## Vision Zero Site Visit

Present: Gunnar Hale (Engineering), Cory Surbrugg (Engineering), Marc Virata (Engineering), Jin Wang (Engineering), Dillon Willett (Engineering), Lance McRory (Traffic), Alisa Babler (Traffic), Florian Fiebig (Engineering), Dana Hornkohl (Engineering), Dave Dixon (Bike Fort Collins), Rachel Ruhlen (FC Moves), Jay Bishop (Resident)
Date: 20230504
Location: Drake Rd \& Lemay Ave

## CONTEXT

Crash history: In 2022, there were eight crashes at this intersection that resulted in an injury, and a total of 27 crashes. This intersection is located on the High Injury Network. It was identified as a hot spot in the 2021 Safety in the City Report and a conceptual design was developed for the Transportation Capital Projects Prioritization Study (attached).

Intersection: This is a signalized four-leg angled intersection with five lanes across Lemay Ave and five or six lanes across Drake Rd consisting of travel lanes, left-turn lanes, and right-turn lanes. Most lanes are 11 feet wide; the westbound inside lane is 12 feet and the eastbound outside lane is 13 feet wide. There are unprotected bike lanes on all approaches, marked crosswalks, and pedestrian signals. Curb ramps are present. Attached sidewalks have no buffer from the road and frequent disruptions for driveways. Sidewalks are of varying widths and are too narrow in most parts of the intersection. There is no parking on any of the legs.


Land use: Commercial. Scotch Pines Village Shopping Center on the southwest corner has many destinations and employees. Woodward on the northwest corner is a large employer ( 1300 employees). There is a lake on the northeast corner and a church and preschool on the southeast corner. Nearby residential uses include apartment buildings and single family homes.

Traffic volume: The average daily traffic (ADT) on Lemay Ave is 12,000 to 16,000 (2018 counts) and on Drake Road 10,000 to 12,000 ( 2018 and 2022 counts). Across all three peak hours counted on July 7 , 2022, there were 35 bicycles and 39 pedestrians. Electric scooters were observed using the intersection during the site visit. See attached reports.

Pedestrian and Bicycle generators: Bus routes \#5 and \#7 have stops near this intersection. The Sprouts grocery store and other shops in Scotch Pines attracts pedestrian and bicycle traffic from nearby apartments and homes. Healthcare facilities north on Lemay Ave may attract bicycle traffic through this intersection.

Planned improvements: Short-term, there will be a red light camera at this intersection.
Near-term, there is a Highway Safety Improvement Program grant to install a southbound right turn lane on Lemay which is expected to reduce rear end crashes and reduce congestion.
Long-term, this intersection has concept design in development.
Site visit conditions: Daylight, mild, no precipitation.

## Observations

The awkward angles of this intersection make it a difficult one for the volume of traffic that uses it. There are accommodations for pedestrians and bicyclists and the intersection is somewhat accessible for people with disabilities. There is sufficient street lighting.

The pavement in this area is rough with rutting and some patchwork. The asphalt surface was noted; the standard for arterial-arterial intersections is concrete, but there are challenges to concrete surface such as long curing time or poor quality pavement for fast-cure concrete and expensive maintenance. Paint markings are worn. The northwest corner has some drainage issues.

While the straightness of Lemay Ave was seen as a problem because it encourages speeding, the curves on Drake Rd are also seen as contributing to rear end crashes by people driving too fast for the sight distance of the curve. The trees similarly were seen as traffic calming but also potential visual obstructions, and could be a potential visual obstruction after the right-turn lane is added on southbound Lemay Ave. The absence of acceleration lanes for right turning vehicles is seen as a positive influence on traffic speeds.

ADA, pedestrian, and bicycle accommodations are present but have some deficiencies.
Curb ramps are in good condition but positioned awkwardly and not easily navigable by someone without vision. In particular, the southbound ramp on the northwest corner points travelers into the intersection rather than into the crosswalk. The northeast ramps lack a landing space.

The sidewalks are narrow. On the northwest corner, right-turning have difficulty seeing pedestrians and left-turners often aren't watching for pedestrians. The short, narrow ramp on the southwest corner brings pedestrians uncomfortably close to right-turning vehicles. Control boxes block visibility of pedestrians on the southeast corner and also block pedestrians' view of traffic. On the northeast corner, right-turners creep uncomfortably close to the narrow attached sidewalk and narrow ramps. The northwest and southeast pedestrian porkchop islands are very small and pedestrians feel vulnerable. One pedestrian button is missing. The skew of this intersection makes for long crossing distances which is hard for older or disabled pedestrians.

Bike lanes are narrow and unprotected and the gutter seam in the center is hazardous. Storm drain grates are not compatible with bike lanes. Southbound bicyclists were observed using the bike lane up to the intersection and then using the crosswalk and biking on the sidewalk south of the intersection. They were also observed using an old ramp north of the crosswalk on the northwest corner to transition from the bike lane to the sidewalk. Furthermore, there are few bike racks at Scotch Pines.

Participant suggestions to reduce crashes at this intersection will be evaluated for feasibility.

- Suggestions to improve safe driving through the intersection
- Remove permissive left turn arrow because of blind spot
- Offset left turns with an island
- Add flashing light warnings on Drake upstream of curves approaching signal
- Implement a lagging left
- Refresh paint markings more frequently
- Do not implement acceleration lanes for right-turning vehicles
- When the new southbound right-turn lane is installed, make the turning radius tight to slow down traffic
- Suggestions to improve the experience of the intersection for people with disabilities
- Align tactile surfaces on curb ramps to direct vision-impaired pedestrians to the crosswalk
- Align curb ramps with crosswalks
- Add landing spaces where they are not present or are insufficient
- Upgrade curb ramps to compliance, including width
- Ensure that ample time is allowed for slower pedestrians in longer crosswalks in skewed intersections
- Suggestions to improve the experience of the intersection for people walking
- Widen sidewalks
- Implement shark-teeth to protect the crosswalk
- Raise crossings into the pork chop islands
- Replace the missing pedestrian button
- Reposition control boxes so they do not obstruct visibility between people walking and driving
- Make the crosswalks raised
- Add vertical elements to pork chop islands to make pedestrians feel more protected
- Suggestions to improve the experience of the intersection for people biking or scootering
- Replace storm drain grates with grates that are compatible with bike lanes
- Widen and protect bike lanes
- Determine if bike racks are sufficient at Scotch Pines
- Other suggestions
- Improve the drainage of the northwest corner


$\longleftarrow$ Straight
$\longleftarrow+$ Stopped
$\&$ Unknown
$\leftrightarrow$ Backing
$\leftrightarrow$ Overtaking
$\leftrightarrow \Delta$ Sideswipe

[^0]

FC22－0012645 9／12／2022 8：02：00 PM

Pedestrian
$\chi$ Bicycle
Injury Serious In
Fatality
Nighttime

DUI
Ord Vehicle
$\leftarrow$－Motorcycle
$\leftarrow$－Overturn
Fixed objects：
－General
员 Animal
－Public Obj
⿴囗大 Private Obj


# City of Fort Collins Traffic Operations 

626 Linden Street, PO Box 580
Fort Collins, CO 80522-0580
Peak Hour Turning Movement Count

North/South Street: Lemay
East/West Street: Drake
Time: AM
ICU Number: 64

File Name : Lemay \& Drake 7-12-22
Site Code : 00000064
Start Date : 7/12/2022
Page No : 1

Groups Printed- Unshifted

|  | Lemay Southbound |  |  |  | Drake <br> Westbound |  |  |  | LemayNorthbound |  |  |  | Drake Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Int. Total |
| 07:30 AM | 20 | 92 | 26 | 138 | 38 | 124 | 16 | 178 | 7 | 114 | 11 | 132 | 8 | 99 | 39 | 146 | 594 |
| 07:45 AM | 19 | 130 | 20 | 169 | 41 | 161 | 28 | 230 | 8 | 197 | 24 | 229 | 12 | 140 | 49 | 201 | 829 |
| Total | 39 | 222 | 46 | 307 | 79 | 285 | 44 | 408 | 15 | 311 | 35 | 361 | 20 | 239 | 88 | 347 | 1423 |
| 08:00 AM | 17 | 110 | 18 | 145 | 47 | 132 | 26 | 205 | 14 | 130 | 18 | 162 | 6 | 95 | 29 | 130 | 642 |
| 08:15 AM | 18 | 103 | 20 | 141 | 39 | 133 | 28 | 200 | 9 | 137 | 15 | 161 | 18 | 108 | 39 | 165 | 667 |
| Grand Total | 74 | 435 | 84 | 593 | 165 | 550 | 98 | 813 | 38 | 578 | 68 | 684 | 44 | 442 | 156 | 642 | 2732 |
| Apprch \% | 12.5 | 73.4 | 14.2 |  | 20.3 | 67.7 | 12.1 |  | 5.6 | 84.5 | 9.9 |  | 6.9 | 68.8 | 24.3 |  |  |
| Total \% | 2.7 | 15.9 | 3.1 | 21.7 | 6 | 20.1 | 3.6 | 29.8 | 1.4 | 21.2 | 2.5 | 25 | 1.6 | 16.2 | 5.7 | 23.5 |  |



# City of Fort Collins Traffic Operations 

626 Linden Street, PO Box 580
Fort Collins, CO 80522-0580
Peak Hour Turning Movement Count

North/South Street: Lemay
East/West Street: Drake
Time: NN
ICU Number: 64

File Name : Lemay \& Drake 7-12-22
Site Code : 00000064
Start Date : 7/12/2022
Page No : 1

Groups Printed- Unshifted

|  | LemaySouthbound |  |  |  | Drake Westbound |  |  |  | Lemay Northbound |  |  |  | Drake Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Int. Total |
| 12:00 PM | 34 | 158 | 23 | 215 | 30 | 114 | 37 | 181 | 10 | 141 | 28 | 179 | 17 | 118 | 44 | 179 | 754 |
| 12:15 PM | 29 | 163 | 11 | 203 | 28 | 98 | 27 | 153 | 21 | 143 | 10 | 174 | 19 | 96 | 38 | 153 | 683 |
| 12:30 PM | 30 | 168 | 25 | 223 | 20 | 112 | 47 | 179 | 11 | 162 | 24 | 197 | 18 | 97 | 56 | 171 | 770 |
| 12:45 PM | 37 | 190 | 26 | 253 | 27 | 116 | 46 | 189 | 13 | 145 | 18 | 176 | 18 | 136 | 55 | 209 | 827 |
| Total | 130 | 679 | 85 | 894 | 105 | 440 | 157 | 702 | 55 | 591 | 80 | 726 | 72 | 447 | 193 | 712 | 3034 |
| Grand Total | 130 | 679 | 85 | 894 | 105 | 440 | 157 | 702 | 55 | 591 | 80 | 726 | 72 | 447 | 193 | 712 | 3034 |
| Apprch \% | 14.5 | 76 | 9.5 |  | 15 | 62.7 | 22.4 |  | 7.6 | 81.4 | 11 |  | 10.1 | 62.8 | 27.1 |  |  |
| Total \% | 4.3 | 22.4 | 2.8 | 29.5 | 3.5 | 14.5 | 5.2 | 23.1 | 1.8 | 19.5 | 2.6 | 23.9 | 2.4 | 14.7 | 6.4 | 23.5 |  |



# City of Fort Collins Traffic Operations 

626 Linden Street, PO Box 580
Fort Collins, CO 80522-0580
Peak Hour Turning Movement Count

North/South Street: Lemay
East/West Street: Drake
Time: PM
ICU Number: 64

File Name : Lemay \& Drake 7-12-22
Site Code : 00000064
Start Date : 7/12/2022
Page No : 1

Groups Printed- Unshifted

|  | Lemay Southbound |  |  |  | Drake Westbound |  |  |  | LemayNorthbound |  |  |  | Drake Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Int. Total |
| 04:30 PM | 54 | 225 | 24 | 303 | 40 | 127 | 34 | 201 | 14 | 151 | 17 | 182 | 14 | 127 | 42 | 183 | 869 |
| 04:45 PM | 40 | 227 | 38 | 305 | 50 | 158 | 35 | 243 | 6 | 151 | 28 | 185 | 22 | 176 | 58 | 256 | 989 |
| Total | 94 | 452 | 62 | 608 | 90 | 285 | 69 | 444 | 20 | 302 | 45 | 367 | 36 | 303 | 100 | 439 | 1858 |
| 05:00 PM | 57 | 267 | 42 | 366 | 49 | 136 | 26 | 211 | 16 | 178 | 22 | 216 | 23 | 160 | 55 | 238 | 1031 |
| 05:15 PM | 56 | 248 | 44 | 348 | 55 | 188 | 40 | 283 | 11 | 118 | 25 | 154 | 16 | 179 | 49 | 244 | 1029 |
| Grand Total | 207 | 967 | 148 | 1322 | 194 | 609 | 135 | 938 | 47 | 598 | 92 | 737 | 75 | 642 | 204 | 921 | 3918 |
| Apprch \% | 15.7 | 73.1 | 11.2 |  | 20.7 | 64.9 | 14.4 |  | 6.4 | 81.1 | 12.5 |  | 8.1 | 69.7 | 22.1 |  |  |
| Total \% | 5.3 | 24.7 | 3.8 | 33.7 | 5 | 15.5 | 3.4 | 23.9 | 1.2 | 15.3 | 2.3 | 18.8 | 1.9 | 16.4 | 5.2 | 23.5 |  |



# City of Fort Collins Traffic Operations 

626 Linden Street, PO Box 580
Fort Collins, CO 80522-0580
Peak Hour Turning Movement Count

North/South Street: Lemay East/West Street: Drake
Time: PHF
ICU Number: 64

File Name : Lemay \& Drake 7-12-22
Site Code : 00000064
Start Date : 7/12/2022
Page No : 1

|  | Lemay Southbound |  |  |  | Drake Westbound |  |  |  | LemayNorthbound |  |  |  | Drake <br> Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Right | Thru | Left | App. Total | Int. Total |
| Peak Hour Analysis From 07:30 AM to 09:45 AM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Peak Hour for Entire Intersection Begins at 07:30 AM |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 07:30 AM | 20 | 92 | 26 | 138 | 38 | 124 | 16 | 178 | 7 | 114 | 11 | 132 | 8 | 99 | 39 | 146 | 594 |
| 07:45 AM | 19 | 130 | 20 | 169 | 41 | 161 | 28 | 230 | 8 | 197 | 24 | 229 | 12 | 140 | 49 | 201 | 829 |
| 08:00 AM | 17 | 110 | 18 | 145 | 47 | 132 | 26 | 205 | 14 | 130 | 18 | 162 | 6 | 95 | 29 | 130 | 642 |
| 08:15 AM | 18 | 103 | 20 | 141 | 39 | 133 | 28 | 200 | 9 | 137 | 15 | 161 | 18 | 108 | 39 | 165 | 667 |
| Total Volume | 74 | 435 | 84 | 593 | 165 | 550 | 98 | 813 | 38 | 578 | 68 | 684 | 44 | 442 | 156 | 642 | 2732 |
| \% App. Total | 12.5 | 73.4 | 14.2 |  | 20.3 | 67.7 | 12.1 |  | 5.6 | 84.5 | 9.9 |  | 6.9 | 68.8 | 24.3 |  |  |
| PHF | . 925 | . 837 | . 808 | . 877 | . 878 | . 854 | . 875 | . 884 | . 679 | . 734 | . 708 | . 747 | . 611 | .789 | . 796 | . 799 | . 824 |


| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Peak Hour for Entire Intersection Begins at 12:00 PM |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12:00 PM | 34 | 158 | 23 | 215 | 30 | 114 | 37 | 181 | 10 | 141 | 28 | 179 | 17 | 118 | 44 | 179 | 754 |
| 12:15 PM | 29 | 163 | 11 | 203 | 28 | 98 | 27 | 153 | 21 | 143 | 10 | 174 | 19 | 96 | 38 | 153 | 683 |
| 12:30 PM | 30 | 168 | 25 | 223 | 20 | 112 | 47 | 179 | 11 | 162 | 24 | 197 | 18 | 97 | 56 | 171 | 770 |
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| Total Volume | 130 | 679 | 85 | 894 | 105 | 440 | 157 | 702 | 55 | 591 | 80 | 726 | 72 | 447 | 193 | 712 | 3034 |
| \% App. Total | 14.5 | 76 | 9.5 |  | 15 | 62.7 | 22.4 |  | 7.6 | 81.4 | 11 |  | 10.1 | 62.8 | 27.1 |  |  |
| PHF | 878 | . 893 | 817 | . 883 | . 875 | 948 | 835 | .929 | . 655 | . 912 | 714 | .921 | . 947 | . 822 | . 862 | . 852 | 917 |

Peak Hour Analysis From 02:00 PM to 05:15 PM - Peak 1 of 1

| Peak Hour for Entire Intersection Begins at 04:30 PM |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 04:30 PM | 54 | 225 | 24 | 303 | 40 | 127 | 34 | 201 | 14 | 151 | 17 | 182 | 14 | 127 | 42 | 183 | 869 |
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| 05:00 PM | 57 | 267 | 42 | 366 | 49 | 136 | 26 | 211 | 16 | 178 | 22 | 216 | 23 | 160 | 55 | 238 | 1031 |
| 05:15 PM | 56 | 248 | 44 | 348 | 55 | 188 | 40 | 283 | 11 | 118 | 25 | 154 | 16 | 179 | 49 | 244 | 1029 |
| Total Volume | 207 | 967 | 148 | 1322 | 194 | 609 | 135 | 938 | 47 | 598 | 92 | 737 | 75 | 642 | 204 | 921 | 3918 |
| \% App. Total | 15.7 | 73.1 | 11.2 |  | 20.7 | 64.9 | 14.4 |  | 6.4 | 81.1 | 12.5 |  | 8.1 | 69.7 | 22.1 |  |  |
| PHF | . 908 | . 905 | . 841 | . 903 | . 882 | . 810 | . 844 | . 829 | . 734 | . 840 | . 821 | . 853 | . 815 | . 897 | . 879 | . 899 | . 950 |



Page 1 of 3


Page 2 of 3


Page 3 of 3


[^0]:    Parked
    sn Weaving
    な～Changing Ln
    $R$ Right turn
    Left turn
    $\leftrightarrows$ U－turn

