of the observed bicyclists in July, 2022 did not wear a helmet, while the other 35% did wear a helmet (Figure 5). Additionally, of all the observed bicyclists, 8% were e-bikes, while the other 92% were traditional, human-powered bicycles (Figure 6). Just under half of the e-bike riders wore a helmet (Figure 7).