



1ST AVENUE IMPROVEMENT PROJECT TRAFFIC ANALYSIS REPORT

March 2026



CITY OF
TUCSON

RTA



CONTENTS

1.	Introduction.....	6
	Project Background	6
	Project Goals & Design Strategies	7
	Study Area.....	13
2.	Literature Review & Best Practices	22
3.	Data Collection & Methodology.....	24
	Data Collection.....	24
	Methodology	24
4.	Existing Conditions	29
	Travel Behavior	29
	Driving Today	30
	Walking Today.....	44
	Bicycling Today	51
	Transit Today	55
5.	Safety Analysis.....	59
	Safe System Approach	59
	Crash Analysis.....	59
	Near-Miss Video Data Analysis	61
	Behavior Video Analysis	62
	Stakeholder Interviews.....	62
	Key Findings	63
6.	2045 Future Conditions	67
	2045 No-Build Conditions	67
	Future 2045 Build Conditions.....	77
7.	Conclusion & Recommendations	109
	Key Findings	109
	Recommendations.....	112

LIST OF FIGURES

Figure 1: Study and Influence Area with Key Destinations	14
Figure 2: Existing Land Use	16
Figure 3: Study Area Demographics.....	17
Figure 4: Employment by Number of Employees	18
Figure 5: Population Density	19
Figure 6: Geographic Distribution of Race and Ethnicity	20
Figure 7: Equity Priority Index Map	21
Figure 8: Pedestrian Level of Comfort Scale	28
Figure 9: Bicyclist Level of Traffic Stress Scale.....	28
Figure 10: Study Area Trips by Mode	29
Figure 11: 1st Avenue between River and Wetmore	31
Figure 12: 1st Avenue between Wetmore and Limberlost.....	31
Figure 13: 1st Avenue between Fort Lowell and Glenn	31
Figure 14: Traffic Signal Control.....	32
Figure 15: Average Daily Traffic - 1st Avenue (1998 - 2024).....	36
Figure 16: 1st Avenue Daily Volume Profile).....	37
Figure 17: Existing 2024 Daily Volumes – 1st Avenue by Segment.....	38
Figure 18: Existing 2024 1 st Avenue Cross Street Volumes	38
Figure 19: Turn Volumes by Peak Period, Lane Configuration, and Traffic Control.....	39
Figure 20: Existing Weekday AM and PM Peak Hour Intersection Level of Service – System Peak	42
Figure 21: Time Spent at Different LOS – Weekday.....	43
Figure 22: Roadway Level of Service by Time of Day.....	44
Figure 23: Existing Pedestrian Facilities.....	46
Figure 24: Width of Existing Sidewalk Along the Corridor	47
Figure 25: Pedestrian Level of Comfort Along the Corridor	50
Figure 26: Existing Bicycle Facilities Along the Corridor.....	52
Figure 27: Bicyclist Level of Traffic Stress Along the Corridor.....	54
Figure 28: Sun Tran Route 6 Along the Corridor.....	55
Figure 29: Crashes on 1st Avenue by Crash Mode and Highest Injury Severity (2019 - 2023)	60
Figure 30: Lighting Conditions by Mode for Crashes on 1st Avenue (2019 - 2023).....	61
Figure 31: Right Turning Vehicle-Pedestrian Near-Miss at Fort Lowell Road	62
Figure 32: Year 2045 No-Build Turning Movement Volume Projections	70
Figure 33: Pedestrian Level of Comfort Along the Corridor (2045 No-Build)	74
Figure 34: Bicyclist Level of Traffic Stress Along the Corridor (2045 No-Build).....	76
Figure 35: Map of Planned Corridor Improvements.....	93
Figure 36: City of Tucson Right-Turn Lane Warrant Guidelines for Two-Lane and Four-Lane Roadways	95
Figure 37: Pedestrian Level of Comfort Along the Corridor – Existing vs. 2045 No-Build vs. 2045 Build	106
Figure 38: Existing Bicyclist Level of Traffic Stress Along the Corridor.....	108

LIST OF TABLES

Table 1: Evaluation Matrix Strategies and Goals	11
Table 2: LOS Definitions	26
Table 3: Roadway Level of Service Description for Urban Streets.....	27
Table 4: Existing 2024 Traffic Volume Summary	37
Table 5: Spot Speed Data Summary.....	40
Table 6: Traffic Operations Summary for Unsignalized Intersections – Movement with the Highest Delay and LOS	41
Table 7: Pedestrian Volumes During Vehicle Peak Hours and Pedestrian Peak Hours	48
Table 8: Pedestrian Volumes During Pedestrian Peak Hours.....	49
Table 9: Bicyclist Volumes During Vehicle Peak Hours and Bicyclist Peak Hours	53
Table 10: Routes in Study Area	56
Table 11: Transit Stop Amenities.....	56
Table 12: 2024 Ridership by Stop - Average Daily Riders	57
Table 13: Transit Travel Times (Route 6 Along 1 st Avenue).....	58
Table 14: Crash Frequency and Rate by Type on 1st Avenue (2019 - 2023).....	60
Table 15: 1 st Avenue Improvement Safety Recommendations.....	64
Table 16: Trip Generation Estimates for Future Developments.....	68
Table 17: Year 2045 No-Build Daily Roadway Segment Volume and Truck Percentage Projections	69
Table 18: Year 2045 No-Build Peak Hour Intersection Operations Results (Synchro)	72
Table 19: Year 2045 No-Build Peak Hour Intersection Operations Results (Vissim)	72
Table 20: Corridor Level of Service	73
Table 21: Improvements used at 1 st Avenue Intersections	84
Table 22: Minimum Spacing Between Unsignalized Median Openings (City of Tucson)	94
Table 23: Guidelines for Spacing Median Openings (City of Tucson).....	94
Table 24: Peak-Hour Intersection Pedestrian and Bicyclist Projections - 2045 Build Conditions.....	97
Table 25: Year 2045 Peak Hour Intersection Operations Results (Synchro)	98
Table 26: Year 2045 Peak Hour Intersection Operations Results (Vissim)	99
Table 27: 2045 Build Conditions – Peak-Hour Queue Lengths (ft)	101
Table 28: Corridor Travel Time and Level of Service.....	103
Table 29: Transit Quality of Service Definitions	104
Table 30: Transit Quality of Service	104
Table 31: Minimum Storage Length Recommendations for Turn Lanes	114

APPENDICES

Appendix A	Local Literature Review & National Best Practices Memorandum
Appendix B	Data Collection Memorandum
Appendix C	Vissim Model Calibration Memorandum
Appendix D	Existing Conditions Operations Results
Appendix E	Safety Data Analysis Memorandum
Appendix F	No-Build Traffic Conditions Level-of-Service Worksheets
Appendix G	Build Traffic Conditions Level-of-Service Worksheets
Appendix H	Synchro and Vissim LOS Comparison

1. Introduction

The 1st Avenue Traffic Analysis Report brings together a series of technical studies and assessments conducted throughout the planning phase of the 1st Avenue Improvement project. This comprehensive report integrates findings from: the literature review and best practices, detailed data collection efforts, an analysis of existing traffic conditions, a thorough safety evaluation, and future conditions assessment under both no-build and build scenarios. By consolidating these individual reports, the document provides a holistic understanding of current challenges and anticipated outcomes, supporting informed decision-making for the corridor's future development and ensuring alignment with regional transportation goals and community needs.

PROJECT BACKGROUND

The City of Tucson Department of Transportation and Mobility (DTM), in partnership with the Regional Transportation Authority (RTA), is advancing the 1st Avenue Improvement Project to improve the 1st Avenue corridor from River Road to Grant Road. This project will modernize the corridor using a **Complete Streets** approach to improve safety for all users, increase transportation options, upgrade existing infrastructure, support mobility, and enhance the visual character, while minimizing impacts on adjacent property and business.

The 1st Avenue improvements include:

- Continuous, accessible sidewalk
- Physically separated bicycle facilities from motor vehicles
- Frequent pedestrian and bicycle crossings
- Upgraded traffic signals with adaptive signal technology
- Raised medians and/or pedestrian islands
- Adequate and continuous street lighting
- Upgraded transit stops
- Drainage improvements to accommodate common storm events
- Pavement reconstruction
- New bridge over the Rillito River
- Green Stormwater Infrastructure (GSI)

These improvements associated with the 1st Avenue Improvement Project are the result of years of planning and have shifted significantly since the project was first identified as part of the 2006 RTA Plan. That plan called for widening 1st Avenue from four to six lanes, as well as adding bike lanes and sidewalks. However, in 2021, DTM completed a **Needs Assessment Study** to reevaluate mobility and complete streets needs through 2045. The Needs Assessment Study concluded that traffic projections had changed significantly since 2006 and that widening the roadway would no longer meet the long-term needs and vision for the corridor. Instead, the 1st Avenue Improvement Project should focus on incorporating complete street and Intelligent Transportation System (ITS) solutions to enhance safety and optimize traffic operations, while maintaining the existing four-lane cross section.

PROJECT GOALS & DESIGN STRATEGIES

The project goals establish the framework used to evaluate and compare design alternatives for the 1st Avenue corridor. The goals define the desired outcomes of the project and provide a structured basis for developing design strategies and evaluation criteria.

The goals were developed through a collaborative process involving the project team, Task Force, and community stakeholders. Each goal focuses on a single core outcome and is intended to be measurable and assessable through defined evaluation criteria. The goals are grounded in:

- Existing citywide transportation plans
- Current corridor conditions
- A project-specific safety evaluation
- Extensive public outreach conducted in Fall 2024

Community input played a central role in shaping the final goals. During Fall 2024 public outreach, people consistently emphasized the importance of multimodal safety and active transportation. Safety emerged as the community's highest priority, particularly for people walking and bicycling. The most frequently identified desired improvements included:

- Safer intersections for all road users, especially pedestrians and bicyclists
- Better bike lanes, including protected facilities
- Safe, comfortable, and accessible sidewalks
- More trees and landscaping
- More safe crossing locations

This feedback demonstrated a community desire to enhance safety, strengthen active transportation infrastructure, and improve the overall pedestrian and bicycling experience along the corridor. These priorities directly informed the project's goals and overall design direction.

Based on this foundation, the Task Force established six project goals, each paired with corresponding design strategies. A design strategy represents the specific approach used to achieve a goal and guide the selection of transportation improvements. With the goals clearly defined, the design team applied Complete Streets principles and the Federal Highway Administration (FHWA) Safe Systems Approach to develop evaluation criteria and identify appropriate transportation treatments for the 1st Avenue corridor.

Goal 1: Improve Safety for all users of 1st Avenue, particularly for the most vulnerable road users, such as pedestrians, bicyclists, people with disabilities, motorcyclists, and others.

The following design strategies were identified with a *safety-first philosophy* in mind – to protect vulnerable road users through physical separation and conflict reduction.

- Employ Safe Systems Approach principles in corridor design.
- Provide physical separation of bicyclists and pedestrians from motor vehicles.
- Manage vehicle speeds to reduce crash severity.
- Provide adequate and continuous lighting along the corridor, particularly in the areas with the highest pedestrian activity.
- Ensure that pedestrians and cyclists have access to frequent safe crossings.
- Design intersections and upgrade traffic signals to reduce conflicts in space and time.
- To the extent feasible, design sidewalks to be dominant across driveways, maintaining the level, material, and slope of the sidewalk.

Goal 2: Increase transportation options and reduce barriers on 1st Avenue by improving comfort, convenience, and accessibility for people walking, biking, and using public transportation.

The following design strategies were selected to emphasize a *Complete Streets* vision that prioritizes equitable access for all transportation modes.

- Install wide, continuous, and accessible sidewalks.
- Separate sidewalks from roadway to the greatest extent feasible with a planting/amenity zone and bicycle lanes.
- Ensure that pedestrians and cyclists have access to frequent safe crossings.
- Provide the greatest amount of physical separation between bicyclists and motor vehicles, including through the installation of protected bike lanes.
- Upgrade transit stops to be accessible, shaded, safe, and comfortable.

Goal 3: Improve the condition of existing infrastructure to ensure that 1st Avenue meets community needs now and into the future.

The following design strategies were identified to implement *long-term resilience and smart infrastructure* that considers the durability and future-readiness of the corridor's infrastructure.

- Upgrade drainage infrastructure to provide all-mode access during more frequent/common storm events.
- Replace the 1st Avenue bridge over the Rillito River.
- Upgrade traffic lights at signalized intersections with adaptive and transit signal priority technologies.
- Reconstruct pavement roadway, sidewalks, bicycle lanes, and install bus shelters to improve ride quality, comfort, accessibility, and longevity of public infrastructure.

Goal 4: Support mobility along the corridor through the efficient movement of traffic, including transit, personal, and commercial vehicles.

The following design strategies were chosen with *traffic operations and future capacity* in mind – to accommodate growth while supporting all users.

- Upgrade Traffic Signals with Adaptive and Transit Signal Priority Technologies.
- Implement Access Management Strategies.
- Evaluate strategies to efficiently and safely accommodate all modes at major intersections.
- Incorporate bus pullouts at high-demand locations.

Goal 5: Minimize the impacts of 1st Avenue improvements on adjacent residents and businesses.

The following design strategies were selected to minimize right-of-way impacts and disruption on the corridor during and after construction.

- Align the 1st Avenue corridor to minimize acquisitions of structures and properties
- Support businesses during construction through a partnership with the RTA Mainstreet program.
- Maintain access for residents, businesses, and neighborhoods along 1st Avenue.

Goal 6: Enhance the visual character of 1st Avenue to support economic and community vitality.

The following design strategies were selected to maintain and enhance *community and corridor character* and respond to local context:

- Incorporate green stormwater infrastructure (GSI) into landscaping to use stormwater as a resource.
- Integrate public art into bridges and other infrastructure elements to enhance the corridor's visual character and feel.

Transportation Treatment Evaluation Matrix

To understand the extent to which individual transportation treatments along the 1st Avenue corridor may advance project goals, specific metrics and criteria were developed for each design strategy. These metrics relate directly to the context of 1st Avenue and include approaches commonly discussed by the community, including speed management measures, pedestrian-realm enhancements, improved lighting, and driveway access management. Using the metrics and criteria and the scoring framework discussed below, competing transportation treatments can be scored and directly compared to determine which treatments align more closely with project goals.

An evaluation matrix was developed to provide a consistent, transparent, and measurable method for comparing design alternatives for the 1st Avenue corridor. The evaluation framework is illustrated in the figure below. Each project goal includes one or more design strategies. These strategies are then represented by one or more measurable metrics, which in turn are assigned defined scoring criteria to distinguish levels of performance.



Performance is assessed using a three-tiered scoring system – each criteria can score between 1 and 3 points, from least desirable (1) to most desirable (3). Clear thresholds are established for each metric to provide consistent and transparent scoring across alternatives. For example, to evaluate how a specific treatment advances the project goal of improving safety along the corridor, a “crossing frequency” score is assessed based on distances between pedestrian crossings (1 point for ½ mile; 2 points for ¼ mile; 3 points for 1/8 mile).

After individual metrics are scored on the three-point scale, results are grouped by goal to calculate an average performance score for each of the six project goals. Cumulative goal scores are then weighted based on priorities established by the Community Task Force, presented below. As shown below, the highest weighted goal of improving safety along the corridor is weighted 25% higher than the lowest weighted goal (enhance visual character). This weighting ensures alternatives are evaluated based on the extent to which they advance the corridor’s highest transportation priorities.

- Improve Safety – 5.0×
- Increase Transportation Options – 4.5×
- Improve Existing Infrastructure – 4.375×
- Support Mobility – 4.0×
- Minimize Right-of-Way Impacts – 4.0×
- Enhance Visual Character – 3.375×

Application to Cross-Section Alternatives

This evaluation framework was applied to compare two distinct design alternatives for the 1st Avenue Corridor between Roger Road and Prince Road – a narrow raised median versus a continuous Two-Way-Left-Turn Lane (TWLTL).

Table 1 compares each cross-section alternative using the weighted evaluation matrix. In cases where the cross-section did not meaningfully influence a metric (e.g., public art, transit stop features, ITS treatments), no score was assigned to avoid artificially favoring one alternative.

The raised median alternative achieves higher weighted scores in the “Improve Safety” (13.8 vs. 11.3) and “Increase Transportation Options” (12.1 vs. 9.1) categories than the TWLTL alternative, as shown in Table 1. Both alternatives perform similarly in “Improve Existing Infrastructure” (8.8 each), while the TWLTL alternative performs better in “Minimize Right-of-Way Impacts” (12.0 vs. 4.0). Based on the evaluation results, the TWLTL alternative emerged as the preferred alternative, achieving an overall weighted average score of 10.3. The narrow median alternative received an overall weighted average score of 9.7. While the narrow median alternative performed strongest in advancing the “Improve Safety” goal, it scored lower for “Minimize Right-of-Way Impacts”, particularly within this corridor segment (between Roger Road and Prince Road), which contains the narrowest existing right-of-way on the project corridor and is adjacent to residential uses. In contrast, the TWLTL alternative demonstrated more balanced performance across all project goals, resulting in a higher overall weighted score for this constrained segment.

Table 1: Evaluation Matrix Strategies and Goals

Goal	Strategy	Metric	Criteria	Performance			Alternatives	
				Most Desirable (3)	Desirable (2)	Least Desirable (1)	Narrow Median	TWLTL
Improve Safety	Segment Strategies	Speed Management	Traffic Calming Measures	>3 Measures	2 Measures	1 Measure	-	-
		Street Lighting	Lighting Type	Roadway+Sidewalk	Roadway Only	Spot Locations Only	3	2
		Driveway Design	Sidewalk Setback	>80%	65-80%	50-65%	3	2
		Crossing Frequency	Distance	1/8 Mile	1/4 Mile	1/2 Mile	2	3
		Median Type	Median Protection	Continuous Median	Refuge Island	TWLTL	3	2
	Intersection Strategies	Left Turn Movements	Separate / Sight Distance	Protected Phase	Positive Offset	N/A	-	-
		Pedestrian Crossing	Pedestrian Exposure	<80'	80'-100'	>100'	-	-
		Signal Operations	Treatments	>3 Treatments	2 Treatments	1 Treatments	-	-
Safety Weight 5X - Average Score							13.8	11.3
Increase Transportation Options	Pedestrian Strategies	Sidewalk Width	Traversable Width	>8'	6'-7'	4'-5'	3	3
		Sidewalk Buffer	Buffer Width	>6'	5'	<4'	2	1
	Bicycle Strategies	Bicycle Separation	Buffer Type	Vertical Separation	Buffer Separation	Traditional Bike Lane	3	2
		Protected Intersection	# of Intersections	Major and Minor	Minor	N/A	-	-
	Ped + Bike +Transit	Shade	% Cover	>20%	10-20%	<10%	-	-
	Transit Strategies	Upgraded Stops	# of Stops	>60%	40-60%	<40%	-	-
		Proximity to Crossing	Distance	<150'	250'	>300'	-	-
		Bus Pullout (Dedicated Stop)	Transit Demand	High Demand	Medium Demand	Low Demand	-	-
Transportation Options Weight 4.5X - Average Score							12.1	9.1
Upgrade Existing Infrastructure	Drainage	Accommodate Storm Event	Scale of Improvement	Meets City Criteria	Improvement over Existing Condition	Maintains Existing Conditions	-	-
	Landscape Areas	Materials	Type	Hardscape (Concrete, Paver, Asphalt)	Natural (Rock, Vegetation)	No Treatment	-	-

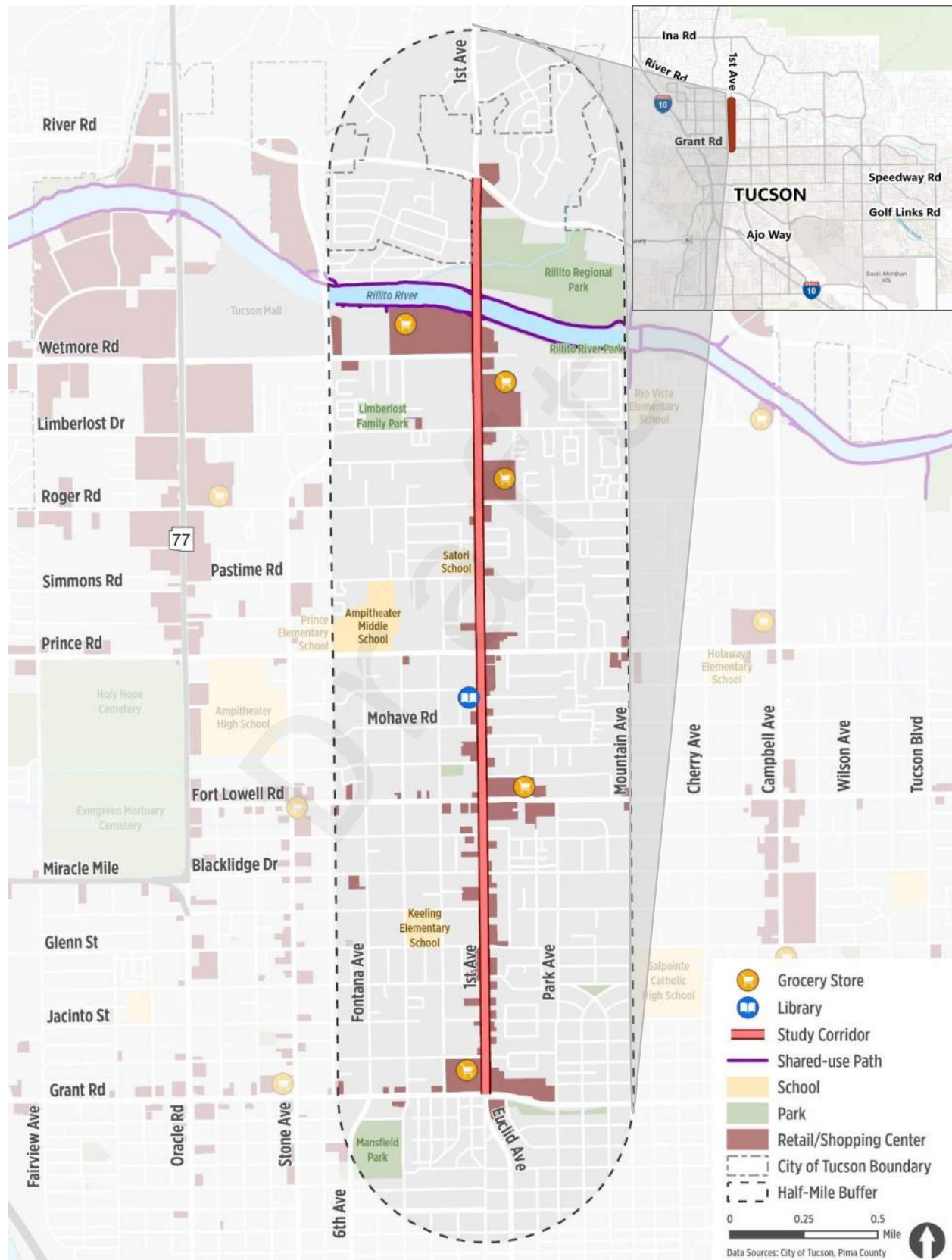
	Bridge	Replace Existing Structure	Utilization and Physical Separation	All Users with Full Separation	All Users With Traditional Separation	Minimal Accommodation (Existing Condition)	-	-
	Pavement	Pavement Treatment	Constructed Alternative	Full Depth	Mill/Overlay	Surface Treatment	-	-
	ITS	Traffic Signal Technology	Treatments	Transit Signal Priority	Adaptative System	Traditional System	-	-
			Emerging Technologies	Dedicated Space	N/A	None	-	-
	Utilities	Utility Location	Location	All Behind Sidewalk	Adequate Space in Landscape Strip	Encroach into Sidewalk	2	2
Infrastructure Condition Weight 4.375X							8.8	8.8
Support Mobility	Motor Vehicular	Level of Service (LOS)	Intersection LOS D	All Int Mov at LOS D or better	LT at LOS E and TH at LOS D or better	All Int Mov at LOS E or better	-	-
	Transit	Travel Time	% from existing	<10%	10%-20%	>30%	-	-
		Bus Pullout (Dedicated Stop)	# of Stops	All Intersection Stops	High Boarding and Alighting	Major Intersections	-	-
	Access Management	Median Openings	Distance	660 ft	330 ft	No Median (TWLTL)	-	-
Support Mobility Weight 4X							-	-
Minimize R/W Impacts	Properties and Structures	Acquisitions/building impacts	# of impacts	No Impact	ROW Impacts	Structure Impacts	1.0	3.0
	Business Access	Vehicular Access to Properties	Median Opening / U-Turn Opportunity	TWLTL	Mid-Block	Signal Only	-	-
	Access during construction	Construction impacts	% impacts	Low	Medium	High	-	-
Minimize Impact Weight 4X							4.0	12.0
Enhance Visual Character	Landscape Strategies	GSI	Pavement Area	>5%	1-5%	<1%	-	-
	Public Art	Elements	# of elements	>50%	50-20%	<20%	-	-
Visual Character Weight 3.375X							-	-
Total Weighted Score							9.7	10.3

STUDY AREA

The 1st Avenue Improvements Project includes the segment of 1st Avenue from Grant Road to River Road in the City of Tucson. The study corridor serves as an urban thoroughfare and provides access to residential and commercial properties. The corridor and its influence area, which extends a half-mile buffer around the corridor, is dense with key destinations, including schools, shopping and retail centers, grocery stores, and a library. A map of the area and key destinations is shown in **Figure 1**.

Draft

Figure 1: Study and Influence Area with Key Destinations



Zoning & Land Use

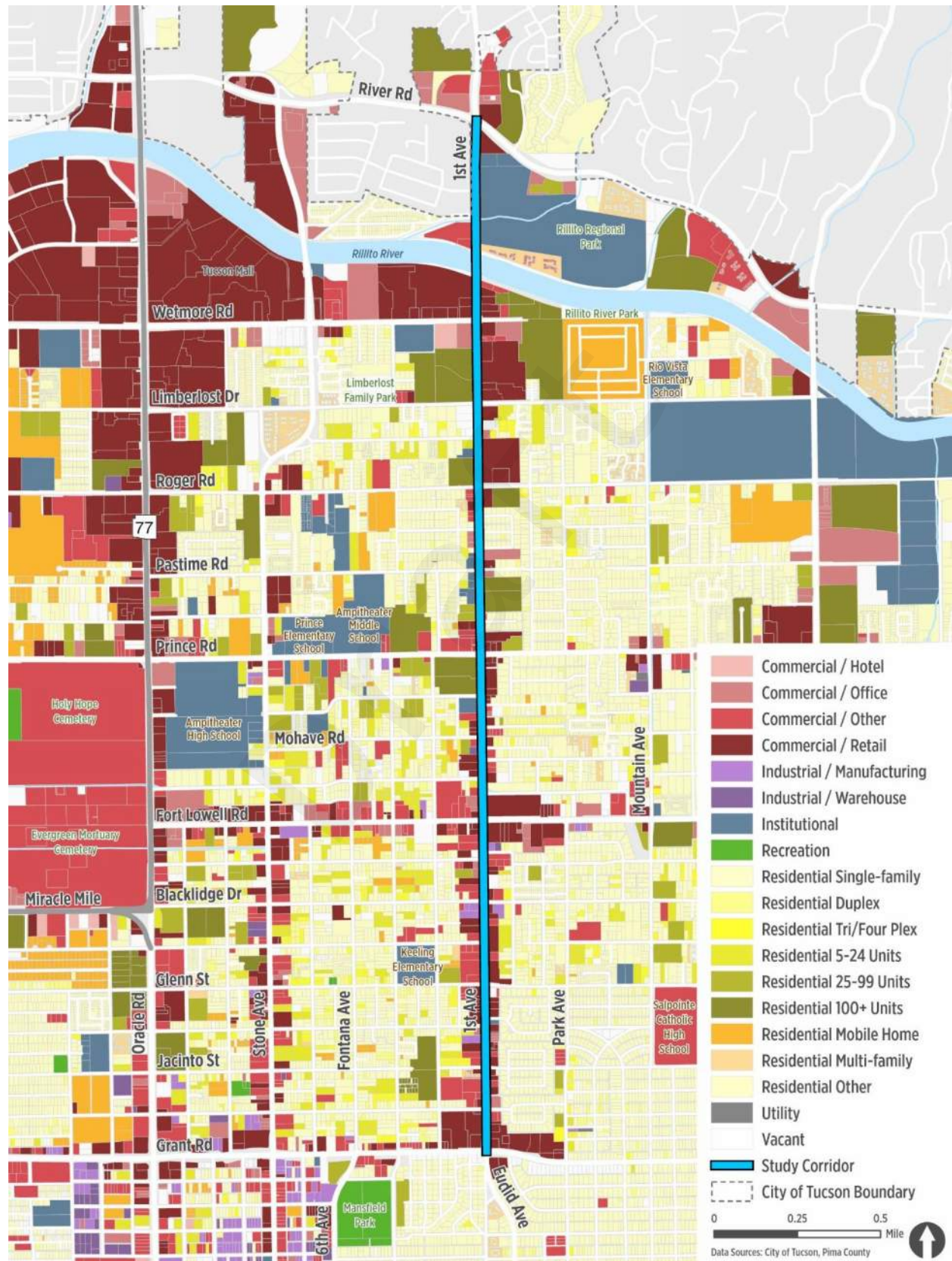
The corridor is primarily zoned for residential and commercial/office land use. Most of the properties immediately adjacent to 1st Avenue are commercially zoned with general commercial use or low-density uses. Commercial zoning includes low-intensity (C-1), general commercial (C-2), some mid-rise commercial (C-3), and office (O-3) for mid-rise office and medical. Residential zoning in the corridor vicinity is generally provided behind commercial zoning and is either zoned medium-density (R-2) or high-density (R-3). North of Roger Road, several larger parcels are zoned for high-density multi-family residences.

Although most properties abutting 1st Avenue along the corridor are zoned for commercial use, a large number of these parcels are eligible to opt in to the City's Community Corridors Tool (CCT). This zoning code amendment, officially adopted in April 2025, seeks to address housing supply and affordability concerns by providing more flexible development standards for residential uses. The CCT maintains the underlying zoning of each property but modifies the criteria to permit the development of residential housing consistent with Tucson's adopted plans. As this tool becomes more widely used (potentially triggered by transportation improvements associated with this project), the residential development density of the 1st Avenue corridor may increase.

Additional zoning and land use details for the 1st Avenue corridor are presented below. **Figure 2** illustrates the current land use along the 1st Avenue corridor.

- Major traffic-generating destinations along the corridor include two Fry's Food and Drug stores with gas stations (one at Roger Road and another at Grant Road), as well as a Sprouts Farmers Market located east of 1st Avenue between Limberlost Drive and Wetmore Road. Two Walmart locations also serve the area: a Supercenter west of 1st Avenue near Wetmore Road and a Walmart Neighborhood Market east of 1st Avenue on Fort Lowell Road.
- Residential density is supported by numerous apartment complexes, with the three largest located east of 1st Avenue on Wetmore Road, west of 1st Avenue on Limberlost Drive, and just south of Prince Road west of 1st Avenue. Additionally, Satori School is located at the northwest corner of 1st Avenue and Pastime Road. Helen B. Keeling Elementary School is located just west of 1st Avenue on the northwest corner of Glenn Street and Los Altos Avenue.
- The Social Security Administration operates three offices in Tucson, including one located along the study corridor at the southeast corner of Smoot Drive and 1st Avenue.

Figure 2: Existing Land Use



Demographics

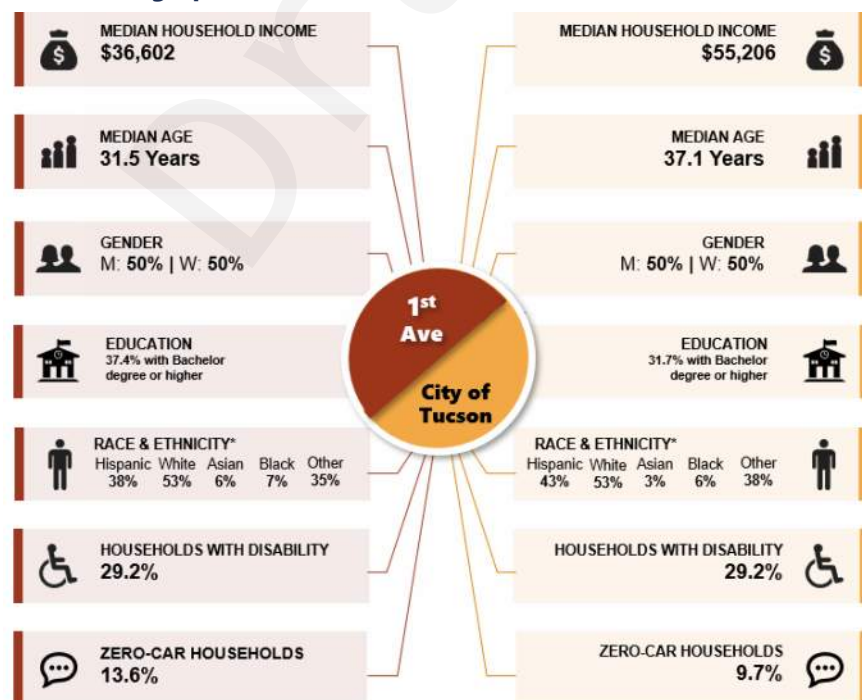
The study area, as shown previously in **Figure 1**, includes a half-mile buffer around the corridor and has a total population of just over 23,000. **Figure 3** compares the study area's demographics with those of the City of Tucson. The study area is younger, more educated, and less wealthy than the Tucson area as a whole, with more households without a car, higher rates of walking, biking, and transit use, and similar racial and ethnic diversity.

Several maps on the following pages provide demographic and employment context for the corridor.

Compared to Tucson overall, the study area population is younger, more educated, lower-income, and relies more heavily on walking, biking, and transit.

- Major employers within the study area include Cenpatco Integrated Care, Fry's Food Stores, and Walmart (**Figure 4**).
- The population is most densely concentrated north of Grant Road between Blacklidge and Limberlost (**Figure 5**).
- The corridor's population is racially and ethnically diverse, including Hispanic/Latino, White, Black/African American, Asian, and other racial and ethnic groups (**Figure 6**).
- The Tucson Equity Priority Index (TEPI) indicates that much of the corridor has moderate to high levels of social vulnerability (**Figure 7**), suggesting that transportation improvements could significantly enhance accessibility and mobility for vulnerable populations.

Figure 3: Study Area Demographics



Source: TEDS, ESRI 2024

* White, Asian, Black, and "Other" population groups may include portions of the Hispanic population. Values do not sum to 100%.

Note: Study area here is defined as within 0.5 miles of the study corridor

Figure 4: Employment by Number of Employees

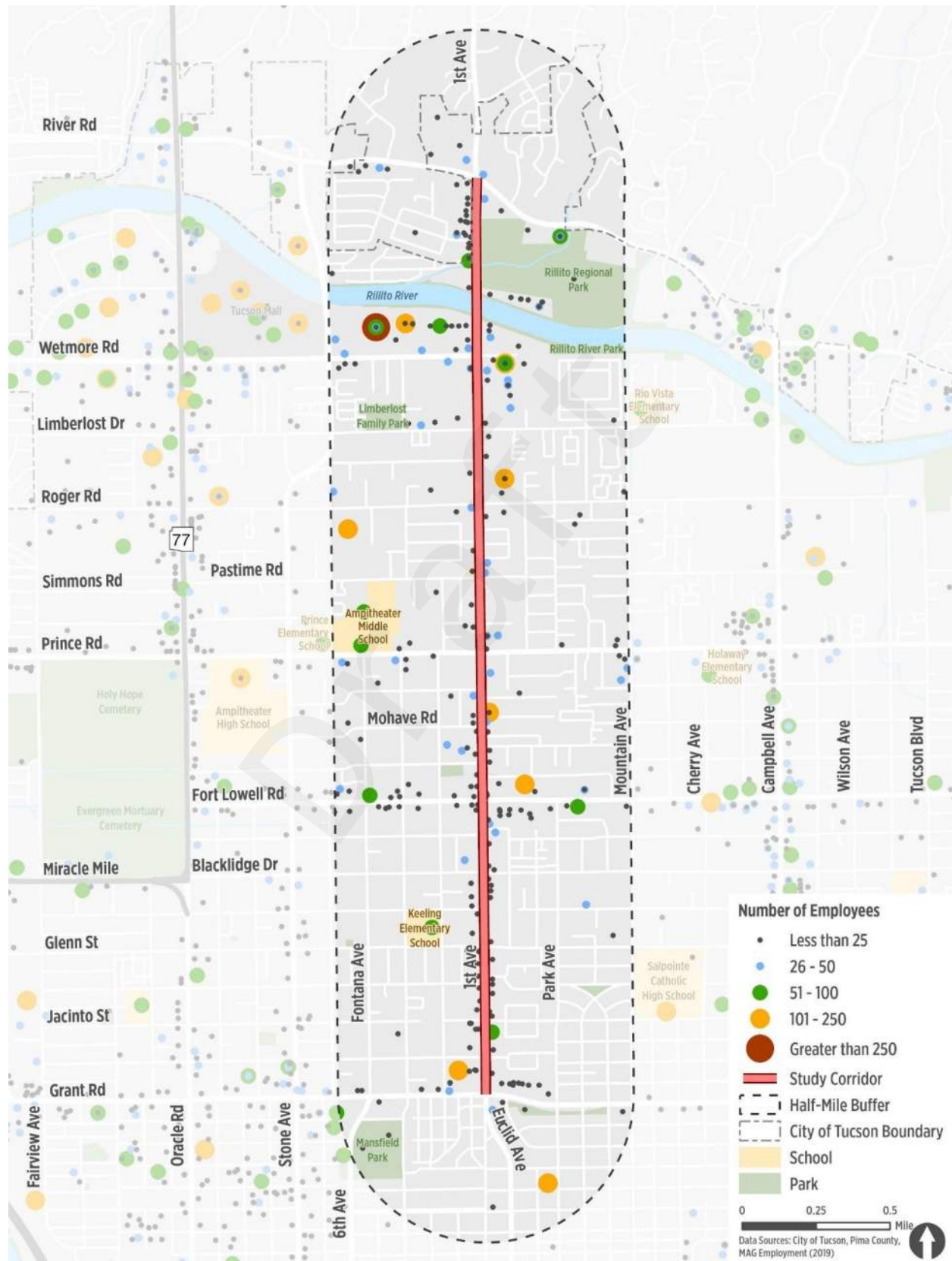


Figure 5: Population Density

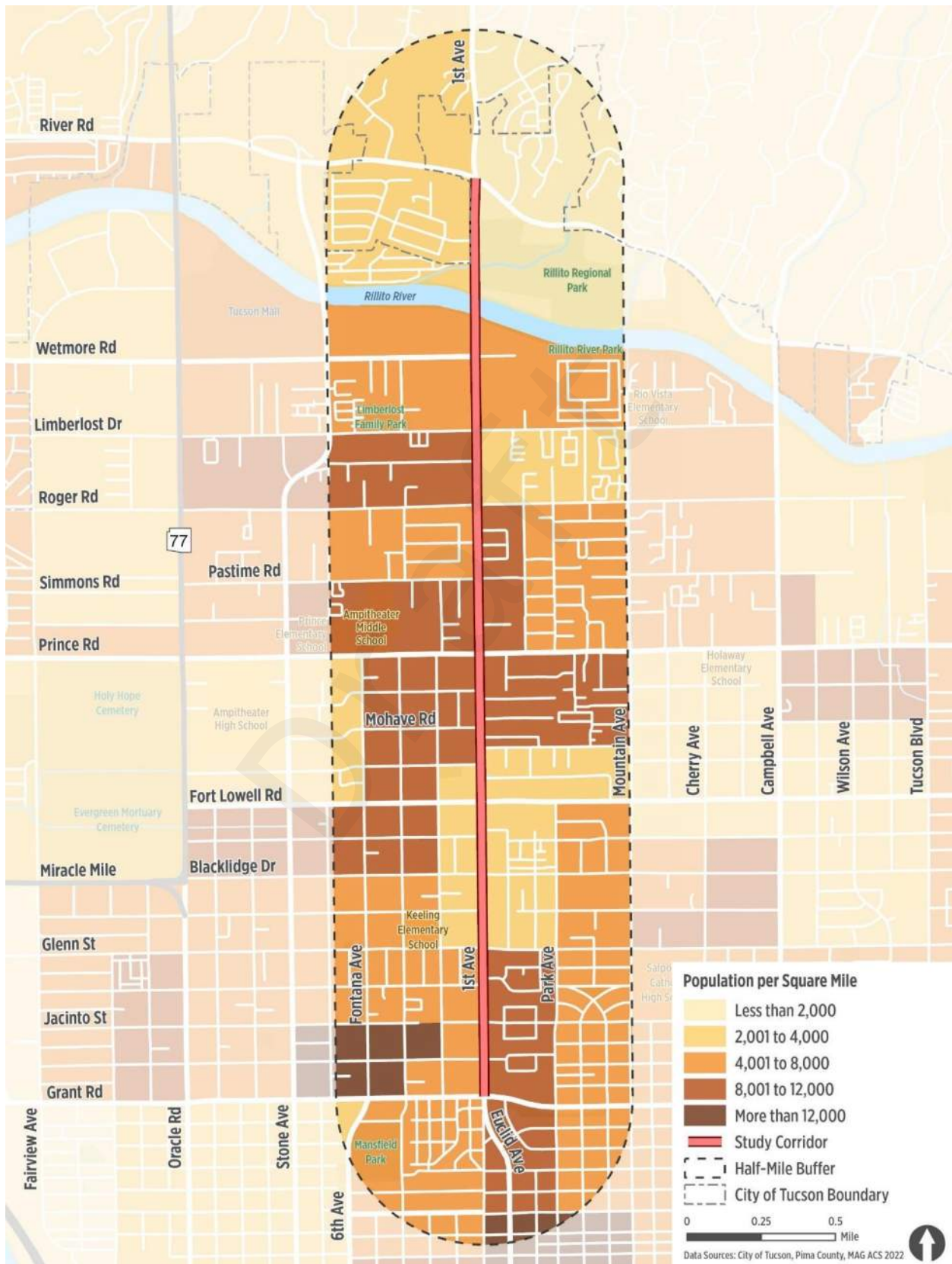


Figure 6: Geographic Distribution of Race and Ethnicity

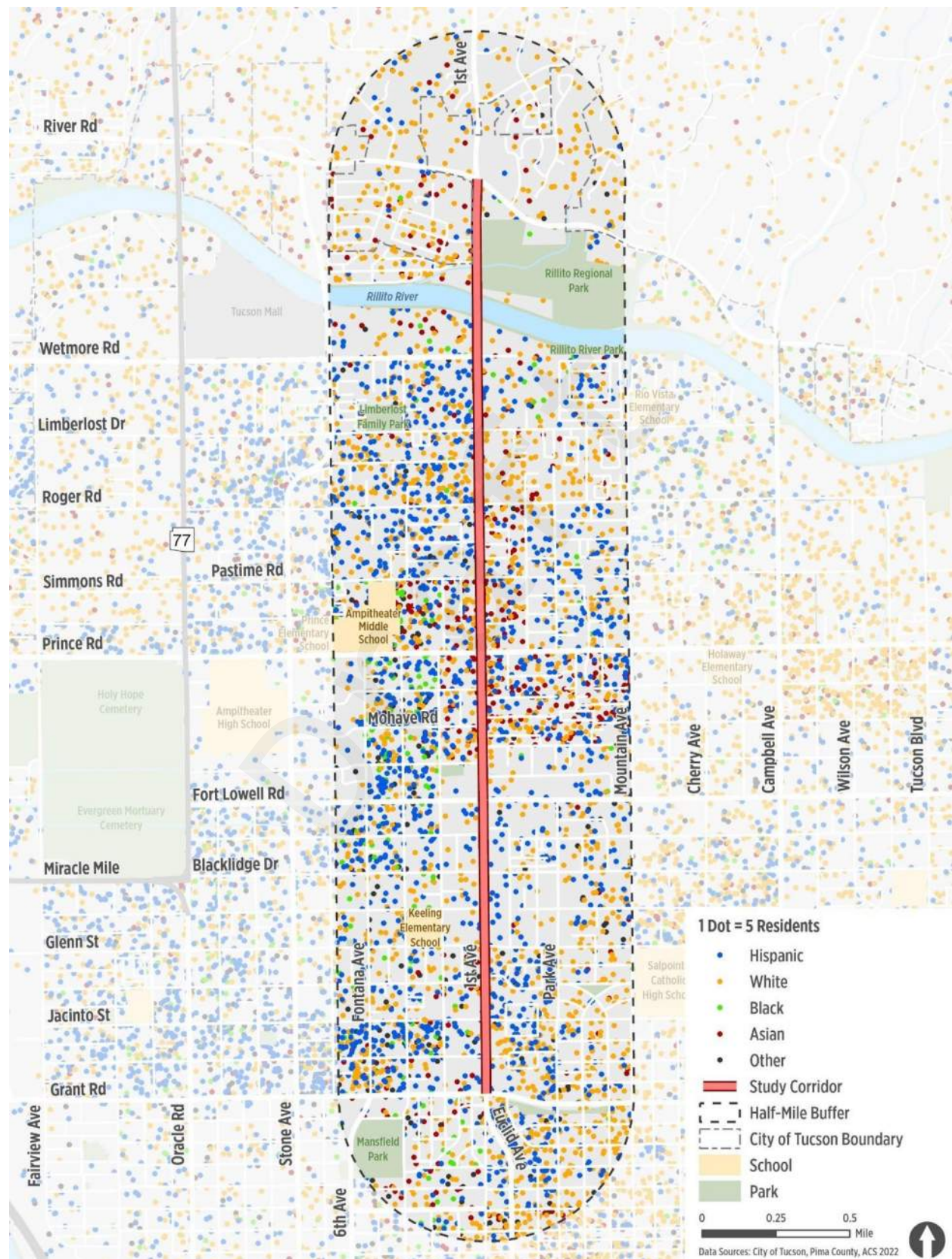
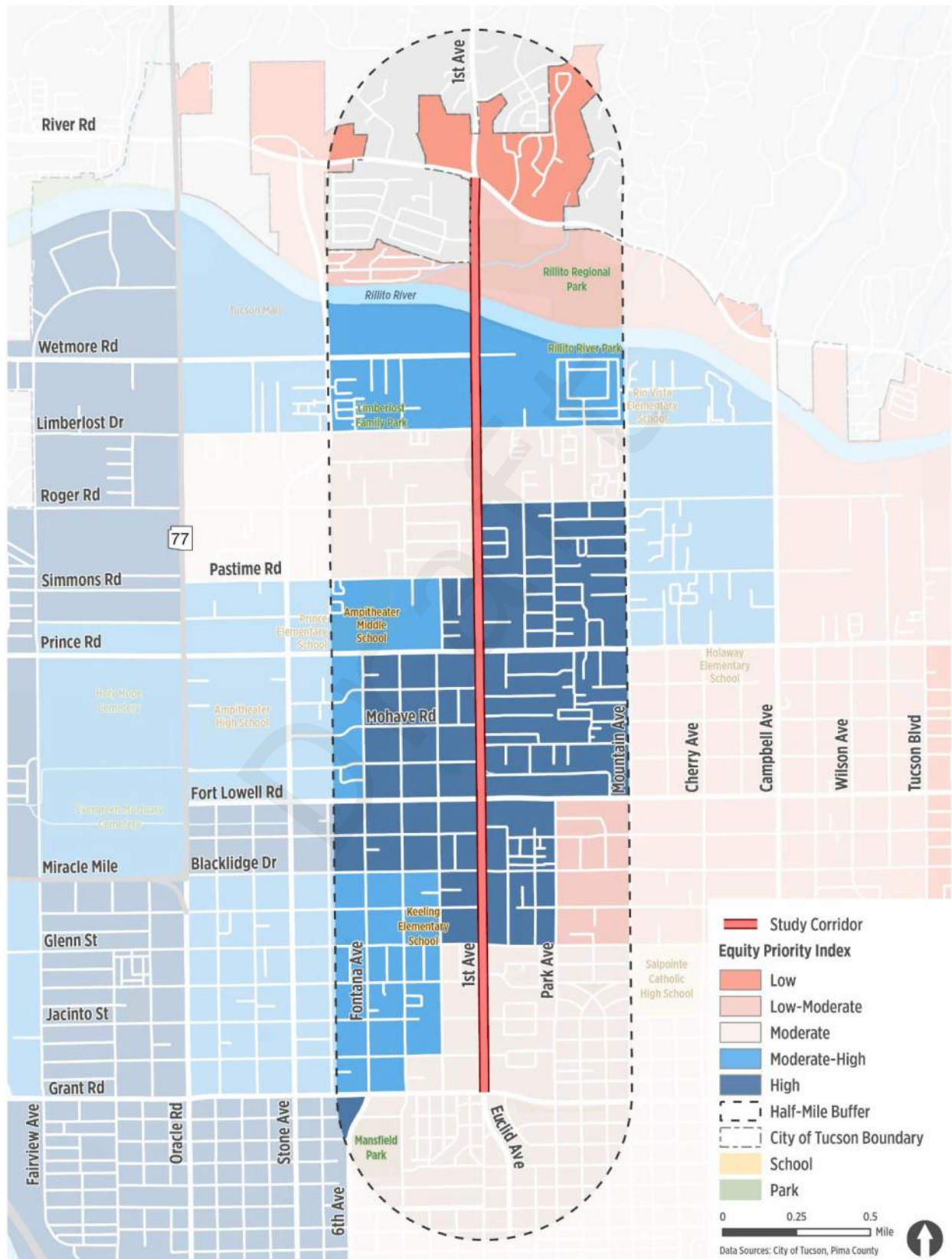


Figure 7: Equity Priority Index Map



2. Literature Review & Best Practices

The Literature Review & Best Practices analysis provides the foundational context for the 1st Avenue corridor project. This review examined transportation plans, Complete Streets policies, and multimodal design standards at both the city and regional level that guide corridor improvements. The documents reviewed include the following:

City of Tucson Plans & Policies

- Complete Streets Policy (2019)
- Tucson Street Design Guide (2021)
- Tucson Pedestrian Safety Action Plan (2019)
- Move Tucson Transportation Master Plan (2021)
- Tucson Norte-Sur Strategic Plan (2020)
- Housing Affordability Strategy for Tucson (HAST)
- Tucson Resilient Together: Climate Action and Adaptation Plan (2023)
- Tucson Comprehensive Plan (Updated 2025)
- City of Tucson Bicycle Boulevard Master Plan (2017)

PAG Plans & Policies

- 2045 Regional Mobility and Accessibility Plan (2020)
- Regional Transportation Authority Plan (2006)
- PAG High-Capacity Transit Implementation Plan (2017)
- Long Range Regional Transit Plan (2020)
- Strategic Transportation Safety Plan (2016)



The analysis also presents case studies from comparable arterial corridors – Broadway Road in Tempe, AZ, and Aurora Avenue in Shoreline, WA – demonstrating successful Complete Streets implementation on facilities with characteristics similar to those of 1st Avenue.

- **Broadway Road in Tempe, AZ** successfully repurposed travel lanes with minimal property impacts to reach the City of Tempe's goals:
 - Adding bike lanes
 - Adding landscaped median
 - Adding buffer wall
 - Planting street trees
 - Widening sidewalks

- **Aurora Avenue in Shoreline, WA** acquired Right-of-Way to install pedestrian enhancements, dedicated bus lanes, and a landscaped median in order to achieve the following goals:
 - Increasing multimodal options
 - Enhancing safety
 - Increasing connectivity

Key findings from the literature review and case studies comparison include:

- **Strong Policy Alignment:** 1st Avenue is identified in multiple city and regional plans as a priority location for multimodal improvements, including designation as part of the Pedestrian High Injury Network and a target for planned bicycle infrastructure.
 - **Urgent Safety Need:** Designation as part of the Pedestrian High Injury Network and having the region's highest bicycle crash rates necessitate comprehensive safety improvements.
 - **Design Framework:** The city's *Street Design Guide* provides clear standards for implementing Complete Streets on Urban Thoroughfares like 1st Avenue.
 - **Climate & Equity Goals:** Improvements align with broader city objectives for carbon reduction, housing affordability, and serving vulnerable populations.
- Proven Approaches:** Comparable corridors have successfully implemented Complete Streets improvements while maintaining acceptable traffic operations and achieving significant safety benefits.

The proposed strategies for the 1st Avenue Improvement Project align with local goals for safety, accessibility, sustainability, and equity while reflecting proven best practices. For more details, see the *Local Literature Review & National Best Practices Memo* by Kittelson in Appendix A.

3. Data Collection & Methodology

DATA COLLECTION

Data collected as part of this project include:

- **Traffic Volumes**
 - Peak-hour intersection turning movement counts (TMCs) at key signalized and unsignalized intersections (March 2024), including bicycle and pedestrian volumes
 - 24-hour roadway volumes between signalized intersections (March 2024)
 - 24-hour vehicle classification and speed data at four heavily trafficked areas (March 2024)
- **Crash & Near Miss Data**
 - Ten-year crash dataset obtained from ADOT's Arizona Crash Information System (ACIS) for years 2013 through 2023
 - One-year 2024 crash dataset obtained from Tucson Police Department (TPD)
 - Near-miss data collected using cameras at two signalized intersections along the corridor
- **Transit Data**
 - Sun Tran ridership data for 2024, including travel time, at 23 bus stops along the corridor
- **Other Data**
 - Signal timing information from the City of Tucson for nine signalized intersections and two HAWK crossings
 - INRIX GPS travel time data from commercial vehicles, connected automobiles, and mobile applications
 - Replica origin-destination data to identify travel patterns along the corridor.
 - Site visits to key locations along corridor to observe traffic patterns and travel behavior
 - Stakeholder interviews with staff from City of Tucson, Tucson Police Department, Tucson Fire Department, and Sun Tran
 - Travel demand model future roadway volume projections from Pima Association of Governments

For more information on the type of data collected and locations, see the *Data Collection Memo* by Kittelson in Appendix B.

METHODOLOGY

The project team used a variety of modeling software and tools, primarily Synchro and VISSIM, to conduct the analyses. **Synchro** is a deterministic modeling tool that can provide reliable, though static, measures of effectiveness (delay/LOS) for vehicles, based on Highway Capacity Manual (HCM) procedures. Intersection operating conditions were evaluated using Synchro 12 software, applying the HCM methodologies.

However, to better understand the corridor's operating conditions, including the complex interactions between vehicles, pedestrians, bicyclists, and transit, an additional microsimulation analysis was conducted. This analysis, completed using PTV **Vissim** 2024 software, offers a closer look at a range of multimodal metrics not available using typical deterministic models. The Vissim model was calibrated according to the procedures documented in the *Vissim Calibration Memo* (Appendix C), ensuring that simulation outputs accurately reflected observed field conditions and were consistent with industry standards. These tools provided a robust framework for evaluating operational performance and multimodal interactions within the corridor.

Operational Metrics

Traffic operations were assessed at each intersection along the corridor for existing conditions, and both build and no-build scenarios. While traditional traffic analysis relies heavily on vehicular Level of Service (LOS), this metric reflects only motor vehicle delay and does not capture comfort, safety, or accessibility for people walking or bicycling.

To better reflect the City's multimodal goals, Pedestrian Level of Comfort (PLOC) and Bicycle Level of Traffic Stress (BLTS) were included as additional performance measures. Together, these metrics provide a more complete picture of how the corridor functions for all users, across all modes of transportation, and align with current best practices in multimodal planning.

VEHICULAR LEVEL OF SERVICE (LOS)

Vehicular LOS was used to evaluate traffic conditions along 1st Avenue for the weekday AM and PM peak hours. LOS provides a standardized way to describe motor vehicle delay and intersection performance and is commonly used to assess roadway capacity and traffic flow.

LOS is a qualitative measure of the effect of several factors, including speed, travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Designations given are "A" through "F," from best to worst, and cover the entire range of traffic operations that might occur. LOS A through E generally indicate traffic volumes below roadway capacity, while LOS F indicates over capacity or forced flow conditions. In general, LOS C and D are considered acceptable, while LOS E and LOS F are not.

For **signalized and unsignalized intersections**, operating conditions were evaluated using the *Highway Capacity Manual (HCM) 2000 Edition*¹ methodologies, as implemented by Synchro 12 software. The HCM calculates a weighted-average stop delay in seconds per vehicle at signalized and unsignalized intersections and assigns a LOS designation based on the delay. At two-way stop-controlled intersections, LOS is defined for each minor-street movement and major-street left turns, as opposed to the overall intersection, since major-street through vehicles are assumed to experience zero delay.

Table 2 presents the relationship of average delay to level of service for signalized intersections and unsignalized intersections with two-way stop-control (TWSC) or all-way stop-control (AWSC). As shown, the thresholds are different at signalized and unsignalized intersections because user perceptions differ among transportation facility types, and "unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable than they are at signals."

¹ *Highway Capacity Manual, 6th Edition*. Transportation Research Board. 2016

To fully understand traffic operations along the corridor, **roadway LOS** was determined, defined by the average travel speed of vehicles traveling along a section of roadway. Travel speed used in this analysis includes delays at signalized intersections and pedestrian crossings, rather than spot speeds, which are instantaneous vehicle speeds at fixed locations. Roadway LOS is described in **Table 3**.

Table 2: LOS Definitions

LOS	Intersection Delay (sec/veh)		Description of Operation
	Signalized	Stop Controlled	
	≤ 10	≤ 10	Very low delay and most vehicles do not stop.
	10 - 20	10-15	Low delay and some vehicles stop.
	20 – 35	15-25	Moderate delay and a significant number of vehicles stop.
	35 – 55	25-35	The limit of acceptable delay in an urban area; many vehicles stop, and some in the queue may not make it through in one cycle.
	55 – 80	35-50	High delay with poor progression; most vehicles will not make it through in one cycle.
	> 80	> 50	Unacceptable delay; demand exceeds intersection capacity. Many vehicles require two or more cycles to make it through.

Source: Highway Capacity Manual

Table 3: Roadway Level of Service Description for Urban Streets

LOS	Definitions	Travel Speed (mph)
	Free-flow operations; vehicles are completely unimpeded in the ability to maneuver; minimal delay at the intersection	> 34
	Minor impedance to vehicle maneuverability; some delay at intersections	> 27
	Stable flow; some restriction to mid-block maneuverability; longer queues at intersections	> 20
	Less stable flow; vehicles entering the roadway from side streets and driveways can result in a substantial increase in delay and lower travel speed; delay at intersections is substantial	> 15
	Unstable operations and significant delay; high delay and long queues at intersections; vehicles attempting to enter the roadway from side streets and driveways experience long delay	> 12
	Extremely low travel speed due to high congestion; stop-and-go conditions	≤ 12

Source: Highway Capacity Manual

PEDESTRIAN LEVEL OF COMFORT (PLOC)

Pedestrian Level of Comfort (PLOC) is a qualitative measure used to assess pedestrian comfort along a corridor. The PLOC scale, developed by the Montgomery County Planning Department, includes a basic four-point ranking system, using half points as needed to provide further nuance when additional data is available. The PLOC measure includes categories such as sidewalk width, posted speed limit, sidewalk buffer width, and presence of bike lanes or on-street parking. The ranking system is as follows:

- PLOC 1: Very Comfortable
- PLOC 1.5: Comfortable
- PLOC 2: Somewhat Comfortable
- PLOC 2.5: Somewhat Uncomfortable
- PLOC 3: Uncomfortable
- PLOC 3.5: Very Uncomfortable
- PLOC 4: Undesirable

Figure 8: Pedestrian Level of Comfort Scale

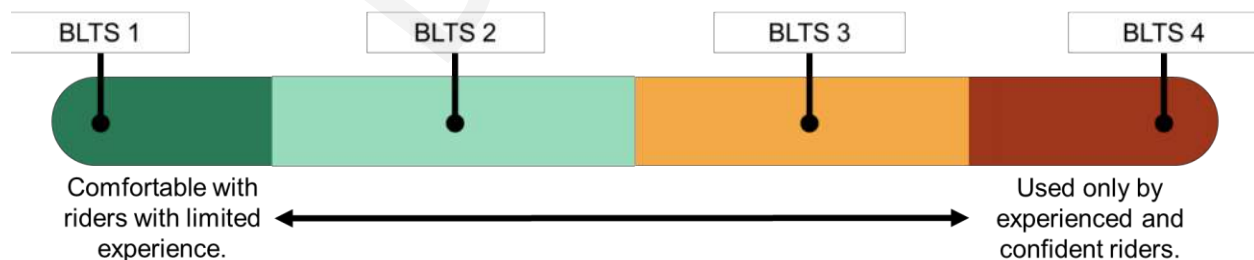


BICYCLE LEVEL OF TRAFFIC STRESS (BLTS)

Bicyclist Level of Traffic Stress (BLTS) qualitatively describes the bicycling environment relative to the type of rider that would use the facility. A low-stress environment would be comfortable for riders with limited experience, while a high-stress environment would only be used by very experienced and confident riders.

Figure 9 presents the BLTS scale: a BLTS score of 1 reflects a low-stress riding experience, while a BLTS score of 4 reflects a stressful situation (high speed, no bike facilities, high traffic volumes) that deters less experienced bicyclists from using the roadway.

Figure 9: Bicyclist Level of Traffic Stress Scale



4. Existing Conditions

Reviewing existing conditions provides a comprehensive overview of the current state of the 1st Avenue corridor, establishing a baseline for analysis and future planning. The analysis draws on multimodal traffic, safety, and operational data to document roadway geometry, traffic volumes, travel behavior, land use, demographics, and observed safety issues.

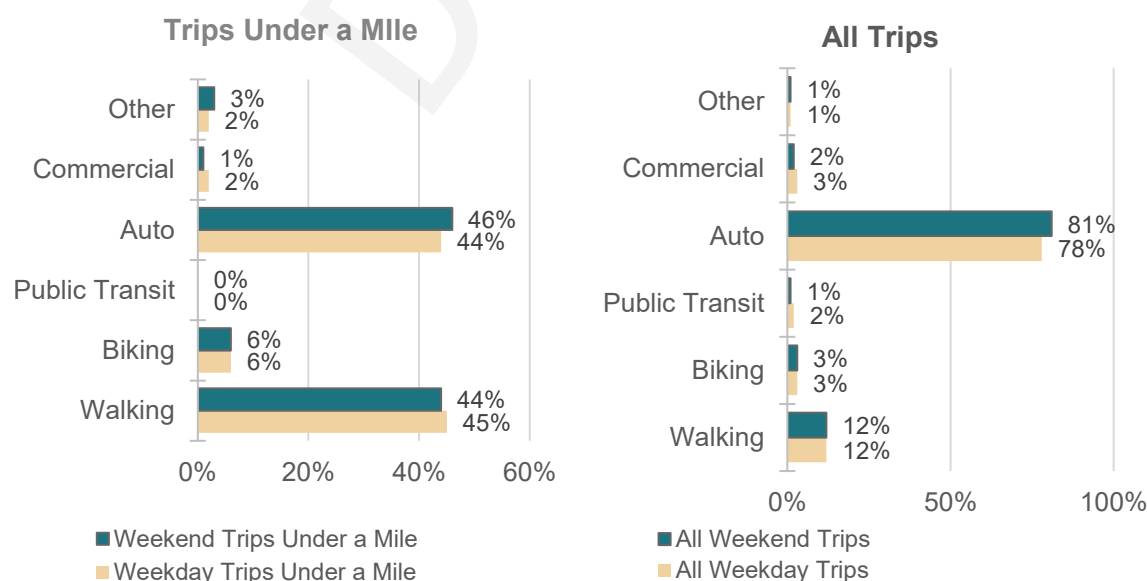
TRAVEL BEHAVIOR

Using data obtained from Replica, including traffic volumes, travel modes, and trip purposes based on location-based services and other aggregated data sources, we gain insight into how people travel along the 1st Avenue corridor.

The data analysis reveals several key travel patterns along the corridor. Most trips on 1st Avenue between Wetmore Road and Grant Road begin and end in the corridor. On a typical weekday, approximately 82,000 trips are made through the study area²; on a typical weekend day, that number drops to 76,000. As shown in

Figure 10, a majority of trips on the corridor are made by automobiles (78% on weekdays; 81% on weekends). However, approximately 12% of all trips on the corridor are made on foot. This statistic is supported by the demographic data shown in Figure 3, which shows that residents in the study area are more likely to walk, bike, and ride transit than the typical Tucson resident. Although walking is one of the most popular modes for short trips (less than 1 mile), almost half of all short trips are still taken by automobiles (44% on weekdays; 46% on weekends).

Figure 10: Study Area Trips by Mode



² The study area is defined as a ½ mile radius extending east and west along the 1st Avenue Corridor

DRIVING TODAY

Roadway Infrastructure

1st Avenue is a north-south arterial with a five-lane cross-section. It includes four travel lanes (11 to 12-foot-wide) and a 13 to 14-foot-wide Two-Way Left-Turn Lane (TWLTL). The TWLTL is not provided on the bridge over the Rillito River. A raised median is located approximately 330 feet north of Grant Road, and another about 440 feet south of River Road. The corridor includes five-foot bicycle lanes and intermittent sidewalks.

Recently, the City of Tucson reduced speed limits along 1st Avenue. Between Grant Road and Wetmore Road, the speed limit was lowered from 40 miles per hour (mph) to 30 miles per hour. North of Wetmore Road to River Road, the speed limit was lowered from 45 mph to 35 mph.

Figure 11, Figure 12 and Figure 13 illustrate the cross-sections. **Figure 14** shows the locations of the eight signalized intersections and two HAWK (High-intensity Activated Crosswalk) crossings along the corridor.

Figure 11: 1st Avenue between River and Wetmore



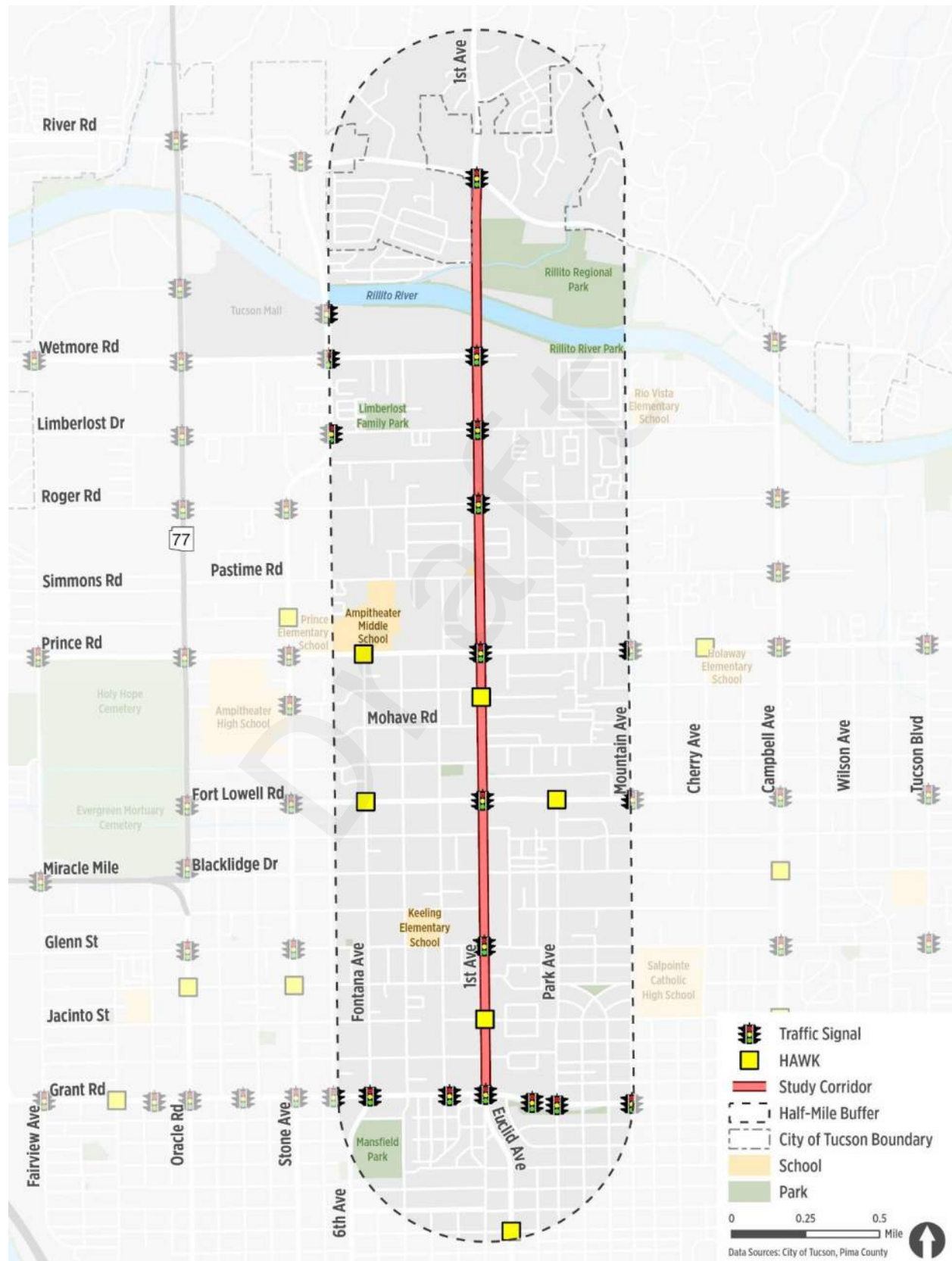
Figure 12: 1st Avenue between Wetmore and Limberlost



Figure 13: 1st Avenue between Fort Lowell and Glenn



Figure 14: Traffic Signal Control



Grant Road is a 6-lane arterial that runs east-west with raised medians. The intersection of 1st Avenue and Grant Road features indirect left turns (Michigan Lefts) on Grant Road. Bike lanes and sidewalks are provided on Grant Road near the 1st Avenue intersection. The posted speed limit is 35 mph.



Glenn Street is a 2-lane collector street that runs east-west with a TWLTL and dedicated left turn lanes at 1st Avenue. There are both sidewalks and bike lanes on Glenn Street, and it has a posted speed limit of 30 mph.



Fort Lowell Road is a 4-lane arterial that runs east-west with a TWLTL and dedicated left turn lanes at 1st Avenue. There are both sidewalks and bike lanes on Fort Lowell Road, and it has a posted speed limit of 30 mph.



Prince Road is a 4-lane arterial that runs east-west with a TWLTL and dedicated left turn lanes at 1st Avenue. There are both sidewalks and bike lanes on Prince Road, and it has a posted speed limit of 35 mph.



Roger Road is a 2-lane collector street that runs east-west with a TWLTL and dedicated left turn lanes at 1st Avenue. There are both sidewalks and bike lanes on Roger Road, and it has a posted speed limit of 35 mph.



Limberlost Drive is a 2-lane local road that runs east-west with a TWLTL and dedicated left turn lanes at 1st Avenue and a dedicated right turn lane on the east of the 1st Avenue intersection. A raised median exists east of 1st Avenue and extends for almost 300 feet. There are sidewalks, but no bike lanes on Limberlost Drive, and it has a posted speed limit of 35 mph.



Wetmore Road is a 4-lane arterial that runs east-west with a TWLTL and dedicated left and right turn lanes at 1st Avenue. Wetmore Road becomes a two-lane street to the east of 1st Avenue. There are both sidewalks and bike lanes on Wetmore Road, and it has a posted speed limit of 35 mph.



River Road is a 4-lane scenic arterial street that runs east-west with a raised median and dedicated left and right turn lanes at 1st Avenue. West of 1st Avenue, there are bike lanes, but no sidewalks. East of 1st Avenue, there are both sidewalks and bike lanes on River Road, and it has a posted speed limit of 45 mph.

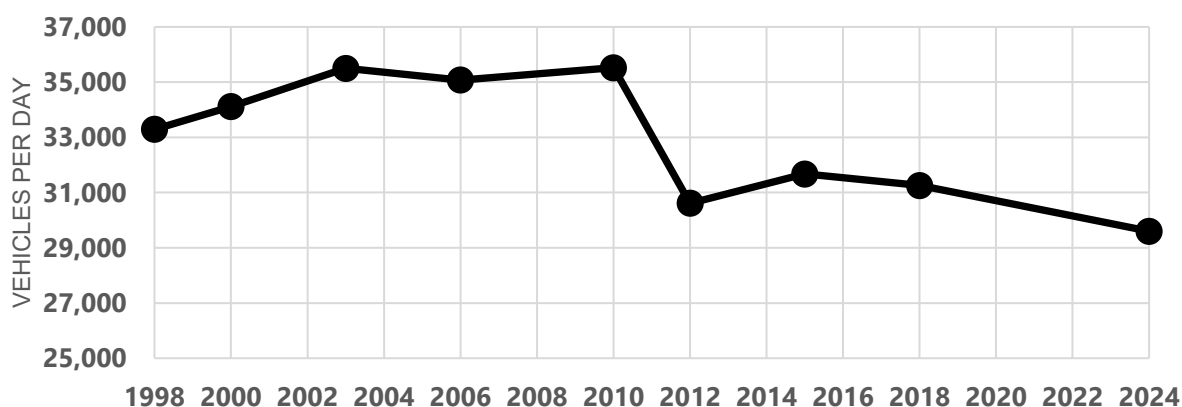


Traffic Volumes

HISTORICAL VOLUMES

Traffic volumes along the corridor have decreased by approximately 10% since 1998, based on historical volumes collected by Pima Association of Governments and data collected for this project. As shown in **Figure 15** below, volumes increased slightly between 1998 and 2010, followed by a significant decrease that has continued through to today. Today, the corridor carries an average of approximately 29,600 vehicles daily.

Figure 15: Average Daily Traffic - 1st Avenue (1998 - 2024)



Source: Kittelson & Associates; All Traffic Data (ATD) 2024; Pima Association of Governments

EXISTING 24-HOUR ROADWAY VOLUMES (2024)

Table 4 provides a summary of roadway volumes observed along various segments of the corridor in March 2024. As shown in the table, daily volumes along the corridor range from 22,000 at the southern end of the study corridor to about 33,000 between Prince Road and Fort Lowell Road. The corridor experiences a morning peak hour between 7:30 and 8:30 AM and an afternoon peak hour between 4:30 and 5:30 PM. During the morning peak hour, volumes along the corridor range from about 1,500 to 2,350; during the afternoon peak, volumes range from about 2,100 to 2,875. The segment from Fort Lowell Road to Prince Road has the highest daily vehicle volume; however, the segment from Limberlost Drive to Wetmore Road has the highest vehicle volume during both morning and evening peak hours.

The table also provides peak-hour k-factor and d-factor values for each corridor segment. The k-factor indicates the percentage of the segment's daily volumes that occurs during each peak hour, while the d-factor represents the proportion of traffic occurring in the peak direction. The data shows the AM peak hour sees about 7% of the total daily traffic, with slightly higher volumes occurring in the southbound direction. The PM peak hour sees slightly more traffic (9% of the total daily volume), with slightly higher volumes in the northbound direction.

Additionally, 7-9% of the corridor's total volume consists of medium trucks, and another 1-2.5% consists of heavy trucks. The segment from Glenn Street to Grant Road has the highest proportion of medium truck traffic (8.9%), and the segment from River Road to Wetmore Road sees the highest percentage of heavy trucks (2.3%). The 24-hour counts collected for the project can be found in Appendix C-B.

The daily volume profile for the corridor is presented in **Figure 16**. As shown in the figure, volumes along the corridor increase steadily starting around 4:00 AM, reaching a morning peak around 8:00 AM. After a slight drop in the mid-morning, volumes rise again, beginning at 10:00 AM, with a lunch-hour peak around 12:00 PM and an evening (and daily) peak at 5:00 PM.

Table 4: Existing 2024 Traffic Volume Summary

1 st Avenue Segment	Daily Volume	Truck %		AM Peak Hour			PM Peak Hour		
		Medium	Heavy	Volume	K-Value	D-Value	Volume	K-Value	D-Value
North of River Road	28,726	N/A	N/A	2,201	0.08	0.53	2,461	0.09	0.60
River Road to Wetmore Road	29,758	6.9%	2.3%	2,254	0.08	0.57	2,660	0.09	0.54
Wetmore Road to Limberlost Drive	30,804	7.1%	1.1%	2,349	0.08	0.59	2,875	0.09	0.51
Limberlost Drive to Roger Road	30,143	7.2%	1.2%	2,232	0.07	0.60	2,702	0.09	0.51
Roger Road to Prince Road	30,851	N/A	N/A	2,193	0.07	0.58	2,785	0.09	0.53
Prince Road to Fort Lowell Road	33,087	N/A	N/A	2,134	0.06	0.57	2,655	0.08	0.52
Fort Lowell Road to Glenn Street	27,480	N/A	N/A	1,864	0.07	0.57	2,284	0.08	0.52
Glenn Street to Grant Road	25,089	8.9%	1.2%	1,810	0.07	0.61	2,268	0.09	0.50
South of Grant Road	22,616	N/A	N/A	1,529	0.07	0.58	2,107	0.09	0.57

Note: Medium trucks are classes 4 to 5; Heavy trucks are classes 6 through 13

Figure 16: 1st Avenue Daily Volume Profile)

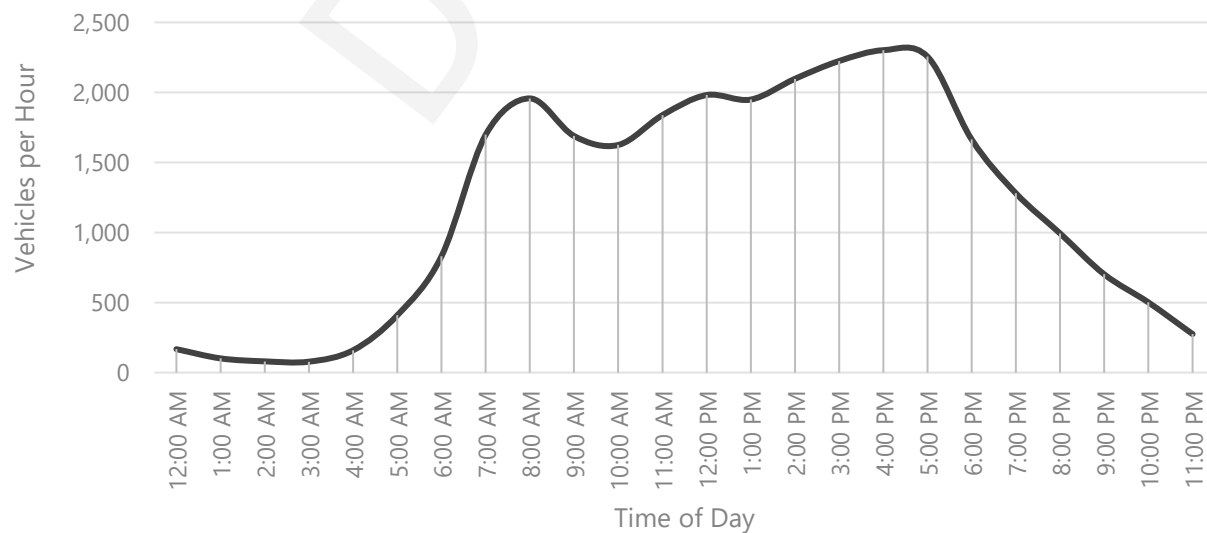


Figure 17 and **Figure 18** present existing daily volumes for each segment along 1st Avenue, as well as at major cross streets. As shown in the figures, the 1st Avenue intersection with Grant Road has the highest volumes, followed by Wetmore Road and Fort Lowell Road.

Figure 17: Existing 2024 Daily Volumes – 1st Avenue by Segment

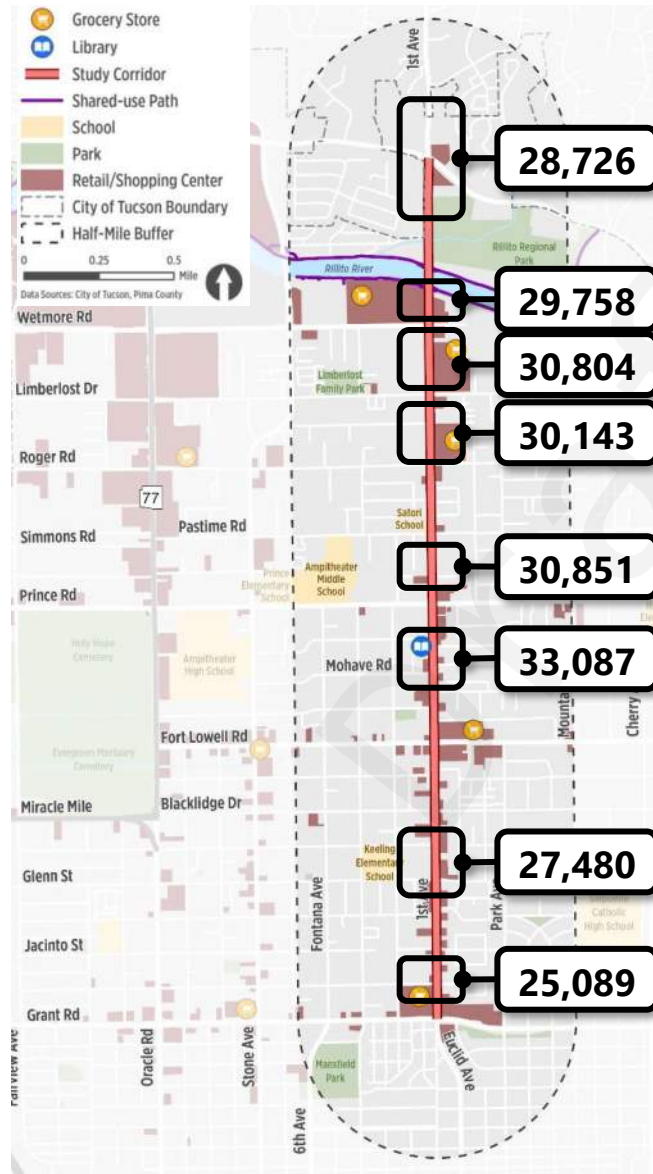
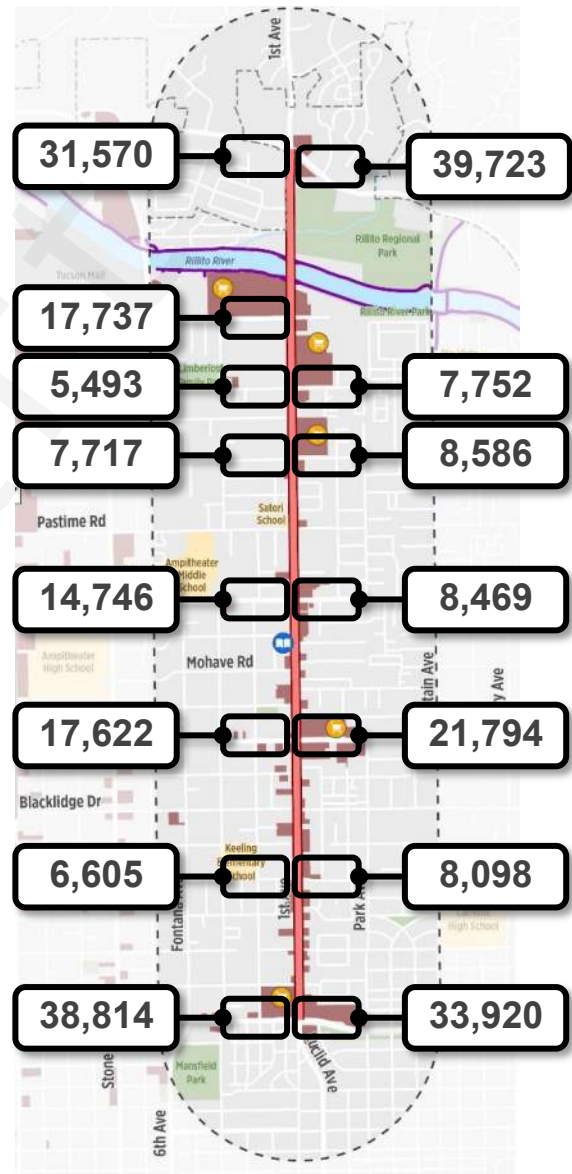


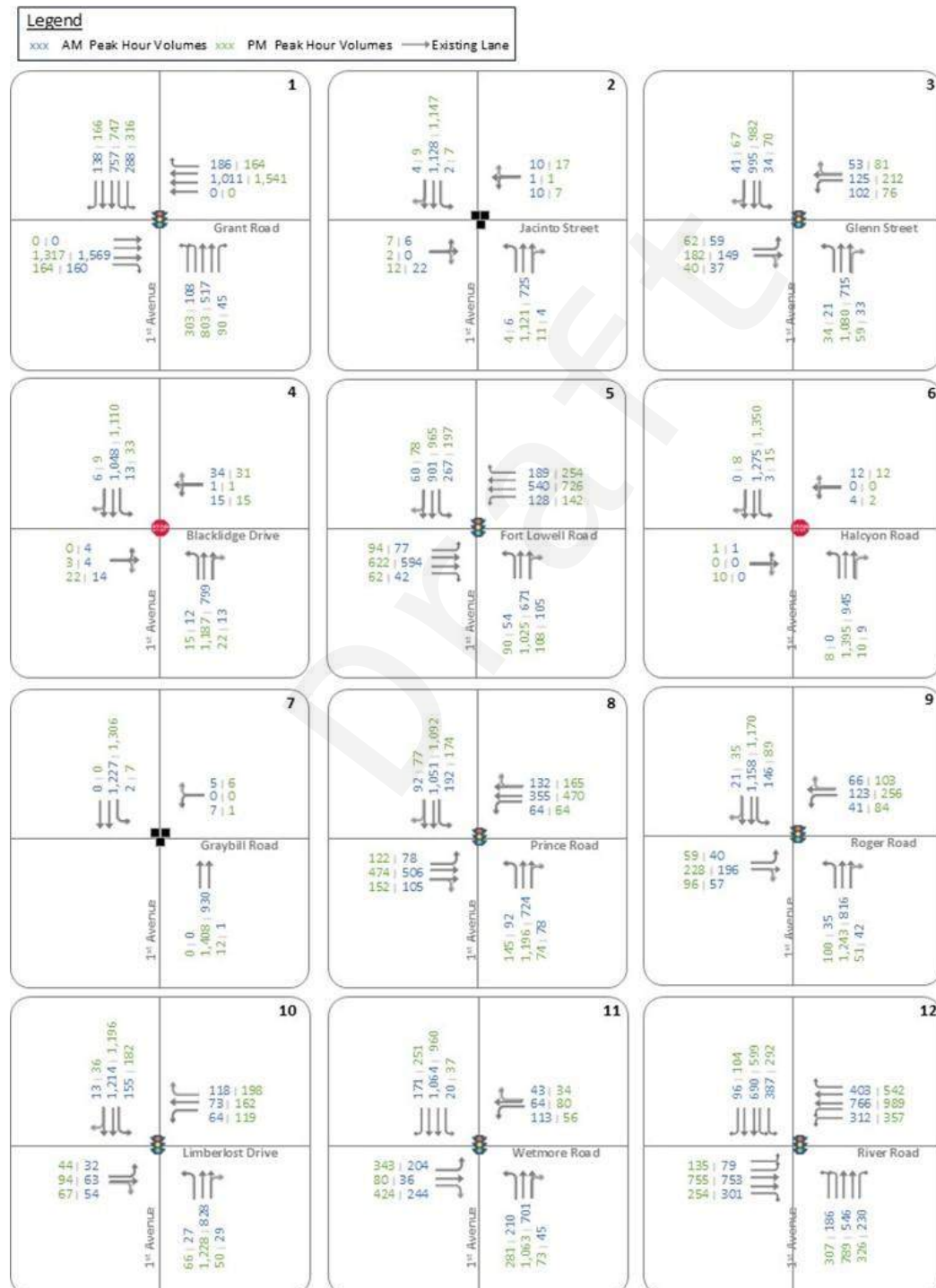
Figure 18: Existing 2024 1st Avenue Cross Street Volumes



EXISTING PEAK HOUR INTERSECTION VOLUMES (2024)

Peak-hour intersection turning movement volumes were collected at key signalized and unsignalized intersections along the corridor. **Figure 19** presents the existing AM and PM peak hour turning movement counts, lane configurations, and traffic control.

Figure 19: Turn Volumes by Peak Period, Lane Configuration, and Traffic Control



Speed Data Analysis

Vehicle speed data along the corridor was collected at a segment and location level to better assess vehicular operations on 1st Avenue. It should be noted that the speed data presented in this section was collected before speed limits along the corridor were reduced. See Appendix C-B for details on data collection.

Two sources of speed data were used for this project to better understand traffic operations and travel speeds along the corridor.

- **Operating speed data** was gathered from INRIX. This data was used to determine speeds and travel times along the corridor to evaluate the existing traffic operations of roadway segments (roadway LOS) and calibrate the Vissim microsimulation model prepared for this study.
- **Spot speed data** were collected at specific locations along the corridor in March 2024 using tube counters, instantaneously capturing vehicle speeds at fixed locations. These spot speed data are presented to describe existing speeds at specific points on the corridor. As shown in **Table 5**, average speeds at the four locations along the corridor typically fall below the posted speed limits. However, 85th percentile speeds exceed the posted speeds by 1 to 8 miles per hour. The highest speeds were recorded at the point south of Rillito Rive Bridge. For detailed information about vehicle speeds at each location, see Appendix C-B.

Table 5: Spot Speed Data Summary

	South of Rillito River Bridge		North of Limberlost Drive		North of Roger Road		North of Grant Road	
	NB	SB	NB	SB	NB	SB	NB	SB
Posted Speed*	45 MPH		40 MPH		40 MPH		40 MPH	
Average Speed	42.2	41.8	36.3	37.4	38.4	30.8	40.4	37.8
85th Percentile	47.2	48.1	42.2	45.1	44.7	40.3	46.7	43.4

Source: Kittelson & Associates; All Traffic Data (ATD) 2024
* Data presented in this table was collected before speed limits on the corridor were reduced

Traffic Operations

INTERSECTION LEVEL OF SERVICE

Existing intersection operations were evaluated for eleven unsignalized and eight signalized study intersections along the corridor. Morning and evening system (corridor-wide) peak-hour volumes were used for the LOS analysis; the AM peak was identified as 7:30 AM to 8:30 AM and the PM corridor peak as 4:30 PM to 5:30 PM.

Table 6 shows the existing delay and LOS for each of the unsignalized study intersections based on the movement with the highest delay. As shown in the table, during the AM peak hour, the intersection with Bromley Street operates at LOS F and the Stonybrook Apartments/LA Fitness driveway operates at LOS E. During the PM peak hour, the intersection with Bromley Street again operates at LOS F, along with the Stonybrook Apartments/LA Fitness driveway, Blacklidge Drive, and Jacinto Street.

Table 6: Traffic Operations Summary for Unsignalized Intersections – Movement with the Highest Delay and LOS

1 st Avenue Intersection	Weekday AM		Weekday PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Bromley Street	> 120	F	> 120	F
Walmart Driveway	21.5	C	22.9	C
Stonybrook Apartments North Driveway	18.6	C	17.1	C
Sprouts Driveway	17.8	C	28.1	D
Stonybrook Apartments South / LA Fitness Driveway	78.2	F	> 120	F
Fry's North Driveway	21.6	C	31.2	D
Fry's South Driveway	14.4	B	20.3	C
Graybill Drive (HAWK)*	18.1	C	17.4	C
Halcyon Road	14.0	B	21.6	C
Blacklidge Drive	32.6	D	> 120	F
Jacinto Street (HAWK)*	29.4	D	57.6	F

* Modeled as a TWSC intersection

Figure 20: Existing Weekday AM and PM Peak Hour Intersection

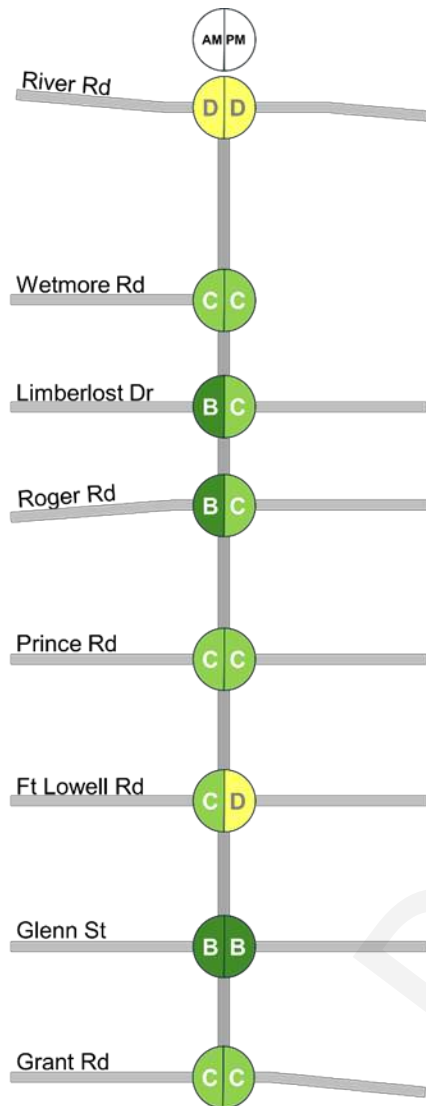


Figure 20 shows the existing LOS at the signalized intersections along the corridor during the morning and evening peak hours. As shown in the figure, all intersections are currently operating at LOS D or better. At Glenn Street, Prince Road, Roger Road, Limberlost Road, Wetmore Road, and River Road, one or more movements currently operate at LOS E or F during at least one of the peak hours.

Detailed Synchro reports are available in Appendix D. In addition to the Synchro LOS results presented in **Figure 20**, intersection level of service was also calculated using the Vissim microsimulation model for all signalized intersections. These results are available in Appendix C.

ROADWAY LEVEL OF SERVICE

Roadway level of service was also determined using operating speed data gathered from INRIX. INRIX provides GPS-based travel time data from commercial vehicles, connected automobiles, and mobile applications to provide information on travel speeds and travel times along the corridor. These travel speeds are used to determine roadway LOS, based on criteria presented in Table 3.

Figure 21 presents speed bins along 1st Avenue based on the INRIX data, which categorizes recorded probe readings within the selected time period into defined speed ranges (bins) and shows the percentage failing within each range. The figure indicates that the northern segments of the corridor experience a higher proportion of faster speeds (>31 mph) while the segments between Wetmore Road and Fort Lowell Road consistently show prolonged lower speeds (21-27 mph).

Figure 21: Time Spent at Different LOS – Weekday

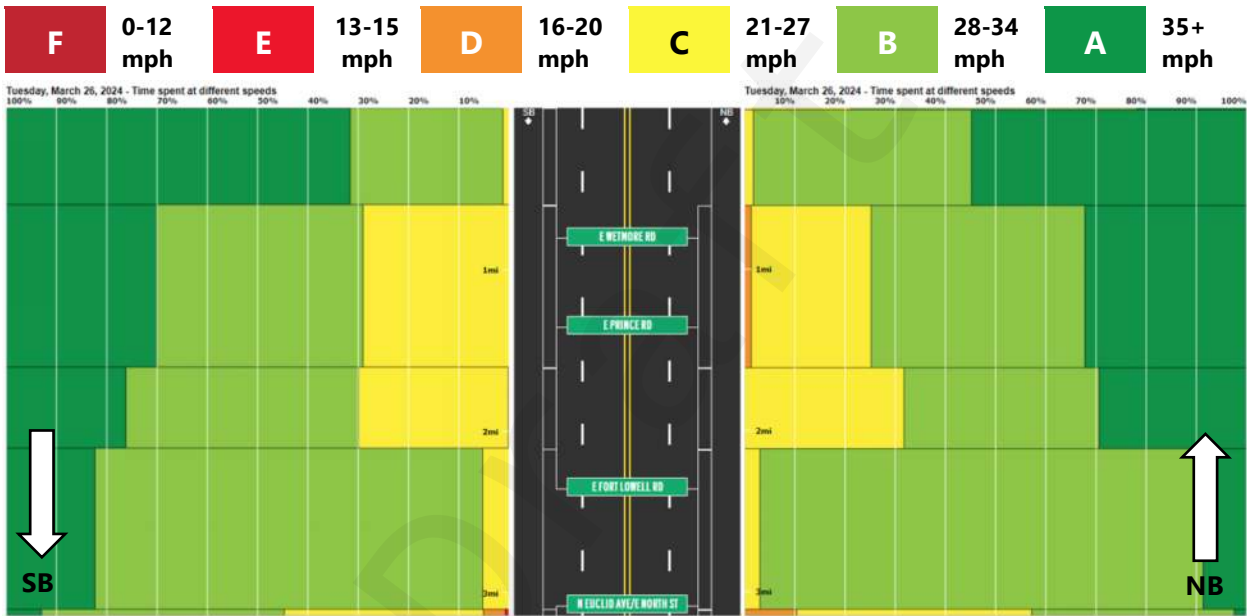
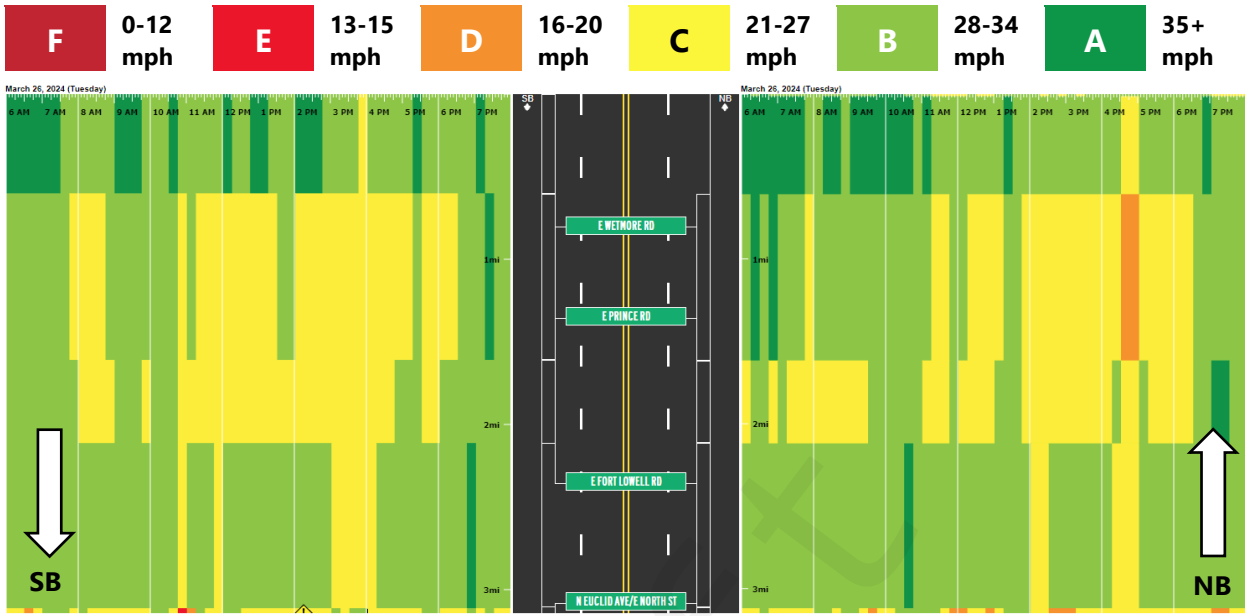


Figure 22 presents a congestion scan of the 1st Avenue corridor, using probe speed data to display average vehicle speeds over time. Unlike the previous figure, this graphic shows how speeds vary by segment throughout the day. The congestion scan indicates that the slowest conditions occur on the northbound segment between Prince Road and Wetmore Road between 4:30 PM and 5:00 PM.

Figure 22: Roadway Level of Service by Time of Day



Travel speeds along the corridor were also estimated for existing conditions using the Vissim model. These speeds were also used to calculate roadway LOS; results from this analysis are presented in Appendix C.

WALKING TODAY

Pedestrian Network Facilities

Sidewalks are currently present on approximately 60% of the study corridor and are typically 4 to 5 feet in width, occasionally exceeding 5 feet (24%). The sidewalk network does continue along the overpass located at the Rillito River; however, the sidewalk along the bridge is notably narrow. Where sidewalks and other pedestrian facilities are present, they are often in deteriorated condition and/or outdated and may not comply with Americans with Disabilities Act (ADA) standards.

Two HAWKs are located along the corridor at Jacinto Street/Copper Street and at Graybill Drive. Painted stop bars indicate where northbound and southbound drivers should stop when either HAWK is activated. "PED XING" pavement markings alert drivers northbound and southbound approaching the Graybill Drive HAWK. Remaining crossing facilities are located at signalized intersections or at stop-controlled intersections as unmarked crosswalks for crossing parallel to the corridor.

The 1st Avenue corridor provides a connection to the Rillito River Park – an approximately 12-mile linear shared-use trail system that is part of the larger Chuck Huckleberry Loop. Access to the trail is provided on both sides of 1st Avenue on the north and south sides of the Rillito River bridge. The trail north of the river is paved for its duration, while the south trail is largely unpaved.

Pedestrian accessibility along the corridor is currently hindered by several issues, particularly with driveways and curb ramps that do not meet current ADA or PROWAG (Public Rights-of-Way Accessibility Guidelines) standards.

Based on LiDAR data provided by the city, only about 34% of all curb ramps on the corridor have truncated domes, a key feature of ADA-compliant curb ramps. These non-compliant features may limit the ability of individuals with mobility challenges to navigate the area efficiently. Further, the pedestrian facilities that do exist are often intermittent and do not provide continuous routes for pedestrians. This affects the usability of the existing pedestrian facilities on the corridor from Grant Road to River Road, limiting connections to the corridor destinations for people walking.

Figure 23 provides an overview of existing pedestrian facilities along the corridor; **Figure 24** shows the width of existing sidewalks.

Draft

Figure 23: Existing Pedestrian Facilities

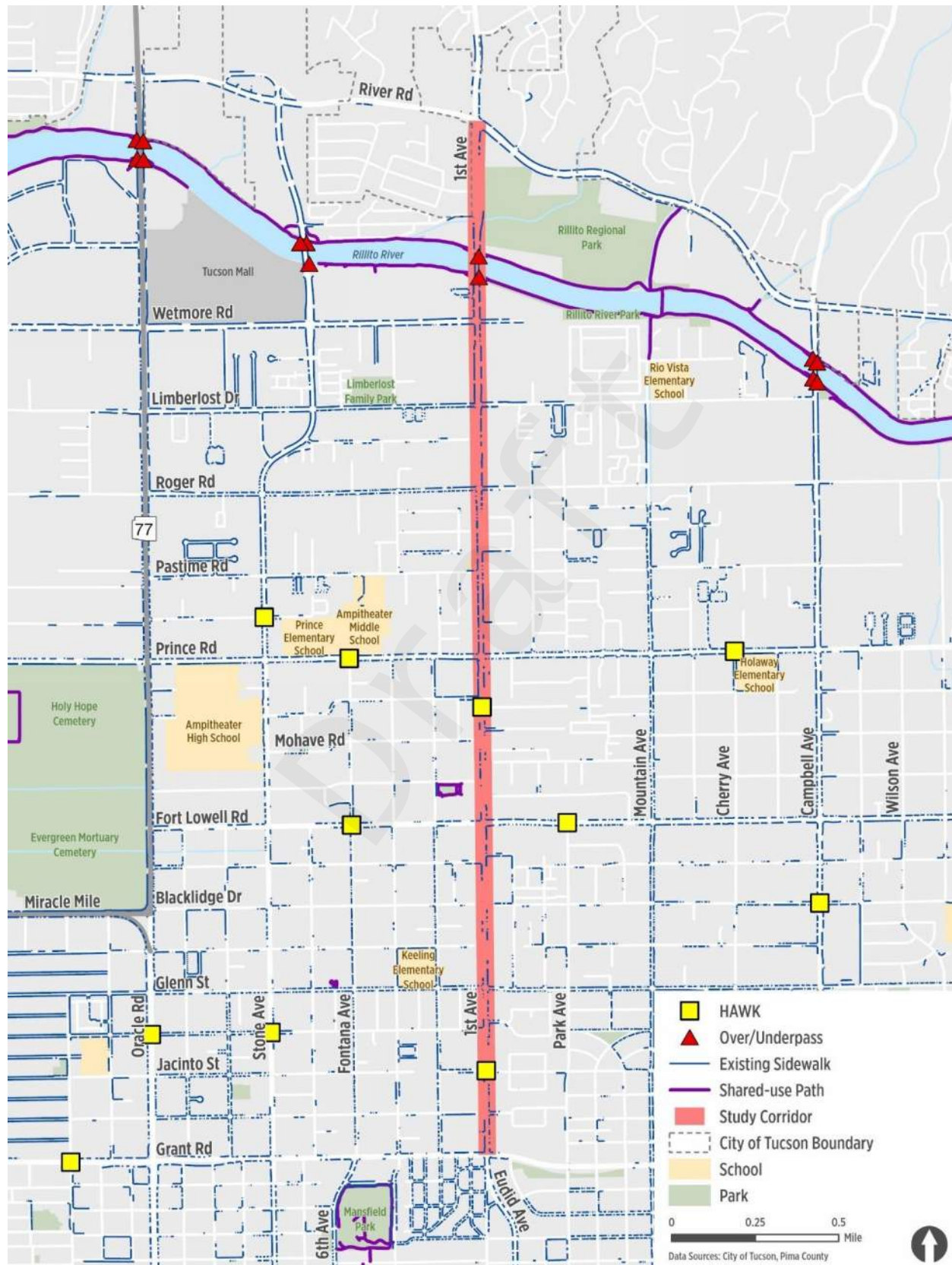


Figure 24: Width of Existing Sidewalk Along the Corridor



Pedestrian Volumes

Pedestrian volumes were collected from 7:00 AM to 10:00 AM and from 2:00 PM to 5:45 PM on Tuesday, March 26th, 2024. **Table 7** highlights pedestrian volumes for each intersection during peak vehicle and peak pedestrian periods. **Bolded values** indicate the pedestrian peak hour volume is greater than the vehicle peak hour volume (by at least three road users). It is important to note that the peak vehicle periods often do not coincide with peak pedestrian periods.

Table 7: Pedestrian Volumes During Vehicle Peak Hours and Pedestrian Peak Hours

1st Avenue Intersection	Vehicle Peak Hour Pedestrian Volume*		Pedestrian Peak Hour Pedestrian Volume	
	AM	PM	AM	PM
River Road	12	13	14	14
Wetmore Road	17	35	24	54
Limberlost Drive	8	17	28	33
Roger Road	13	43	20	54
Prince Road	22	39	32	55
Graybill Drive	30	38	33	51
Halcyon Road	15	23	21	35
Fort Lowell Road	92	108	118	182
Blacklidge Drive	9	15	12	22
Glenn Street	25	26	26	44
Jacinto Street	10	12	13	17
Grant Road	31	83	42	109

As shown in **Table 7**, Fort Lowell Road and Grant Road have the highest levels of pedestrian activity. Pedestrian volumes are higher during the PM peak hours for both vehicles and pedestrians. There is a small difference in volume between the vehicle peak hour and the pedestrian peak hour. Although intersection-level volumes may vary, pedestrian flows are generally balanced in both directions during the peak period.

To better understand how pedestrian activity at intersections along the 1st Avenue corridor compares to activity at other locations throughout the city, pedestrian volumes for three other locations were obtained. The locations selected as comparison sites are areas with high levels of pedestrian demand.

- **Park Avenue and Speedway Boulevard** is located at the northwest corner of the University of Arizona (U of A) campus and sees very high levels of pedestrian traffic.
- **Grant Road and Alvernon Way** is often noted as an intersection with one of the highest levels of pedestrian volumes and collisions in the city.
- **Broadway Boulevard and Church Avenue** is located in the heart of downtown and sees high pedestrian activity from the residential, office, and retail uses surrounding it.

Table 8 provides peak-hour pedestrian volumes for these comparison locations. As shown in the table, the 1st Avenue intersections with the highest pedestrian activity (Grant Road and Fort Lowell Road) have similar volumes than the Grant Road/Alvernon Way and Broadway Boulevard/Church Avenue locations, but significantly less than the Park Avenue and Speedway Boulevard intersection near the U of A campus.

Table 8: Pedestrian Volumes During Pedestrian Peak Hours

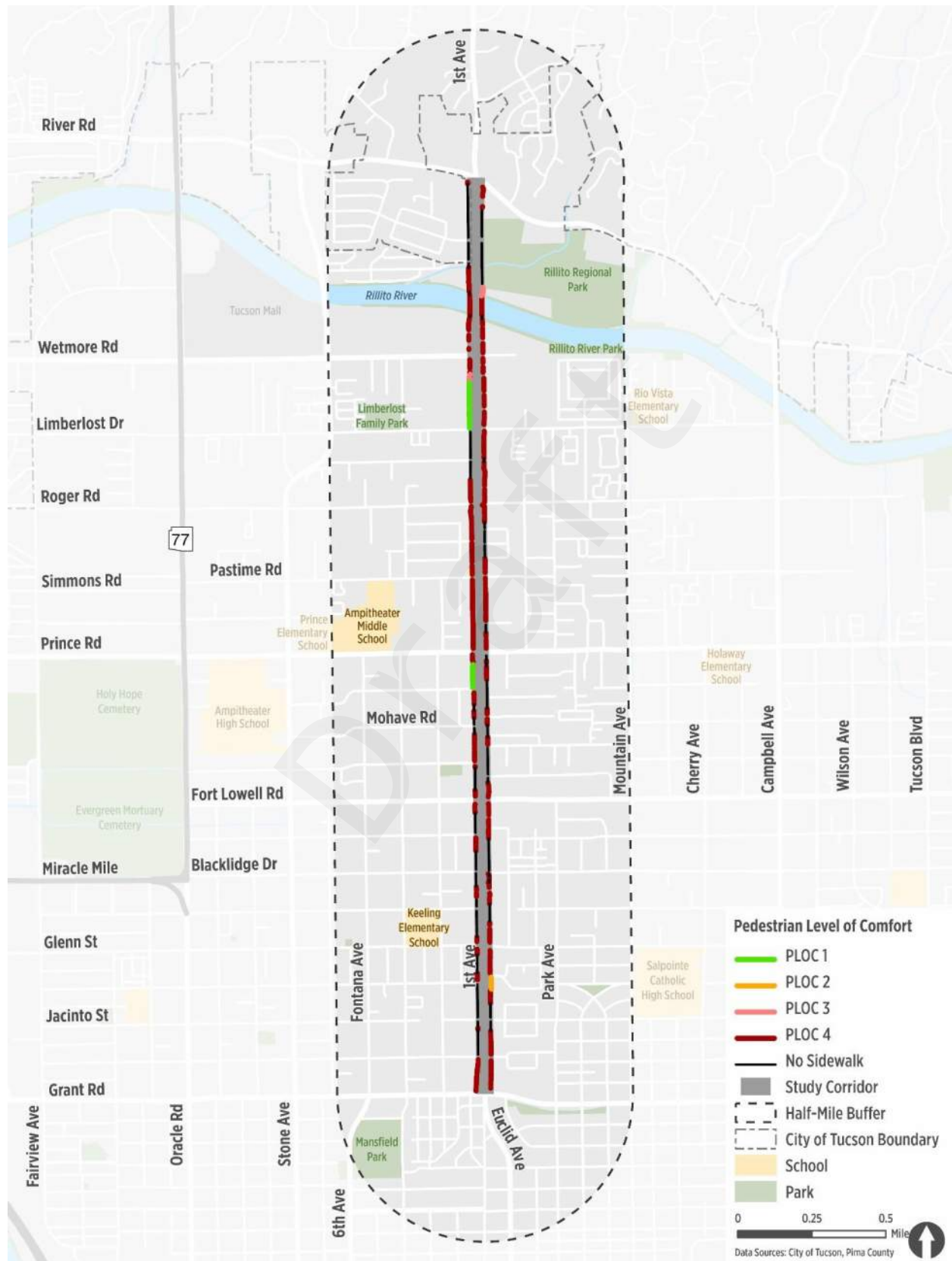
Intersection Studied	Peak Hour Pedestrian Volume*	
	AM	PM
N Park Ave and Speedway Blvd	176	450
E Grant Rd and N Alvernon Way	65	123
Broadway Blvd and S Church Ave	102	129

**These volumes are based on pedestrian volume data from TMC available on MS2 Portal and do not align with the vehicle peak hour*

Pedestrian Level of Comfort (PLOC)

The PLOC along the study corridor is largely PLOC 4, as shown in **Figure 25**. The east side of 1st Avenue from Kelso Street to Mitchell Drive is categorized as PLOC 3, and two locations (the east side of the roadway north of the Rillito River and the west side of the roadway south of Wetmore Road) are categorized as PLOC 2. Two segments along the corridor are categorized as PLOC 1. These segments – the west side of 1st Avenue between Wetmore Road and Limberlost Drive and between Prince Road and Yavapai Road – include wide landscaped buffers between the sidewalk and the roadway.

Figure 25: Pedestrian Level of Comfort Along the Corridor



BICYCLING TODAY

Bicycle Network Facilities

The existing bicycle facilities along the 1st Avenue corridor between Grant Road and River Road consist primarily of striped shoulder bike lanes, designated as bike routes (**Figure 26**). These lanes provide a dedicated space for bicyclists outside of the motor vehicle travel lane; however, they lack a physical buffer or separation, leaving cyclists exposed to adjacent traffic. The available width for cyclists is generally less than five feet, which does not meet current design guidelines for comfortable or high-volume bicycle travel. This constrained facility may deter less confident riders and does not accommodate side-by-side riding or passing.

Along the corridor, these bike lanes intersect with two other notable bicycle facilities: a signed bike route along Blacklidge Drive to the south and a shared-use path running along the Rillito River to the north. These connections help link 1st Avenue to the broader bicycle network, though the existing bike lanes primarily serve as a minimal facility rather than a high-comfort route.

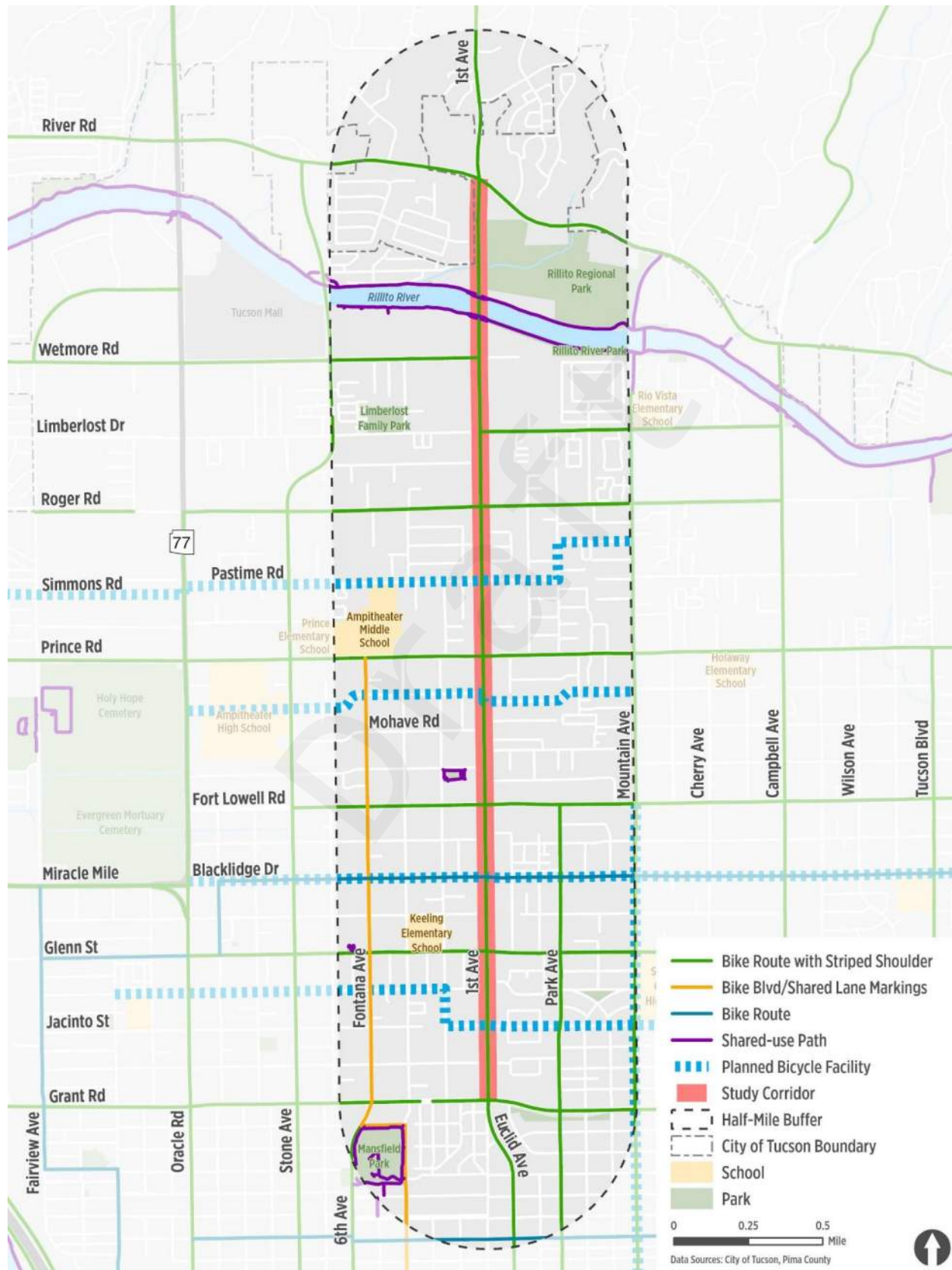
Bicycle connectivity to the existing and planned Tucson bicycle network is limited based on the existing bicycle facilities on the corridor. The lack of connectivity on the corridor has the potential to limit individuals who attempt to use this transportation mode

The City of Tucson's Bicycle Boulevard Master Plan (2017) identifies the city's existing and future bike boulevard network, consisting of 193 miles along 64 residential corridors. Each corridor in the city is prioritized based on several factors including existing or anticipating bicycle demand, cost estimates, and percent complete. The following provides the location and ranks of bike boulevard projects in the vicinity of the study corridor.

- #5 – Copper Street/Flower Street (funded / in-progress) – 6.3 miles
- #10 – Yavapai Road – 1.62 miles
- #33 – Blacklidge Drive (funded / in-progress) – 4.51 miles
- #35 – Pastime Road – 2.73 miles

An additional bicycle improvement is funded and in progress on Mountain Avenue between Speedway Boulevard and Fort Lowell Road, which will convert the existing buffered bike lane to a protected bike lane.

Figure 26: Existing Bicycle Facilities Along the Corridor



Bicyclist Volumes

In addition to vehicle and pedestrian volumes, bicyclist volumes were collected from 7:00 AM to 10:00 AM and from 2:00 PM to 6:00 PM on Tuesday, March 26th, 2024. Volumes were collected for bicyclists using the crosswalks and for bicyclists riding on the roadway. A higher number of bicyclists were counted in the roadway than on the crosswalks. **Table 9** highlights roadway (not crosswalk) bicyclist volumes for each intersection during peak vehicle and peak pedestrian periods. It is important to note that the peak vehicle periods often did not coincide with the peak bicyclist periods. The **bolded values** highlight instances where the number of bicyclists during the bicycle peak hour exceeded the number of bicyclists during the vehicle peak hour by at least three.

Table 9: Bicyclist Volumes During Vehicle Peak Hours and Bicyclist Peak Hours

Intersection	Vehicle Peak Hour Bicyclist Volume* (Roadway)		Bicyclist Peak Hour Bicyclist Volume (Roadway)	
	AM	PM	AM	PM
River Road	2	2	5	3
Wetmore Road	6	3	12	9
Limberlost Drive	4	1	9	7
Roger Road	3	4	6	6
Prince Road	4	3	6	9
Graybill Drive	0	5	1	6
Halcyon Road	1	5	2	6
Fort Lowell Road	1	5	3	8
Blacklidge Drive	7	8	15	11
Glenn Street	0	10	7	11
Jacinto Street	5	4	9	4
Grant Road	4	6	8	10

As shown in **Table 9**, the highest bicycle volumes during the vehicle peak hour are at Glenn Street and Blacklidge Drive. Within the study area, Blacklidge Drive, Pastime Road, and Yavapai Road are all planned to become bike boulevards in the future. Bicycle volumes are likely higher at Glenn and Blacklidge as students are making their way to Helen B Keeling Elementary School.

Bicycle Level of Traffic Stress (BLTS)

The segment BLTS under the existing corridor cross section is BLTS 4, the full length of the study corridor from Grant Road to River Road (**Figure 27**). The BLTS scale can be found in **Figure 9**.

Figure 27: Bicyclist Level of Traffic Stress Along the Corridor



TRANSIT TODAY

Sun Tran Route 6 provides service along the corridor from Grant Road to Wetmore Road, as seen in **Figure 28**. Buses provide service at 23 stops along the corridor every 20 minutes on weekdays and every 30 minutes on weekends. Bus stops are located at the following cross streets:

- Wetmore Road
- Limberlost Drive
- Roger Road
- Pastime Road
- Prince Road
- Graybill Drive
- Halcyon Road
- Fort Lowell Road
- Blacklidge Drive
- Glenn Street
- Copper Street
- Grant Road

The stops shown in Figure 28 serve Route 6, as well as several other routes that intersect the 1st Avenue corridor, including Routes 9, 15, 17, 34, and 103X. These routes and their schedules are described in **Table 10**. Sun Tran bus stops include a range of amenities, including benches, shelters, and bus pullouts. **Table 11** provides an overview of the amenities offered at each stop near the study corridor.

Figure 28: Sun Tran Route 6 Along the Corridor

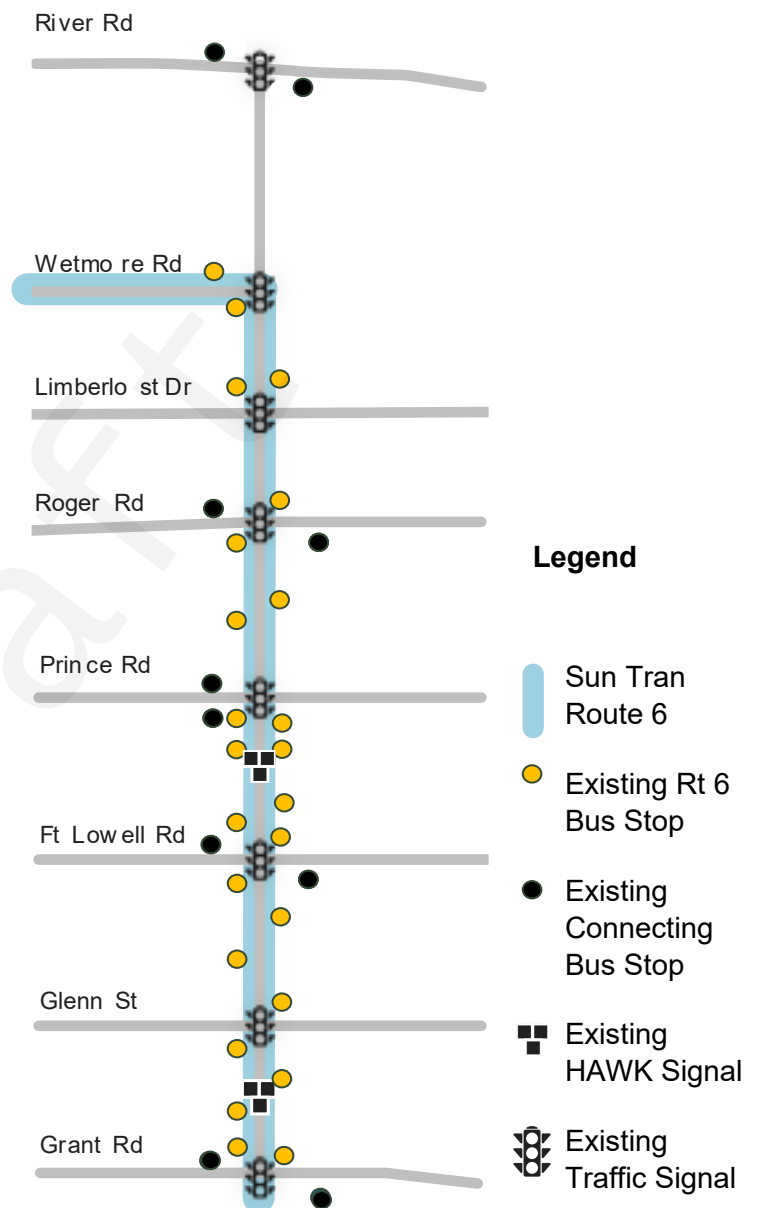


Table 10: Routes in Study Area

Route Number	Start and End Points	Direction	Weekday Schedule	Weekend Schedule
6	Ronstadt Transit Center to Tohono Transit Center	North/South East/West	5 AM - 12:00 AM, 20-30 minute headways	Saturday: 6:30 AM - 9 PM, 30-minute headways Sunday: 7 AM - 8:30 PM, 60 minute headways
9	Pima Community College to Udall Park	East/West	5 AM - 11:30 PM, 20-60 minute headways	7 AM - 7 PM, 60 minute headways
15	Banner- University Medical Campus South Campus to Tohono Transit Center	North/South	5:30 AM - 10:30 PM, 30-60 minute headways	6:30 AM - 9 PM, 60 minute headways
17	Broadway & Houghton to Tohono Transit Center	North/South	5 AM - 11:45 PM, 30-60 minute headways	6 AM - 9:30 PM, 60 minute headways
34	Tohono Transit Center to Davis Monthan Air Force Base Main Gate	North/South	5:30 AM - 11:15 PM, 20-60 minute headways	6:30 AM - 9:15 PM, 60 minute headways
103x	Ina & Camino de las Capas to Congress & Granada	North/South	7 AM & 5 PM	N/A

Source: Sun Tran, 2024

Table 11: Transit Stop Amenities

Stop Location	Stop ID	Amenities	Route(s) Served
1st Ave (E side, N of Grant)	12084	Shelter, sidewalk, bus pullout	6
1st Ave (E side, N of Copper)	13087	Bench, Sidewalk	6
1st Ave (E side, N of Glenn)	13088	Sidewalk	6
1st Ave (E side, S of Blacklidge)	16172	Shelter, sidewalk	6
1st Ave (E side, N of Fort Lowell)	343	Shelter, sidewalk, bus pullout	6
1st Ave (E side, N of Halcyon)	13090	Sidewalk	6
1st Ave (E side, N of Graybill)	13091	None	6
1st Ave (E side, S of Prince)	12895	Shelter, sidewalk	6
1st Ave (E side, N of Pastime)	16219	Shelter, sidewalk	6
1st Ave (E side, N of Roger)	12897	Shelter, sidewalk	6
1st Ave (E side, N of Limberlost)	13095	Shelter, sidewalk	6
Wetmore (N side, W of 1st)	13096	Shelter, sidewalk, bus pullout	6
1st Ave (W side, N of Grant)	12098	Shelter, sidewalk, bus pullout	6
1st Ave (W side, S of Jacinto)	12916	Sidewalk	6
1st Ave (W side, S of Glenn)	12915	Bench, Sidewalk	6
1st Ave (W side, S of Blacklidge)	12914	Shelter, sidewalk	6
1st Ave (W side, S of Fort Lowell)	333	Shelter, sidewalk, bus pullout	6
1st Ave (W side, S of Halcyon)	12913	Shelter, sidewalk	6
1st Ave (W side, S of Yavapai)	12912	Sidewalk	6
1st Ave (W side, S of Prince)	12911	Shelter, sidewalk, bus pullout	6
1st Ave (W side, S of Pastime)	12910	Shelter, sidewalk	6

Stop Location	Stop ID	Amenities	Route(s) Served
1st Ave (W side, S of Roger)	12786	Shelter, sidewalk, bus pullout	6
1st Ave (W side, N of Limberlost)	12907	Shelter, sidewalk	6
1st Ave (W side, S of Wetmore)	12783	Shelter, sidewalk	6
Grant (N side, W of 1st)	11973	Shelter, sidewalk, bus pullout	6, 9
Grant (S side, E of 1st)	14914	Shelter, sidewalk, bus pullout	6, 9
Roger (N side, E of 1st)	11895	Bench, Sidewalk	6, 15
Roger (N Side, W of 1st)	14130	Shelter, sidewalk	6, 15
Roger (S Side, E of 1st)	11908	Shelter	15
Prince (N side, W of 1st)	177	Shelter, sidewalk	6, 17
Prince (S side, W of 1st)	172	Bench, Sidewalk	6, 17
Fort Lowell (N side, W of 1st)	16274	Sidewalk	6, 34
Fort Lowell (S side, E of 1st)	64	Shelter, sidewalk, bus pullout	6, 34
River (N Side, W of 1st)	11349	Bench	103x
River (S side, E of 1st)	11330	Sidewalk	103x

Source: Sun Tran, 2024

Ridership

Ridership data provided by Sun Tran was evaluated to understand the extent of transit use along the corridor and identify areas with higher demand. **Table 12** provides an overview of ridership by stop for 2024. As shown in the table, bus stops at Fort Lowell Road and Grant Road have the highest ridership during weekdays and weekends. The northbound stops see more people getting off than on, every day of the week, while the southbound stops have more people getting on the bus than off. The largest difference between riders getting on and off occurs at the Fort Lowell stops in both directions. Weekdays have the highest ridership volume, and the northbound route has greater ridership during weekdays and weekends.

Table 12: 2024 Ridership by Stop - Average Daily Riders

Stop Location	Weekday				Saturday				Sunday			
	On	Off	Net	Tot.	On	Off	Net	Tot.	On	Off	Net	Tot.
Ft. Lowell Rd (NE)	89	135	-46	224	61	83	-22	144	31	45	-14	76
Grant Rd (NW)	109	112	-3	221	70	63	7	133	40	42	-2	82
Grant Rd (NE)	102	118	-16	220	63	71	-8	134	32	36	-4	68
Ft. Lowell Rd (SW)	130	62	68	192	84	35	49	119	49	22	27	71
Prince Rd (SW)	79	34	45	113	45	19	26	64	25	10	15	35
Prince Rd (SE)	41	68	-27	109	29	37	-8	66	14	18	-4	32
Roger Rd (NE)	31	63	-32	94	21	39	-18	60	13	21	-8	34
Roger Rd (SW)	64	27	37	91	36	15	21	51	20	12	8	32
Wetmore Rd (SW)	77	10	67	87	50	5	45	55	28	3	25	31
Limberlost Dr (NE)	18	49	-31	67	12	27	-15	39	7	14	-7	21
Glenn St (NE)	33	31	2	64	19	16	3	35	13	11	2	24
Pastime Rd (NE)	24	47	-23	71	15	16	-1	31	8	9	-1	17
Pastime Rd (SW)	43	18	25	61	21	11	10	32	12	6	6	18

Stop Location	Weekday				Saturday				Sunday			
	On	Off	Net	Tot.	On	Off	Net	Tot.	On	Off	Net	Tot.
Glenn St (NE)	22	32	-10	54	16	19	-3	35	8	11	-3	19
Limberlost Dr (NW)	42	12	30	54	30	3	27	33	15	5	10	20
Blacklidge Dr (SW)	28	15	13	43	24	11	13	35	13	7	6	20
Blacklidge Dr (SE)	17	26	-9	43	12	17	-5	29	6	13	-7	19
Halcyon Rd (SW)	27	17	10	44	17	11	6	28	11	8	3	19
Graybill Dr (NE)	11	34	-23	45	8	25	-17	33	2	6	-4	8
Yavapai Rd (SW)	26	18	8	44	19	11	8	30	7	3	4	10
Copper St (NE)	15	20	-5	35	10	9	1	19	5	3	2	8
Halcyon Rd (NE)	9	16	-7	25	6	9	-3	15	4	6	-2	10
Jacinto St (SW)	15	12	3	27	7	6	1	13	4	5	-1	9

Source: Sun Tran, 2024

Transit Operations

Sun Tran also provided travel time information for Route 6 along the 1st Avenue corridor, presented in **Table 13**. As shown in the table, transit travel times vary slightly by direction, time of day, and day of the week. On weekdays, southbound trips between Wetmore Road and Grant Road range from 10 to 11 minutes during the morning peak and increase slightly in the afternoon peak. Northbound travel is generally slower, taking 11 to 14 minutes in the morning and 14 to 15 minutes in the afternoon. Weekend travel times are more consistent, with southbound trips averaging 10 minutes in the morning and 11 minutes in the afternoon, while northbound trips average 12 minutes in the morning and 13 minutes in the afternoon on both Saturday and Sunday. These patterns indicate that northbound travel typically experiences longer travel times, particularly during the weekday afternoon peak.

Table 13: Transit Travel Times (Route 6 Along 1st Avenue)

Day	Peak Hour	Wetmore Rd to Grant Rd (Southbound)	Grant Rd to Wetmore Rd (Northbound)
Weekday	AM	10-11 Minutes	11-14 Minutes
	PM	11 Minutes	14-15 Minutes
Saturday	AM	10 minutes	12 Minutes
	PM	11 Minutes	13 Minutes
Sunday	AM	10 Minutes	12 Minutes
	PM	11 Minutes	13 Minutes

Source: Sun Tran, 2024

5. Safety Analysis

The Safety Analysis section examines crash history, near-miss incidents, and risk factors along the 1st Avenue corridor to identify patterns and locations of concern for all travel modes. Drawing on recent crash data, field observations, and regional safety studies, this section evaluates the frequency, severity, and contributing circumstances of collisions involving motorists, pedestrians, and bicyclists. The analysis highlights high-injury network segments, priority intersections, and vulnerable user groups.

SAFE SYSTEM APPROACH

The United States adopted the Safe System Approach in late 2022 as part of the National Roadway Safety Strategy. This approach to transportation safety is comprised of six principles and five elements. The approach differs from the traditional safety approach in that it focuses on reducing fatal and serious-injury crashes through a holistic, proactive approach.

As the 1st Avenue Improvement Project is a Complete Streets project, the goal is to design a corridor that applies the Safe System Approach regardless of who they are, where they live, and how they choose to travel. This can be achieved through safer roadway design, speed management, and educating road users on how to use the transportation network safely. The roles of these elements in the existing system will be examined throughout this section.



CRASH ANALYSIS

The safety analysis used multiple data sources:

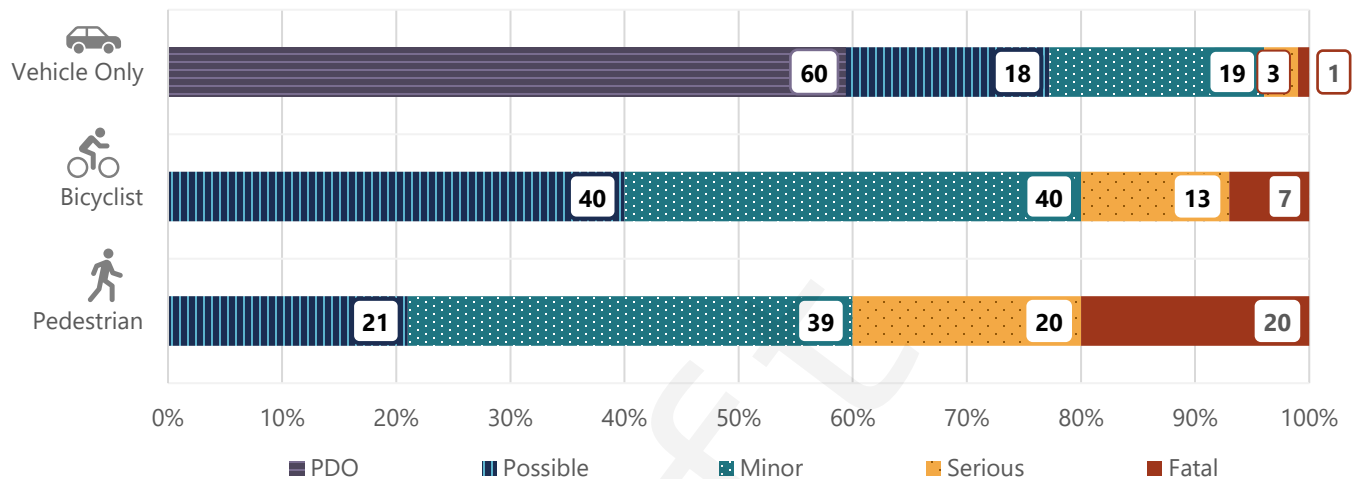
- 5 years of crash data (2019-2023) from ADOT
- 10 years of pedestrian/bicyclist crash data (2014-2023) for trend analysis
- 24-hour video analysis at Fort Lowell Road and Wetmore Road intersections
- Field observations at five high-priority locations during PM peak and nighttime periods
- Stakeholder interviews with Tucson Police, Tucson Fire, and Sun Tran

This multi-faceted approach provides both quantitative crash data and qualitative insights into road user behavior and safety challenges. See Appendix E: Safety Analysis Report for the full Safety Analysis.

The 1st Avenue corridor experiences significant safety challenges, particularly for vulnerable road users. The combination of high-speed vehicle traffic, limited pedestrian and bicycle facilities, minimal lighting, and multiple conflict points creates an environment where fatal and serious-injury crashes occur regularly. Overarching crash trends are as follows:

- **Fatal and Serious Injury (FSI) Crashes.** A high number of road users are involved in fatal and injury crashes. Pedestrian and bicyclist collisions are 6-12 times more likely to result in a fatal or serious injury (see **Figure 29**).

Figure 29: Crashes on 1st Avenue by Crash Mode and Highest Injury Severity (2019 - 2023)



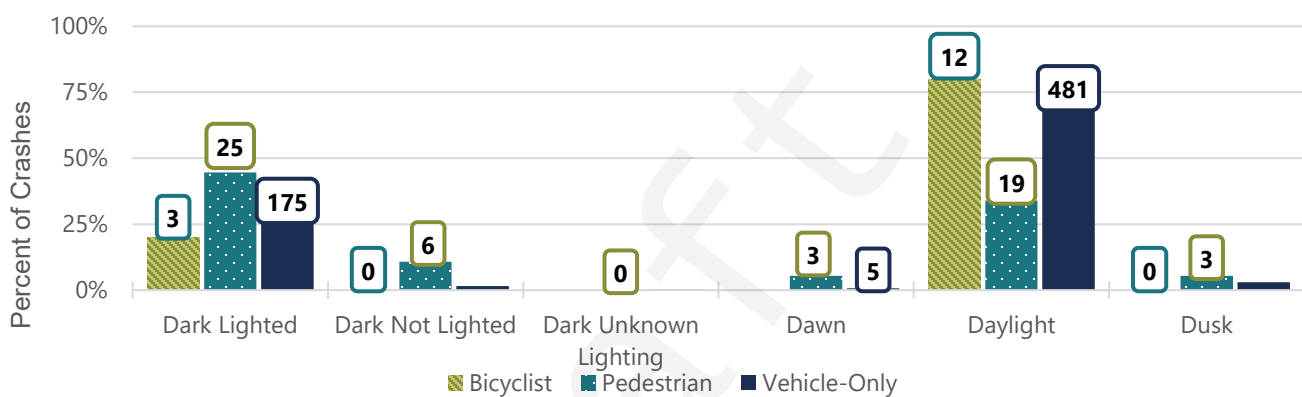
- **Crash Types.** Sideswipe, pedestrian, bicyclist, and head-on collisions are more likely to be more severe than other crash types. Other common crash types, such as single vehicle, left turn and angle crashes, can still result in high-severity injuries, as summarized in **Table 14**.
 - Pedestrian crashes were most common at the Fort Lowell Road and Wetmore Road intersections.
 - 75% of bicyclist crashes occur at intersections, most commonly at Prince Road.
 - All 10 head-on crashes occurred at an intersection, most commonly at Prince Road.

Table 14: Crash Frequency and Rate by Type on 1st Avenue (2019 - 2023)

Crash Type	Crash Frequency	FSI Crash Frequency	FSI Crash Rate
Sideswipe (Opposite Direction)	3	2	66.7%
Pedestrian	56	22	39.3%
Bicycle	15	3	20.0%
Head-On	10	2	20.0%
Single Vehicle	51	4	7.8%
Angle	169	9	5.3%
Left Turn	266	5	1.9%
Rear-End	161	1	0.6%
Remaining Crash Types	34	0	0.0%

- **Road User Contributing Factors.** Speeding, failure to yield, and crossing outside marked crosswalks are common factors in high-severity crashes. Drivers not yielding to VRUs were observed more frequently at the Prince Road and Fort Lowell Road intersections.
- **Impairment.** 4.7% of crash-involved road users were impaired. It was more common for crash-involved pedestrians to be impaired than for crash-involved bicyclists or drivers.
- **Lighting.** Dark lighting conditions are contributing to pedestrian crashes (**Figure 30**).
 - A much higher percentage of pedestrian crashes happen in dark lighting conditions than bicyclist and vehicle-only crashes.
 - Unlike bicyclist and vehicle-only crashes, pedestrian crashes peak at nighttime.

Figure 30: Lighting Conditions by Mode for Crashes on 1st Avenue (2019 - 2023)

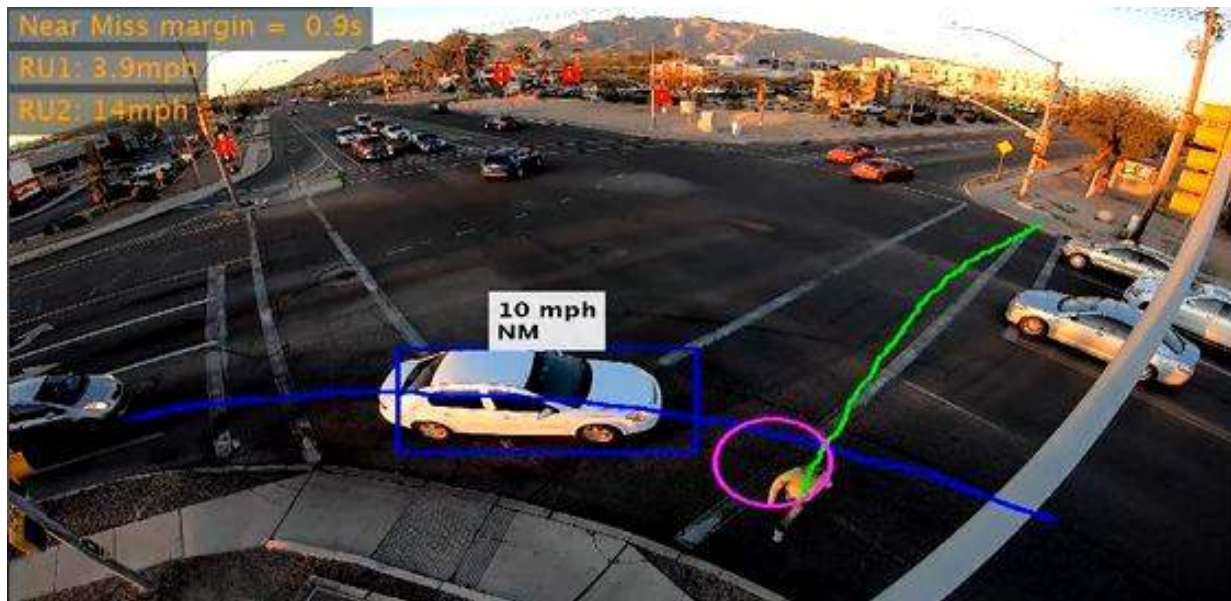


NEAR-MISS VIDEO DATA ANALYSIS

Taking a proactive approach to safety is central to the Safe System Approach. Following this principle, 24-hour near-miss data was collected at the Fort Lowell and Wetmore Road intersections along 1st Avenue. This data was analyzed alongside the historical crash data to better identify trends associated with high-risk scenarios. The key findings from the near-miss analysis are summarized below.

- Near-misses increase during daytime at off-peak periods.
- Pedestrian and bicyclist near-misses:
 - vary in Post-Encroachment Time (PET) depending on the order of arrival.
 - often occur at the Fort Lowell Road north and east crosswalks and the Wetmore Road south crosswalk.
 - often involve right-turning vehicles. (see **Figure 31**)
 - Should be addressed through a variety of countermeasures.
- Vehicle-only near-misses:
 - involve higher speeds.
 - often involve a through vehicle and a left-turning vehicle.
 - often involve a Northbound left-turning vehicle.

Figure 31: Right Turning Vehicle-Pedestrian Near-Miss at Fort Lowell Road



BEHAVIOR VIDEO ANALYSIS

Video data was also used to identify certain road user behaviors, such as red light running.

- Red light running had equal prevalence at both locations.
- Crossing on red and crossing outside the crosswalk were over 2X more common at the Fort Lowell Road intersection than at the Wetmore Road intersection.
- The east leg and south leg of the Fort Lowell Road intersection have the highest volumes of pedestrian midblock crossings.

STAKEHOLDER INTERVIEWS

Stakeholder interviews were conducted with the Tucson Police Department, Tucson Fire Department, and Sun Tran. The following themes emerged from the meetings.



Road Safety and Traffic Management:

- Speeding is more commonly perceived as an issue at night.
- Protected left turns at signalized intersections would improve safety.
- A signal at Rillito Park might improve safety for left-turning southbound vehicles.
- Some countermeasures that would enhance safety on the corridor include pedestrian-level lighting, protected left turns, far-side bus stops, and painted bus boxes.



Lighting and Visibility:

- Lighting the corridor up as much as possible could have a big safety impact.
- Some countermeasures that would enhance safety on the corridor include pedestrian-level lighting.



Pedestrian and Cyclist Safety:

- Channelizing pedestrians and bicyclists could influence their behavior to be less unpredictable to drivers.
- High-quality, continuous sidewalks are necessary for individuals who walk and use assistive mobility devices.
- Dense concentration of businesses limits vehicle parking capacity, which encourages mid-block crossing and vehicles trying to back onto 1st Avenue.



Public Transportation:

- Bus pull-outs can result in complications for bus drivers. However, bus pullouts at signalized intersections may have minimal impact on bus operations.
- This project provides an opportunity to improve transit stop locations and spacing, particularly at signaled intersections and crossing locations.
- Some countermeasures that could enhance safety on the corridor include far-side bus stops and painted bus boxes.

KEY FINDINGS

- Pedestrian and bicyclist safety is the most critical challenge, with these crashes accounting for the majority of fatalities.
- Nighttime crashes are disproportionately severe, requiring enhanced lighting.
- Specific intersections (Fort Lowell, Wetmore, Prince) require targeted interventions.
- Behavioral patterns (midblock crossing, crossing on red) indicate the need for better facilities and more crossing opportunities.
- A comprehensive approach is needed - single improvements will not adequately address safety challenges.

The recommended improvements in **Table 15** form the foundation of the project's safety treatments, detailed in the next section. Appendix E contains the full, detailed safety analysis memorandum.

Table 15: 1st Avenue Improvement Safety Recommendations

Treatment Category	Treatment Type	Safety Impacts			Description	Justification	Priority
		Veh	Ped	Bike			
Speed Management	Reduce the Posted Speed Limit. At the time of this analysis, the posted speed limit was 45 mph during the day and 40 mph at night north of Wetmore Road, and 40 mph during the day and 35 mph at night south of Wetmore Road	✔	✔	✔	Reduce speeds to create a safe travel space for all road users. Should be complemented with design elements for speed management. Recently, the City of Tucson reduced the speed limit from 45 mph to 35 mph north of Wetmore Road and from 40 mph to 30 mph south of Wetmore Road.	Speeding is a factor in 8% of FSI crashes.	H
	Narrow Lanes	✔	n/a		Reduce travel lane widths to less than 11 feet to slow travel speeds.	Speeding is a factor in 8% of FSI crashes.	H
	Speed Feedback Signs	✔	n/a		Display a message to indicate how the driver's operating speed compares to the posted speed.	Speeding is a factor in 8% of FSI crashes.	L
	Narrow Curb Radii	✔	✔		Use concrete curb or paint to sharpen curb radii to slow down turning vehicles.	Speeding is a factor in 8% of FSI crashes.	M
	Raised Crosswalks at Channelized Right Turn Lanes		✔		Use raised crosswalks to slow the speeds of turning vehicles and enhance pedestrian visibility to provide a safe crossing facility for pedestrians at channelized right-turn lanes.	Speeding is a factor in 8% of FSI crashes.	H
Street Lighting	Continuous Lighting for High Pedestrian Activity	✔	✔	✔	Improve visibility of all road users to increase reaction time reduce crashes. Use City of Tucson and national guidance to provide adequate lighting for vehicles to see pedestrians.	Dark lighting contributes to 58% of FSI crashes.	H
Crossings at unsignalized intersections	HAWK/BikeHAWK		✔	✔	Use overhead pushbutton-activated beacons to provide crossing opportunities for pedestrian crossings between signalized intersections. HAWKs could be placed 600 feet from a signalized intersection.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	H
	TOUCAN Crossing		✔	✔	Use overhead beacons and pavement markings to provide a safe crossing facility for both pedestrians and bicyclists while diverting cross-street traffic.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	M
	Stop bars for Pedestrian Signage at Stop Approaches on Side Streets		✔	✔	Use pavement markings in addition to stop signs to indicate where vehicles should stop on side streets.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	L
Separated Bike Lanes	Protected Bicycle Lanes		n/a	✔	Use vertical elements to separate the bike lanes from the vehicle travel lanes. Consider using concrete curb or a combination of K71 bollards and pre-cast curb within the bicycle buffers, providing space for vehicles to recover before reaching the vertical elements.	Bicyclist comfort and protection is low on the current facilities. There are no vertical elements or buffered space to separate bicyclists from vehicles.	H

Treatment Category	Treatment Type	Safety Impacts			Description	Justification	Priority
		Veh	Ped	Bike			
	Buffered Bicycle Lanes		n/a	✔	Use a painted buffer to provide horizontal space between vehicle travel lanes and bike lanes.	Bicyclist comfort and protection is low on the current facilities. There are no vertical elements or buffered space to separate bicyclists from vehicles.	M
	Raised Bicycle Lanes		n/a	✔	Raise the bicycle lanes to sidewalk level or to a level between street and sidewalk height.	Bicyclist comfort and protection are low on the current facilities. There are no vertical elements or buffered space to separate bicyclists from vehicles.	M
Median Space	Raised Median and Refuge Island		✔		Provide a raised center median to separate opposite directions of traffic. This space will serve as a refuge for pedestrians, so they only have to cross one direction of traffic at a time.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	H
Transit Facilities	Far-side Bus Stops		✔		Place bus stops after the intersection so that buses do not block motorists' views of pedestrians on the near-side crosswalk. Stops should be within 100 feet of the intersection for single-bus storage.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	H
	Bus Pull-outs at Signalized Intersections	✔	✔		Provide space outside the vehicle travel lanes for buses to pull into while riders board and disembark.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	M
	Appropriately Spaced Bus Stops		✔	✔	Stops should be provided every ¼ mile and should be 50 feet from intersection corners.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	M
	Painted Bus Boxes	✔	n/a		Use pavement markings to mark where buses should stop at bus stops. This can improve driver awareness of where buses will stop.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	L
Pedestrian Infrastructure	Enhanced and Separated Sidewalk facilities		✔		Provide separate pathways to accommodate pedestrians in the corridor.	On average, there are 11 pedestrian crashes and 4 crashes that result in a pedestrian fatality or serious injury every year.	M
	Raised Pedestrian Paths Behind Driveways		✔		Provide level sidewalks, even where driveways are located, to provide a consistently accessible pedestrian network.	On average, there are 11 pedestrian crashes and 4 crashes that result in a pedestrian fatality or serious injury every year.	M
	Pedestrian Channelization		✔		Redirect pedestrians to signalized crossings to reduce the frequency of midblock crossings.	Excessive midblock crossing was observed in the field and in all data sources.	L
	ADA Compliant Curb Ramps		✔		Construct curb ramps with detectable warning surfaces that comply with ADA and PROWAG standards and guidelines to provide a pedestrian network accessible for all pedestrians.	Field observations indicated several pedestrians using assistive mobility devices, pushing carts, and older and younger pedestrians.	L
Signalized Intersections	High Visibility Crosswalks		✔		Upgrade crosswalks at signalized intersections to high-visibility crosswalks to improve visibility and compliance.	High pedestrian activity was observed at major intersections.	H

Treatment Category	Treatment Type	Safety Impacts			Description	Justification	Priority
		Veh	Ped	Bike			
	Protected Intersection		n/a	✓	Extend protected bicycle facilities to intersections (minor signalized intersections) to reduce potential conflict points between vehicles and bicyclists.	11 of the 15 bicyclist crashes occurred at intersections.	H
	Flashing Yellow Arrow (FYA) & Pedestrian Protected-Only Phasing	✓	✓		Implement protected-only left turn operations to allow vehicles to turn left without conflicting with opposing through traffic or pedestrians in the crosswalks. This simplifies driver decision-making by minimizing the task finding gaps between oncoming vehicles and pedestrian movements.	35% of the crashes were left turn crashes.	H
	Positive Offset	✓	n/a		Where protected only phasing is not feasible, shift opposing left turn lanes laterally toward each other to enhance sightlines for left turning drivers.	35% of the crashes were left turn crashes.	M
	Leading Pedestrian Interval		✓		Begin the pedestrian walk phase before the turning vehicle phase begins. This allows pedestrians time to become visible in the crosswalk.	63% of pedestrian crashes occurred at a signalized intersection.	H
	Update Yellow and All-Red Intervals Using Guidance from ITE or ADOT. The City of Tucson recently evaluated and updated the yellow change and red clearance intervals on the corridor	✓	✓		The yellow change interval alerts drivers that the current green signal has ended, and a red signal will immediately follow. An all-red interval, also known as a red clearance interval, is the timeframe during which all traffic signal phases at an intersection are red.	Appropriately timed yellow change intervals can reduce aggressive driving behaviors such as red-light running (by 36-50%) and reduce the occurrence of injury crashes (by 12%) ³ The red clearance interval allows vehicles to clear the intersection before conflicting movements begin. This is an important consideration in the future after changes have been made that influence speed and operations.	M
	Place Reflective Borders on Traffic Signals Heads	✓			Reflective borders increase the visibility of traffic signal heads by illuminating the border around the traffic lights.	Identified in FHWA's list of proven safety countermeasures, there is a 15% reduction in total crashes associated with reflective borders. ⁴	M

³ Federal Highway Administration. "Yellow Change Intervals." *Proven Safety Countermeasures*. Last modified August 2022. <https://highways.dot.gov/safety/proven-safety-countermeasures/yellow-change-intervals>.

⁴ Federal Highway Administration, *Backplates with Retroreflective Borders*, U.S. Department of Transportation, last updated October 13, 2022, accessed June 29, 2025, <https://highways.dot.gov/safety/proven-safety-countermeasures/backplates-retroreflective-borders>

6. 2045 Future Conditions

The future conditions analysis evaluates how the 1st Avenue corridor is expected to perform in the coming years under two scenarios: “No-Build”, which assumes the corridor remains in its current configuration with only routine maintenance; and “Build”, which incorporates the multimodal improvements, safety enhancements, and operational strategies outlined in the Design Concept Report. Together, these scenarios provide a complete understanding of how travel demand, traffic operations, safety performance, and multimodal activity may evolve over time.

2045 NO-BUILD CONDITIONS

This section outlines the future 2045 No-Build transportation conditions along 1st Avenue from River Road to Grant Road. It serves as a future baseline for the 1st Avenue Improvement Project, which aims to modernize and transform the corridor from a vehicle-centric roadway into a Complete Street – one that safely and comfortably accommodates people walking, biking, using transit, and driving.

Included is an overview of how traffic along the study corridor was projected for future conditions, as well as snapshots of how the street is anticipated to serve vehicles, pedestrians, bicyclists, and transit users. The No-Build scenario accounts for increases in vehicular volumes associated with general regional growth but assumes no street changes to the corridor that may impact vehicular, pedestrian, or bicyclist operations or safety.

Traffic Volume Projections

TRAFFIC PROJECTION METHODOLOGY

Year 2045 traffic volumes along the corridor were developed using existing traffic counts, as well as the Pima Association of Governments’ (PAG) regional travel demand model.

Daily and peak-period (2 hours) model segment volumes were obtained for the base year 2015 and the future year 2045 from the PAG travel demand model. The model’s socioeconomic data and roadway network account for changes in population and employment and future roadways based on the roadway improvements and conditions identified in the Regional Mobility and Accessibility Plan (RMAP). RMAP does not include any major transportation improvements in the immediate vicinity of the project. Further, the No-build future model does not include any changes associated with the project.

Since the model base year was 2015 and the turning movements were collected in 2024, 2024 model volumes were estimated to be used as the basis for the traffic projection process described in the following section. To develop the 2024 model volumes, the baseline year 2015 model volumes were adjusted using the annual growth rate between the 2015 model volumes and the 2045 model volumes. If the PAG travel demand model did not indicate growth, an annual rate of 0.1% was assumed. The 2045 raw model volumes were also adjusted at locations where the model assumed no growth; at these locations, the volumes were increased 0.1% per year from 2015.

Future turning movement volumes were developed using methodologies presented in the National Cooperative Highway Research Program’s (NCHRP) Report 765 – *Analytic Travel Forecasting Approaches*

for *Project-Level Planning and Design*. The iterative growth-factoring process outlined in the NCHRP report provides a standardized approach for translating travel demand model outputs (with existing turning movement counts) into future intersection turning movement volumes.

Turning movement volumes were forecasted using this method for the signalized study intersections along the corridor. At unsignalized intersections and major commercial driveways, through volumes were estimated based on approach and departure volumes at the adjacent signalized intersections. Side-street volumes at unsignalized intersections were assumed to have minimal growth based on existing and expected future land use.

The forecasted traffic volumes were further refined to account for ongoing or future nearby retail developments that were not originally accounted for in the travel demand model. Trips associated with these developments – a Walmart expansion at Wetmore Road and a “Salad And Go” restaurant at Limberlost Drive – were estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*, as shown in **Table 16**. These trips were then assigned to the network and added to the future turning volumes

Table 16: Trip Generation Estimates for Future Developments

Development	ITE Code	Qty	Unit	AM Peak			PM Peak		
				In	Out	Total	In	Out	Total
Walmart Expansion	813	N/A ¹	KSF	28	31	59	40	41	81
Salad And Go	935	1	Drive-Through Lanes	20	23	43	30	30	60

¹ Trip generation estimates represent “net new” trips associated with existing versus future land use, based on information provided in Kimley Horn’s *NWC 1st Avenue and Wetmore Road – Walmart Expansion Store #1325-01, Tucson, Arizona Trip Generation Comparison Letter*

FUTURE 2045 TRAFFIC VOLUMES

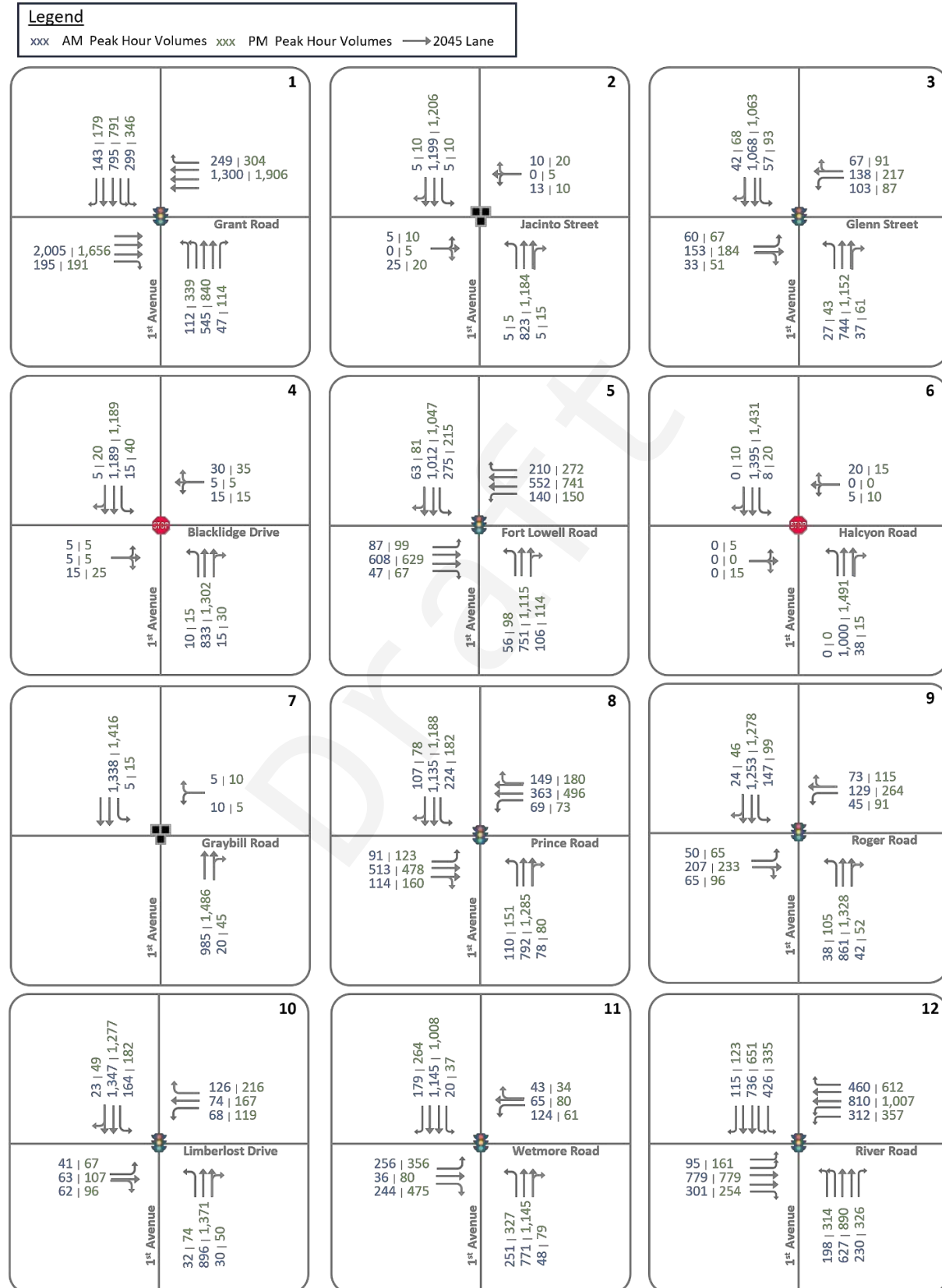
Table 17 presents the projected 2045 No-Build daily roadway segment volumes and truck percentages. Truck percentages along the corridor are not expected to change from existing conditions. **Figure 32** presents the projected 2045 No-Build peak hour intersection turning movement volumes and lane configurations for the study intersections.

Table 17: Year 2045 No-Build Daily Roadway Segment Volume and Truck Percentage Projections

1 st Avenue Segment	Daily Volume	Truck %		AM Peak Hour			PM Peak Hour		
		Medium	Heavy	Vol.	K	D	Vol.	K	D
North of River Road	32,100	N/A	N/A	2,459	0.08	0.52	2,772	0.09	0.60
River Road to Wetmore Road	31,500	6.9%	2.3%	2,409	0.08	0.56	2,818	0.09	0.54
Wetmore Road to Limberlost Drive	33,900	7.1%	1.1%	2,590	0.08	0.59	3,129	0.09	0.51
Limberlost Drive to Roger Road	33,000	7.2%	1.2%	2,422	0.07	0.60	2,959	0.09	0.51
Roger Road to Prince Road	34,000	N/A	N/A	2,401	0.07	0.59	2,993	0.09	0.51
Prince Road to Fort Lowell Road	36,800	N/A	N/A	2,348	0.06	0.57	2,883	0.08	0.52
Fort Lowell Road to Glenn Street	31,100	N/A	N/A	2,075	0.07	0.57	2,563	0.08	0.51
Glenn Street to Grant Road	28,100	8.9%	1.2%	2,022	0.07	0.60	2,459	0.09	0.51 ¹
South of Grant Road	24,500	N/A	N/A	1,694	0.03	0.58	2,275	0.09	0.57

¹ Southbound peak direction

Figure 32: Year 2045 No-Build Turning Movement Volume Projections



Future 2045 No-Build Traffic Operations

Future 2045 No-Build conditions were evaluated to understand future traffic conditions without the completion of the 1st Avenue Complete Streets project. Under No-Build conditions, roadway segments and intersections are assumed to retain their existing lane configurations and traffic control⁵. Traffic signal phasing along the corridor is also expected to remain unchanged from the existing 2024 conditions, except for the following locations that account for signal timing improvements incorporated by the City of Tucson in 2025.

- **1st Avenue & River Road** – Under existing 2024 conditions, the left-turn movements at this intersection were modeled as permissive/protected operations. Under 2045 conditions, these movements were changed to be protected only.
- **1st Avenue & Limberlost Drive** – Under existing 2024 conditions, the left-turn movements along 1st Avenue at this intersection were modeled as permissive/protected. Under 2045 conditions, these movements remain permissive/protected, but with flashing yellow arrow signalization, which allows for protected-only left turn phasing when pedestrians activate the pedestrian phase.
- **1st Avenue & Roger Road** – Under existing 2024 conditions, the left-turn movements at this intersection were modeled as permissive/protected. Under 2045 conditions, these movements remain permissive/protected, but with flashing yellow arrow signalization, which allows for protected-only left turn phasing when pedestrians activate the pedestrian phase.

INTERSECTION OPERATIONS

The following section presents the results of the intersection operations analyses conducted using Synchro and Vissim software.

Synchro Results

Table 18 presents the 2045 No-Build peak hour intersection operations Synchro results for the signalized intersections along the 1st Avenue study corridor. As shown in the table, all intersections along the corridor are expected to operate at LOS D or better, which meets the City's design standards⁶. All intersections operate at the same level of service under No-Build conditions as they do under existing conditions, with the exception of 1st Avenue & Roger Road. At this intersection, the level of service degrades from LOS B during the AM peak hour under existing conditions to LOS C under 2045 No-Build conditions.

Based on the Synchro results, no operational improvements would be required along the corridor. However, because Synchro is a deterministic tool, the results do not fully consider the complex interactions between vehicles, pedestrians, bicyclists, and transit. As a result, an additional microsimulation analysis using Vissim was conducted, as presented in the following section.

Synchro worksheets for Year 2045 No-Build conditions are presented in Appendix F.

⁶ LOS D is designated as the level of service threshold in the City of Tucson's *Transportation Access Management Guidelines* (2017) and *Street Design Guide* (2021)

Table 18: Year 2045 No-Build Peak Hour Intersection Operations Results (Synchro)

Intersection with 1 st Avenue	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Delay (sec)	LOS	Delay (sec)	LOS
River Road	48.6	D	53.2	D
Wetmore Road	25.8	C	34.7	C
Limberlost Drive	17.8	B	24.7	C
Roger Road	20.4	C	25.1	C
Prince Road	25.4	C	27.6	C
Fort Lowell Road	26.8	C	28.9	C
Glenn Street	11.5	B	10.9	B
Grant Road	22.6	C	27.9	C

Source: *Highway Capacity Manual, 2000*

Vissim Results

Table 19 presents the 2045 No-Build peak-hour intersection operations results for the signalized intersections along the 1st Avenue study corridor. As shown in the table, the Vissim model shows similar results to Synchro for each intersection during the AM peak hour; however, during the PM peak hour, the Vissim model generally shows more delay and higher levels of service on the corridor. All intersections along the corridor are still expected to operate at LOS D or better, except for 1st Avenue & River Road during the PM peak hour, which operates at LOS E.

Table 19: Year 2045 No-Build Peak Hour Intersection Operations Results (Vissim)

Intersection with 1 st Avenue	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Delay (sec)	LOS	Delay (sec)	LOS
River Road	45.1	D	62.2	E
Wetmore Road	24.5	C	43.2	D
Limberlost Drive	14.3	B	36.9	D
Roger Road	17.7	B	40.8	D
Prince Road	23.1	C	32.1	C
Fort Lowell Road	27.1	C	31.4	C
Glenn Street	11.0	B	14.4	B
Grant Road	19.1	B	24.8	C

Source: Vissim

Although the River Road intersection is the only study location that is expected to operate below LOS D at the intersection level (as modeled by Vissim), individual movements at the 1st Avenue intersections with Wetmore Road and Roger Road are expected to operate with high levels of delay. The operational deficiencies at these intersections are outlined below.

- **1st Avenue & River Road** – Under 2045 No-Build conditions, the intersection is anticipated to operate at LOS E during the PM peak hour, and the northbound approach may experience excessive queueing during the PM peak hour.
- **1st Avenue & Wetmore Road** – Under 2045 No-Build conditions, the intersection is anticipated to operate at LOS C and LOS D during the weekday AM and weekday PM peak hours, respectively. However, the northbound approach degrades significantly compared to existing conditions, with extensive queueing and delays associated with the northbound left-turn during the PM peak hour.
- **1st Avenue & Roger Road** - Under 2045 No-Build conditions, the intersection is anticipated to operate at LOS B and LOS D during the weekday AM and weekday PM peak hours, respectively. However, the westbound right-turn and left-turn movements are anticipated to operate at LOS F during the weekday PM peak hour.

ROADWAY CORRIDOR LEVEL OF SERVICE

Level of service (LOS) was determined for the roadway corridor, using travel speed estimates calculated by the Vissim model and HCM thresholds presented in **Table 3**. **Table 20** presents the weekday AM and weekday PM roadway level of service under 2025 existing and 2045 No-Build conditions.

Table 20: Corridor Level of Service

Corridor Direction	Weekday AM Peak Hour		Weekday PM Peak Hour	
	2025 Existing ¹	2045 No-Build	2025 Existing	2045 No-Build
Northbound	C	C	C	D/E ²
Southbound	C	C	C	C

Source: Highway Capacity Manual, 7th Edition

¹ 2025 Existing Conditions is based on a 30 MPH posted speed

² Estimated operating speeds are at the border between LOS D and LOS E

As shown in the table, the roadway corridor is expected to continue to operate at LOS C during the weekday AM peak hour under Year 2045 No-Build conditions. However, during the weekday PM peak hour, northbound operations are expected to degrade from LOS C under 2025 existing conditions to LOS D/E⁷ under Year 2045 No-Build conditions.

PEDESTRIAN OPERATIONS

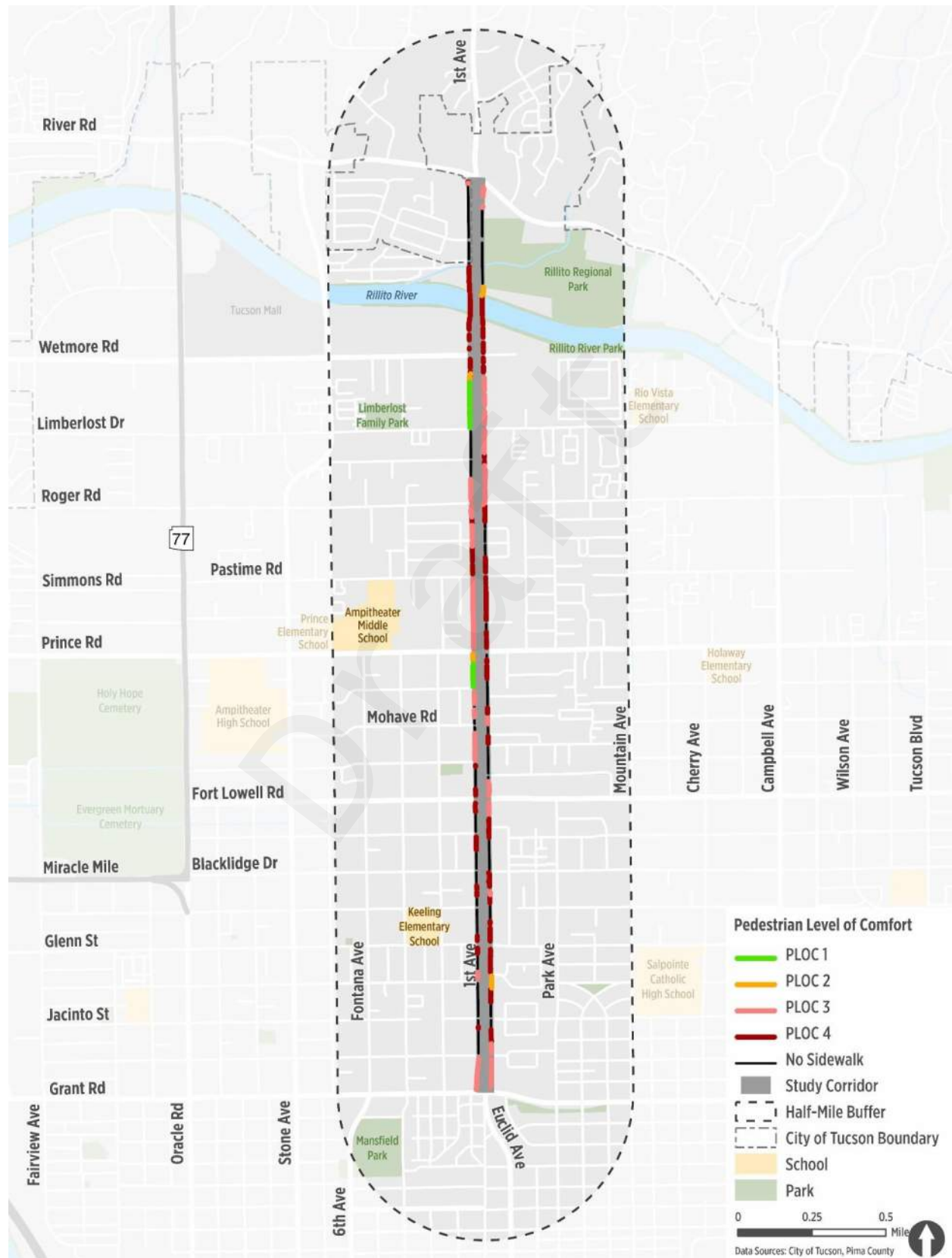
Under existing conditions, the PLOC along the study corridor is largely PLOC 4. The corridor generally includes 4 to 5-foot sidewalks with little to no buffer on a roadway with a speed limit of 40 or 45 miles per hour.

Under 2045 No-Build conditions, the corridor was assessed with no roadway changes or improvements to pedestrian facilities. However, the future No-Build condition does account for the recent reduction in speed limit along the corridor. This change reduces the PLOC of segments of the corridor with 5-foot sidewalks from PLOC 4 to PLOC 3, improving pedestrian comfort from Undesirable to Uncomfortable.

Figure 33 presents the PLOC score for the corridor under 2045 No-Build conditions. It is important to note that there are significant gaps on both sides of the corridor that are currently impacting pedestrian travel along 1st Avenue and that the No-Build conditions do not include sidewalk improvements.

⁷ Estimated operating speeds are at the border between LOS D and LOS E

Figure 33: Pedestrian Level of Comfort Along the Corridor (2045 No-Build)



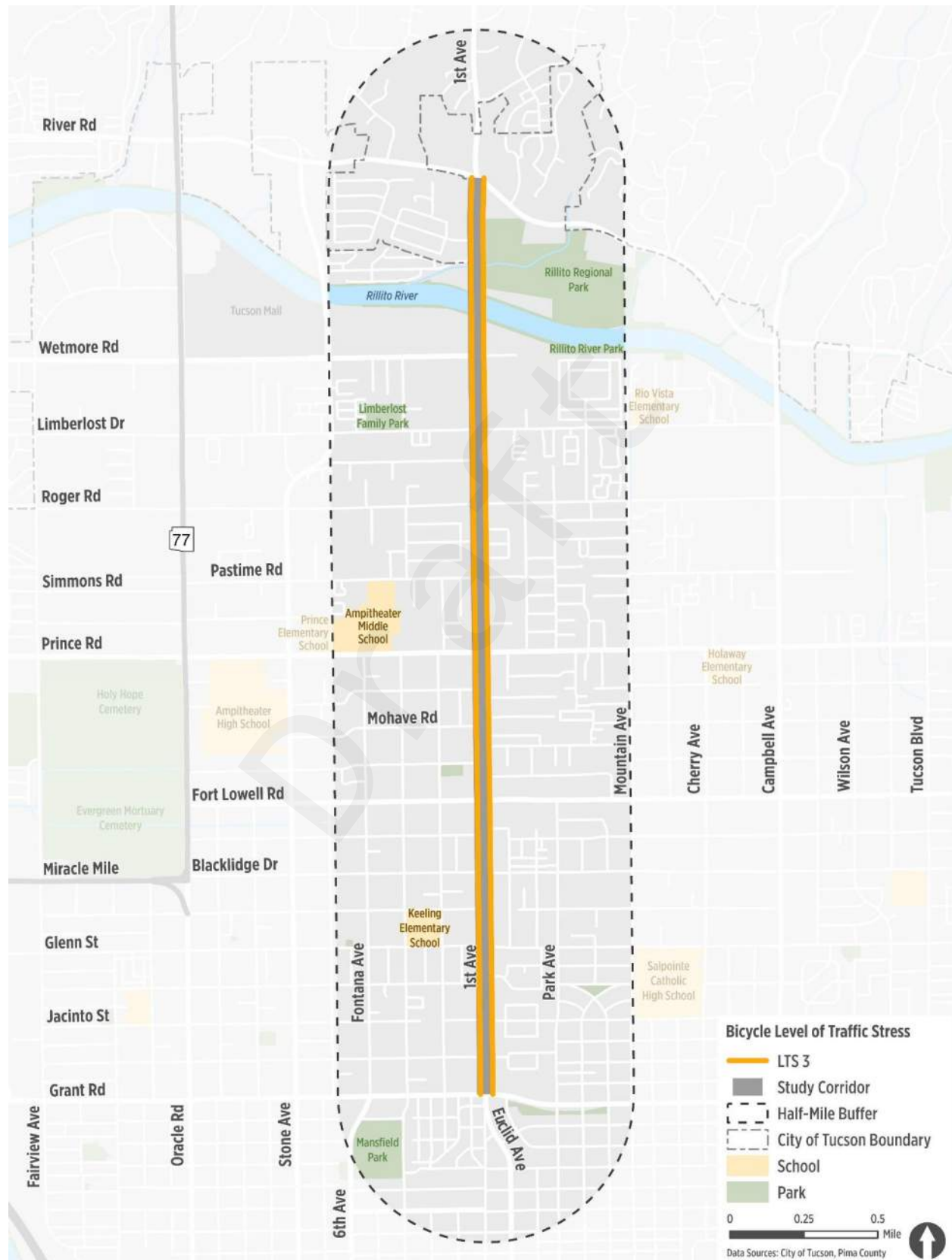
BICYCLE OPERATIONS

Under existing conditions, the entire length of the study corridor from Grant Road to River Road is categorized as BLTS 4, due to 1st Avenue's speed limit (40+ MPH), number of lanes, and lack of buffered or protected bicycle facilities.

As shown in **Figure 34**, under 2045 No-Build conditions the BLTS along the corridor lowers to BLTS 3, based solely on the reduction in posted speeds, which still reflects a relatively high level of traffic stress for bicyclists. It is important to note that the No-Build conditions do not include any bicycle infrastructure improvements.

Draft

Figure 34: Bicyclist Level of Traffic Stress Along the Corridor (2045 No-Build)



FUTURE 2045 BUILD CONDITIONS

Future 2045 Build conditions were evaluated to understand how the completion of the 1st Avenue Complete Streets project will accommodate travel demand along the corridor. The 2045 Build conditions scenario was evaluated using the No-Build conditions as a baseline. This section details project components and goals and discusses how the project is expected to influence the travel experience along the corridor for drivers, pedestrians, bicyclists, and transit users.

Project Components

The future 2045 Build scenario includes corridor and intersection improvements associated with the 1st Avenue Improvement Project. These improvements seek to transform the roadway from a predominantly vehicle-oriented corridor into a multimodal street that safely and comfortably serves people walking, biking, using transit, and driving.

This scenario incorporates the full package of safety, mobility, and operational enhancements, such as protected bike lanes, upgraded crossings, transit stop improvements, and signal modifications that collectively modernize the corridor and reshape travel conditions. The 2045 Build conditions examines how the corridor is expected to operate with the proposed improvements.

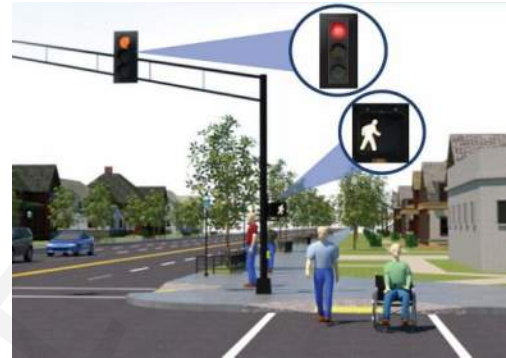
This section describes the components of the 1st Avenue Improvement Project, including specific intersection and corridor treatments proposed by the Project and how they support the Project's overarching goals. These goals, detailed earlier in this report, are described briefly below.

- 1** **Improve Safety** for all users of 1st Avenue, particularly for the most vulnerable road users, such as pedestrians, bicyclists, people with disabilities, motorcyclists, and others.
- 2** **Increase transportation options** and reduce barriers on 1st Avenue by improving comfort, convenience, and accessibility for people walking, biking, and using public transportation.
- 3** **Improve the condition of existing infrastructure** to ensure that 1st Avenue meets community needs now and into the future.
- 4** **Support mobility** along the corridor through the efficient movement of traffic, including transit, personal, and commercial vehicles
- 5** **Minimize the impacts** of 1st Avenue improvements on adjacent residents and businesses.
- 6** Enhance the **visual character** of 1st Avenue to support economic and community vitality.

TRANSPORTATION TREATMENTS

A variety of proven safety and mobility improvements will be implemented along the 1st Avenue corridor as part of identified design strategies. Each improvement has been carefully selected and positioned to function together as an integrated, multimodal system, providing multiple layers of protection for all road users while enhancing comfort, accessibility, and operational efficiency. This section outlines the selected improvements linked to the corresponding project goals.

- **Leading Pedestrian Interval (LPI)** is a traffic signal strategy that provides pedestrians with an exclusive walk phase prior to the concurrent vehicular green phase. This early pedestrian phase increases pedestrian visibility and establishes their presence within the crosswalk before vehicles are permitted to enter the intersection. Implementation of LPIs has been shown to reduce pedestrian-vehicle conflicts, particularly involving right- or left-turning vehicles, by increasing driver yielding behavior and awareness.



Goals:



- **Protected-Only Left-Turn Phasing** is a traffic signal control strategy that provides left-turning vehicles with an exclusive green arrow, allowing turns only during the protected phase and prohibiting permissive (yield-on-green) movements. This approach eliminates conflicts between left-turning vehicles and opposing traffic or pedestrians by separating movements in time rather than space, reducing the likelihood of angle and turning collisions. Protected-only phasing improves intersection safety and driver clarity, particularly at locations with high traffic volumes or a history of left-turn crashes, and is implemented where operational or safety analyses indicate a benefit from separating conflicting movements. This left-turn phasing can be used continuously throughout the day or implemented with time-of-day operations, such as 7 AM – 7 PM.



Goals:



- **Flashing Yellow Arrow (FYA) & Pedestrian Protected-Only Phasing** are traffic signal control strategies that optimize intersection operations while maintaining pedestrian safety. In this configuration, left-turning vehicles are permitted to turn during phases when no pedestrian call is present, indicated by a flashing yellow arrow that allows permissive left turns. When a pedestrian call is active, the left-turn indication remains red, converting the operation to a protected-only phase that fully separates left-turn vehicles and pedestrians. This phasing strategy provides flexibility in signal operations, maintains efficient vehicle progression, and provides conflict-free crossings during pedestrian movements. Additionally, Smart Signals, such as Adaptive Signal Control technologies, can reduce delay, emissions, and red-light running at intersections.



Goals:



- **Protected Bike Lanes** are on-street bicycle facilities that provide physical separation from motor vehicle traffic using vertical elements such as curbs, bollards, planters, or flexible posts. This separation reduces exposure to vehicle conflicts and provides a consistent lateral buffer, improving safety and comfort for bicyclists. Protected bike lanes support multimodal transportation by creating low-stress routes suitable for riders of varying skill levels, increasing bicycle mode share, and enhancing overall traffic operations through the clear definition of travel spaces for all users. These projects may feature an added buffer or physical barrier, separating people walking from those bicycling. Protected bike lanes have been shown to reduce bicyclist-vehicle collisions, improve compliance with lane positioning, and provide predictable interactions between cyclists, vehicles, and pedestrians. Narrowing adjacent vehicle travel lanes in addition to installing protected bike lanes further reinforces the corridor's recently reduced speed limit by increasing side friction, helping to calm traffic, and improving safety for bicyclists.



Goals:



- **Speed Feedback Signs** are dynamic, electronic traffic control devices that display a driver's real-time vehicle speed as they approach the sign. When a driver exceeds the posted speed limit, the device can provide an immediate visual prompt, such as a "SLOW DOWN" message, to encourage voluntary compliance. Speed feedback signs function as behavioral speed-control countermeasures, leveraging immediate driver feedback to influence speed choice without requiring physical roadway alterations or active enforcement. They are particularly effective in areas with high pedestrian activity, school zones, residential streets, and locations with a history of speeding or speed-related crashes. By increasing driver awareness of actual travel speed relative to the posted limit, these signs reduce operating speeds, improve safety for vulnerable road users, and mitigate crash severity.



Goals:



- **HAWK and BikeHAWK Signals** (High-Intensity Activated Crosswalks) are pedestrian- and bicyclist-activated traffic signal devices designed to stop vehicular traffic and provide safe crossing opportunities across high-volume or high-speed roadways. When the signal is activated, the device displays a sequence of flashing and solid red indications to approaching drivers, requiring them to stop until pedestrians and/or bicyclists have cleared the crossing. Unlike traditional traffic signals, HAWK and BikeHAWK systems remain dark when not activated, allowing vehicles to maintain progression and minimize unnecessary stops. These devices provide a walk indication shortly after the push button is activated, which encourages pedestrian compliance and minimizes wait time. In limited situations where HAWKs are located in close proximity to traffic signals, they can be coordinated with upstream and downstream signals to operate within the existing signal network, improving overall traffic operations. HAWK and BikeHAWK signals are particularly effective at mid-block locations, near schools, parks, transit stops, or where crossings occur outside of conventional intersections. By providing a predictable, user-controlled crossing phase, these systems reduce pedestrian and bicyclist exposure to vehicle conflicts, enhance safety, and support multimodal roadway operations.



Goals:



- **High-visibility crosswalks** at traffic signals use bold pavement markings to clearly define the pedestrian zone and delineate the area reserved for pedestrian crossings. The enhanced visibility helps reduce crosswalk encroachment by vehicles and increases driver awareness of pedestrian activity, particularly at intersections with turning movements. These markings provide higher reflectivity at night and maintain visibility in low-light and adverse weather conditions, improving pedestrian safety and predictability. High-visibility crosswalks are a low-cost, effective countermeasure that supports multimodal operations and complements other signalized intersection treatments to enhance overall roadway safety. Marked crossings along 1st Avenue will be accompanied by traffic control devices such as a HAWK or a traffic signal to support motorist compliance and pedestrian safety.



Goals:



- **Protected intersections** incorporate design elements such as corner refuge islands, forward stop bars, tighter corner radii, and dedicated signal phases to physically separate bicyclists and pedestrians from turning vehicles. These features improve sightlines, reduce conflict points, lower vehicle turning speeds, and protect bicycle queues by providing space for cyclists to wait safely at intersections. The design also shortens crossing distances for pedestrians and bicyclists, reducing exposure time in the roadway. Protected intersections can include pedestrian- and bicycle-specific signal heads and/or dedicated signal phases, further enhancing safety and clarity for all users. By clearly delineating pedestrian and bicycle space and organizing vehicle movements, protected intersections make crossings more predictable and intuitive, reduce user stress, and support multimodal mobility.



Goals:



- **Channelized right-turn lanes with raised crosswalks**

provide a dedicated lane for right-turning vehicles, allowing them to bypass through traffic while maintaining safe pedestrian crossings. The raised crosswalk increases pedestrian visibility, reduces vehicle speeds, and improves pedestrian comfort. Pedestrians typically cross in stages, using corner or refuge islands, which shortens individual crossing distances and reduces exposure to turning vehicles. The design of the turn lane aligns vehicles perpendicular to the crossing, improving sightlines and enabling drivers to see pedestrians better. This configuration also reduces right-hook pedestrian crashes associated with parallel crosswalks and potential encroachments from right-turn-on-red movements across perpendicular crosswalks. Separating road users and simplifying the decision-making process reduce complexity and conflict points, which enhances safety for all corridor users.



Goals:



- **Raised Medians** are physical barriers placed in the center of a roadway to separate opposing traffic flows and manage turning movements. They improve safety by reducing head-on collisions, limiting left-turn conflicts, and controlling mid-block crossing points. For pedestrians, raised medians provide a refuge area that allows crossing in stages, shortening exposure to moving traffic and enhancing comfort and safety. Medians also contribute to traffic operational efficiency by directing turning vehicles to signalized or designated locations, minimizing disruptions to through traffic. In addition, medians can be landscaped or visually delineated to enhance roadway aesthetics, reinforce lane discipline, and clearly define the roadway environment for all users.



Goals:



- **Bus Stop Enhancements** include features designed to improve transit operations, safety, and accessibility. Bus pullouts provide a recessed area within the roadway where buses can stop outside the travel and bicycle lanes, reducing conflicts with through traffic and improving vehicle, cyclist, and pedestrian safety. Additional enhancements such as shelters, seating, shade structures, ADA-compliant bus pads, and locating stops within close proximity to crosswalks increase comfort and accessibility for all users, including those with mobility challenges. Collectively,



Goals:



these improvements support safe, predictable transit operations, encourage multimodal travel, and enhance the overall passenger experience.

- **Narrower Lanes** is a roadway design strategy that reduces the width of travel lanes to influence driver behavior, promoting lower vehicle speeds and increased driver attentiveness. By moderating traffic speeds, narrower lanes enhance safety for pedestrians, bicyclists, and other vulnerable road users while maintaining acceptable vehicle operations. The reduced lane width also creates opportunities to reallocate roadway space for multimodal improvements such as wider sidewalks, protected bike lanes, or landscaped buffers, contributing to a more organized and balanced street environment. This design approach supports safer, complete streets by integrating traffic calming with enhanced roadway functionality.

Goals:



- **Pedestrian-friendly driveway design** focuses on prioritizing pedestrian visibility and safety at driveway crossings. Design elements emphasize making pedestrians the focal point as they traverse driveways. Maintaining continuous ADA-compliant slopes promotes accessibility for all users, including those with mobility devices, while alerting drivers to the presence of pedestrians. By elevating the pedestrian crossing relative to the street, the design reduces vehicle speeds and creates a safe crossing environment at points where vehicles enter or exit roadways.



Goals:



- **Enhanced Street Lighting** provides brighter, more uniform lighting along roadway segments, at intersections, and across crosswalks to improve visibility for all road users. Improved lighting enables drivers to detect pedestrians, bicyclists, and other vulnerable users at greater distances, reducing the likelihood and severity of nighttime collisions. Properly designed lighting also minimizes glare and dark spots, enhances contrast and color recognition, and provides consistent visibility across the roadway and sidewalks. Enhanced lighting increases user comfort and perceived security, encouraging walking and biking and supporting multimodal transportation.



Goals:



INTERSECTION IMPROVEMENTS

The 1st Avenue Complete Street Project implements the safety and mobility treatments described in the previous section at key intersections along the corridor. Intersection treatments were selected based on future traffic demand, safety considerations, and operational needs. The corridor-wide improvements described previously were incorporated at intersections, and additional capacity improvements were included where warranted. Key intersection improvements include:

- Dedicated right-turn lanes to reduce rear-end collisions and improve traffic flow.
- Dedicated left-turn lanes, including protected dual left-turn lanes at select locations, to increase capacity and reduce delay.
- Channelized right-turn lanes with raised crosswalks improve pedestrian visibility and safety while maintaining vehicle operations.

Table 21 provides an overview of the preliminary intersection improvements along the corridor, which may be revised as project design progresses. More detailed descriptions, schematics, and images of each intersection and its associated improvements are also provided.

Table 21: Improvements used at 1st Avenue Intersections

	Glenn St	Ft Lowell Rd	Prince Rd	Roger Rd	Limberlost Dr	Wetmore Rd	River Rd
Leading Pedestrian Interval	X			X	X		
Protected-Only Left-Turn Phasing						X	X
FYA / Pedestrian Protected-Only Phasing		X	X	X	X	X	
High-visibility crosswalks	X	X	X	X	X	X	
Protected intersections	X			X	X		
Channelized right-turn lanes with raised crosswalks		X	X			X	X
Bus Stop Enhancements		X	X	X	X	X	

Glenn Street

At Glenn Street, the project will implement a LPI, high-visibility crosswalks, and a protected intersection. The LPI and protected intersection enhance safety for pedestrians and bicyclists by separating movements and increasing visibility. The protected intersection also provides a safe crossing for users of the existing bike lanes on Glenn Street as they cross 1st Avenue. The existing vehicle lane configuration is adequate to handle projected traffic volumes and maintain efficient operations.



- Leading Pedestrian Interval
- Protected Intersection

- High Visibility Crosswalks

Fort Lowell Road

At the Fort Lowell Road intersection, channelized right-turn lanes (northbound, southbound, and westbound) with raised crosswalks will improve traffic flow and safety for pedestrians by shortening crossing distances. In addition, a new protected pedestrian signal phase (with Flashing Yellow Arrow) will be implemented: when pedestrians activate the crosswalk signal, left-turn movements will be held by a solid red arrow, promoting a safer crossing for vulnerable road users using the crosswalk. When no pedestrians are present, permissive left-turn movements are accommodated via a flashing yellow arrow. The project also proposes installing bus pullouts on the far sides of the intersection.



- Channelized Right-turn Lanes (NB, SB, and WB)
- FYA & Protected Pedestrian Signal Phase
- Raised Crosswalks (NB and SB)
- Bus Pullouts

Prince Road

The intersection of 1st Avenue and Prince Road will include a channelized right-turn lane with a raised crosswalk for the northbound approach and a traditional right-turn lane for the southbound approach to maintain traffic flow while minimizing impacts to adjacent businesses. The existing near-side northbound bus stop will be relocated to the far side of the intersection, with a bus pullout installed to reduce conflicts between buses and through traffic. A Flashing Yellow Arrow (FYA) and protected pedestrian signal phase will separate pedestrian movements from left-turning vehicles, improving safety and intersection operations.



- Channelized Right-turn Lanes (NB)
- Right-turn Lane (SB)
- FYA & Protected Pedestrian Signal Phase
- Raised Crosswalk (NB)
- Bus Pullouts

Roger Road

1st Avenue and Roger Road will be converted to a protected intersection, featuring elements that separate motorized and non-motorized users to create a safer, more comfortable experience. The project proposes converting the in-lane bus stop located north of the intersection to a bus pullout for the northbound transit service. The pull-out will also serve as a new right-turn lane for the Fry's Food and Drug shopping center. Additional improvements include FYA and protected pedestrian signal phasing and a new dedicated westbound right-turn lane to accommodate future traffic demand.



- Protected Intersection
- FYA & Protected Pedestrian Signal Phase
- Bus Pullout / Access Turn Lane (Fry's)
- WB Right-Turn Lane

Limberlost Drive

The intersection at Limberlost Drive will be converted to a protected intersection, featuring raised islands that separate motorized and non-motorized users. The protected intersection will tie into the proposed bike lanes along Limberlost Drive. The project also proposes converting the in-lane bus stop located south of the intersection to a bus pullout for the southbound bus route. Signal phasing will also be improved to include Flashing Yellow Arrow and a protected pedestrian phase.



- Protected Intersection
- FYA & Protected Pedestrian Signal Phase
- Bus Pullouts

Wetmore Road

At the Wetmore Road intersection, the project proposes installing a second northbound left-turn lane and upgrading the signal system to manage increasing traffic demand better. With the addition of a second left-turn lane, the northbound and southbound approaches will now operate with protected-only left turn phasing. This intersection's existing southbound channelized right-turn lane will be upgraded, a raised crosswalk added, and a new channelized right-turn lane with a raised crosswalk added to the eastbound approach.



- Channelized Right-Turn (EB)
- Dual Left-turn Lanes (NB)
- Raised Crosswalks (SB and EB)
- Protected Left-Turns (NB and SB)

River Road

At River Road, the northbound left- and right-turn lanes will be extended to accommodate more vehicles. This improvement will allow vehicles to enter the turn lanes farther from the intersection to avoid “queue starvation”, which happens when queues from through traffic prevent vehicles from accessing turn lanes during the movement’s green phase. Pedestrian refuge islands will be added or upgraded to reduce pedestrian crossing distances and create a more compact intersection, enhancing safety for all users. The project also proposes signal phasing and intersection timing updates, including adding a right-turn overlap for the westbound right-turn. This will provide westbound right-turning vehicles with a green arrow during the protected southbound left-turn phase, increasing capacity for the significant demand expected for this movement in 2045.



- Channelized Right-Turn (SB)
- Extend Dual Left-turn Lane (NB)

- Right-turn Overlap (WB)
- Extend Right-turn (NB)

CORRIDOR IMPROVEMENTS

In addition to the intersection improvements described above, the 1st Avenue Complete Streets Project includes safety and mobility treatments to be implemented along the 1st Avenue corridor. Specific corridor treatments include:

- **Continuous Sidewalk** – The project proposes to construct a continuous sidewalk along the length of the corridor, filling in numerous gaps along business frontages and vacant parcels. Generally, sidewalks will be six feet wide and separated from the vehicular and bicycle travel way by landscaped buffers.
- **Protected or Buffered Bike Lanes** – Protected (physically separated) bike lanes are proposed for a majority of the corridor. Between Prince Road and Roger Road, buffered bike lanes are proposed (six-foot wide with a two-foot buffer), based on available right-of-way. Across the Rillito River bridge, a separated twelve-foot-wide multi-use path is proposed to accommodate both pedestrians and bicyclists; this is in addition to a six-foot-wide bicycle lane proposed for the roadway, adjacent to vehicle travel lanes.
- **Raised Median** – Much of the corridor travel lanes will be separated by a sixteen-foot-wide raised concrete median. Between Prince Road and Roger Road, the existing two-way-left-turn lane (TWLTL) will remain; however, short, ten-foot-wide intermittent median islands are proposed.
- **HAWKs and BikeHAWKs** – Five additional HAWK or BikeHAWK crossings are proposed along the corridor at the following locations (as shown in **Figure 35** below): Halcyon Road, Pastime Road, Calle Arizona, Rillito Crossing Marketplace (LA Fitness shopping center), and Bromley Street.
- **Enhanced Street Lighting** – Street lighting will be enhanced throughout the length of the corridor.
- **Speed Feedback Signs** – Speed feedback signs will be installed at multiple locations along the corridor.
- **Narrower Lanes** – Vehicle travel lanes along the corridor will be narrowed to 10 or 11 feet in most locations (inside lanes and turn lanes are typically 10 feet; outside lanes are 11 feet).
- **Bus Pull Outs** – Bus pull-out will be included at locations with the highest transit demand, including the following locations: Fort Lowell Road (NB & SB), Prince Road (NB & SB), Roger Road (NB), and Limberlost (SB).

Figure 35 illustrates the strategic distribution of proposed signalized pedestrian crossings throughout the corridor, providing safe crossing opportunities for people walking and biking.

Figure 35: Map of Planned Corridor Improvements



Access Management

The proposed raised median will impact direct left-turn access to some properties along 1st Avenue. Access to major unsignalized intersections and driveways along the corridor within the study limits was evaluated based on spacing and turn-lane requirements, traffic demand, the number of access points available to residential or commercial development, and special access requirements dictated by the predominant type of vehicle accessing the property. This evaluation was conducted in accordance with the criteria outlined in the City of Tucson's *Transportation Access Management Guidelines*.

These access management guidelines provide minimum spacing requirements for unsignalized median openings to provide safe and efficient traffic flow. For roadways with a 30-mph speed limit, the minimum spacing between unsignalized median openings is 370 feet (**Table 22**, Table 4-2 of the Guideline). On urban arterials, a larger spacing of 660 feet is recommended to accommodate higher traffic volumes (**Table 23**, Table 4-3 of the Guideline). These guidelines help balance access needs with traffic safety and efficiency. The spacing requirements outlined in the City of Tucson's *Transportation Access Management Guidelines* were utilized to develop an initial layout with proposed median opening locations.

Table 22: Minimum Spacing Between Unsignalized Median Openings (City of Tucson)

Speed Limit(mph)	Minimum Spacing (feet)
30	370
35	460
40	530
45	670
50	780
55	910

Source: *Transportation Access Management Guidelines*, City of Tucson

Table 23: Guidelines for Spacing Median Openings (City of Tucson)

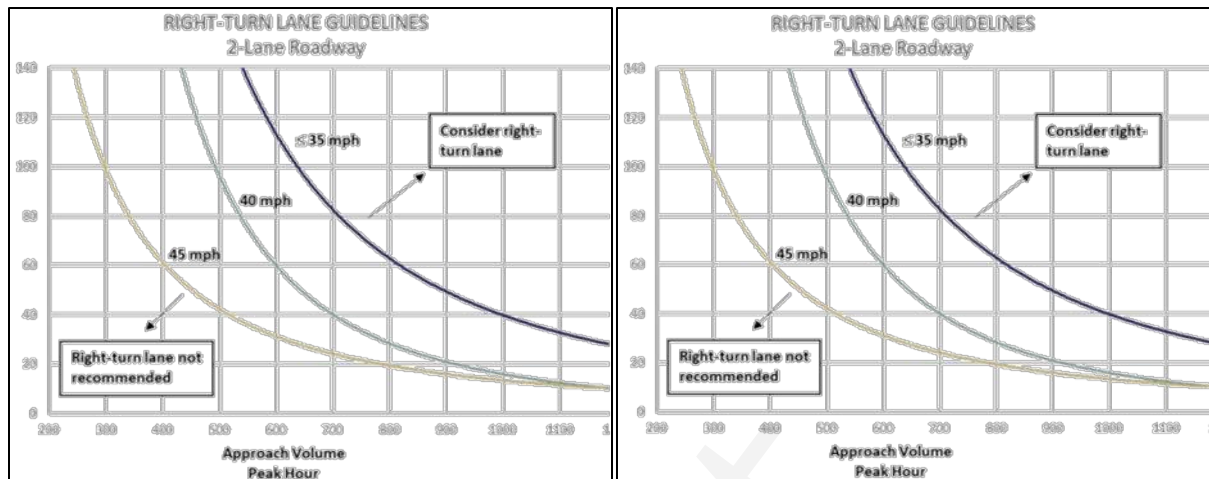
Street Functional Classification	Spacing of Median Openings (in feet)		
	Urban	Suburban	Rural
Arterial	660	660	1320
Collector	330	660	1320

Source: *Transportation Access Management Guidelines*, City of Tucson

Turn Lane Warrant Analysis

Turn lane warrants were assessed for each signalized intersection along the corridor and at key commercial driveways to determine if dedicated turn lanes are warranted. This assessment used the City of Tucson's *Street Design Guide* for providing right-turn lanes, as shown in **Figure 36**.

Figure 36: City of Tucson Right-Turn Lane Warrant Guidelines for Two-Lane and Four-Lane Roadways



Source: Street Design Guide (2021). City of Tucson

All intersection turn lane improvements described in the previous section met the turn lane warrant thresholds presented in **Figure 36**. Driveways into two additional commercial shopping centers were analyzed to determine whether existing turn lanes were needed or new ones were warranted.

- Two access points off 1st Avenue currently serve the Fry's Food & Drug shopping center on the northeast corner of 1st Avenue and Roger Road. The southern driveway, a full-access driveway that acts as the primary access for the Fry's gas station, does not currently have a dedicated right-turn lane. The northern driveway is a right-in-right-out access point that currently includes a dedicated northbound right-turn lane into the shopping center. Based on projected volumes at these driveways, a right-turn lane will be warranted at the southern driveway but not at the northern driveway. The project proposes to eliminate the existing turn lane at the north driveway, and for southern driveway to a dual-purpose turn lane that acts as a right-turn lane into the shopping center and a bus pull-out for the existing transit stop.
- Three access points off 1st Avenue currently serve the Rillito Crossing Marketplace, which includes LA Fitness and Sprouts Farmers Market. The two southern driveways are full-access, while the northern driveway is right-in-right-out only. All three driveways currently have a dedicated right-turn lane. Based on projected volumes at the south and central driveways, these turn lanes are warranted and would remain with the addition of the project under Build conditions, but a final recommendation will be provided to balance the needs of all road users.

Multimodal Volume Projections

2045 Build volumes for vehicles, pedestrians, and bicyclists were developed using the 2045 No-Build conditions (previously presented in this report) as a baseline. This section details the assumptions for each volume projection and how they differ from No-Build conditions.

VEHICLE TRAFFIC VOLUMES

The 2045 traffic volumes developed as part of the No-Build conditions analysis are not expected to change with the addition of Project improvements. Since the proposed corridor improvements do not significantly alter the roadway's configuration or fundamental characteristics, vehicle trips are not expected to re-route to or from the corridor under Build conditions.

Generally, intersection and corridor volumes are expected to be equivalent between No-Build and Build conditions. However, with the introduction of a raised median along much of the corridor, some vehicles making left-turn movements to access businesses will now make a U-turn at the next closest median opening or signalized intersection to access the same location.

PEDESTRIAN AND BICYCLIST VOLUMES

Pedestrian and bicyclist volumes for 2045 Build conditions were developed using existing counts collected in March 2024. Those counts show that both pedestrian and bicyclist volume peak hours do not coincide with vehicle peak hours. To analyze existing conditions along the corridor, the pedestrian and bicyclist volumes observed during the vehicle peak period were used, as presented in the Existing Conditions section of this report. The existing multimodal counts observed during the pedestrian and bicyclist peak hours are significantly higher – based on discussion with City of Tucson staff, these existing peak counts are used to represent pedestrian and bicyclist volumes under 2045 Build Conditions. The expected 2045 Build Conditions pedestrian and bicyclist volumes are presented in **Table 24**.

Table 24: Peak-Hour Intersection Pedestrian and Bicyclist Projections - 2045 Build Conditions

1st Avenue Intersection	Pedestrian Volumes		Bicyclist Volumes	
	AM	PM	AM	PM
River Road	14	14	5	3
Bromley Street HAWK	3	17	5	5
Wetmore Road	24	54	8	13
Rillito Crossing Marketplace HAWK	3	21	4	6
Limberlost Drive	28	33	6	10
Calle Arizona HAWK	4	19	4	7
Roger Road	20	54	4	10
Prince Road	32	55	6	13
Graybill Drive BikeHAWK	33	51	7	11
Halcyon Road HAWK	21	35	6	14
Fort Lowell Road	118	182	9	21
Blacklidge Drive BikeHAWK	12	22	13	13
Glenn Street	26	44	11	16
Jacinto Street BikeHAWK	13	17	12	7
Grant Road	42	109	11	13

Note: Bicyclist volumes include both bicyclists riding on the roadway and bicyclists crossing within the crosswalk.

TRANSIT PROJECTIONS

Based on discussion with Sun Tran staff, no changes to transit headways or frequencies, or additional lines, have been assumed for future 2045 conditions. Transit improvements include bus pullouts at the highest-ridership locations and optimizing stop locations based on Sun Tran bus stop spacing guidelines.

Future 2045 Build Traffic Operations

A traffic analysis was conducted for each study intersection along the corridor and for the roadway itself to understand how vehicle operations may change between No-Build and Build Conditions in 2045.

Many of the project improvements are targeted at increasing transportation options and safety for vulnerable road users but do not impact traffic operations for drivers. Improvements such as adding new sidewalks or bicycle facilities, enhancing street lighting, speed feedback signs, or bus stop amenities improve mobility and accessibility along the corridor but do not affect vehicle traffic operations and are therefore not included in the traffic model or analysis.

The following project components impact vehicle traffic operations and were accounted for in the Build 2045 Conditions traffic model.

- Project components that enhance vehicle operations
 - Dual left-turn lanes at the northbound approach at Wetmore Road
 - Signal phasing modifications at River Road and Wetmore Road
 - Dedicated right-turn lane additions at the following locations
 - Northbound and southbound approaches at Fort Lowell Road
 - Northbound and southbound approaches at Prince Road
 - Westbound approach at Roger Road

- Bus pullouts at key ridership locations

■ **Project components that enhance safety and mobility**

- Additional HAWK/BikeHAWK pedestrian and bicyclist crossings
- New protected pedestrian signal phases at Wetmore Road, Prince Road, and Fort Lowell Road.
- Conversion of two-way-left-turn lane to raised median

It should be noted that the City of Tucson is planning to use adaptive signal technology, which has demonstrated benefits to traffic operations, but is not accounted for in the Build Conditions model.

INTERSECTION OPERATIONS

The following section presents the results of the intersection operations analyses conducted using Synchro and Vissim software.

Synchro Results

Table 25 presents the 2045 Build peak-hour intersection operations Synchro results for the signalized intersections along the 1st Avenue study corridor. As shown in the table, all intersections along the corridor are expected to operate at LOS D or better, which meets the City's design standards⁸. All intersections operate at the same level of service under Build conditions as they do under No-Build conditions.

Synchro worksheets for Year 2045 Build conditions are presented in Appendix G.

Table 25: Year 2045 Peak Hour Intersection Operations Results (Synchro)

Intersection with 1 st Avenue	Weekday AM Peak Hour				Weekday PM Peak Hour			
	No-Build		Build		No-Build		Build	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
River Road	48.6	D	48.4	D	53.2	D	54.3	D
Wetmore Road	25.8	C	25.4	C	34.7	C	26.1	C
Limberlost Drive	17.8	B	18.8	B	24.7	C	24.8	C
Roger Road	20.4	C	23.5	C	25.1	C	26.6	C
Prince Road	25.4	C	24.6	C	27.6	C	28.1	C
Fort Lowell Road	26.8	C	24.5	C	28.9	C	26.7	C
Glenn Street	11.5	B	11.6	B	10.9	B	11.0	B
Grant Road	22.6	C	22.2	C	27.9	C	27.9	C

Source: *Highway Capacity Manual, 2000*

Vissim Results

As previously mentioned, a Vissim model was developed to understand operating conditions along the corridor better. The microsimulation analysis conducted for the 2045 Build scenario is better able to model multimodal operations for pedestrians, bicyclists, and transit vehicles. It can factor in specific

⁸ LOS D is designated as the level of service threshold in the City of Tucson's *Transportation Access Management Guidelines* (2017) and *Street Design Guide* (2021)

Project characteristics that the Synchro model cannot account for. These characteristics are described below.

- The introduction of a raised median along much of the corridor eliminates some mid-block left-turn movements that were previously permitted via a TWLTL. These left-turn movements are now assumed to be U-turn movements at the nearest median opening or signalized intersection. The Vissim model can capture the impact of this median improvement at the corridor level through vehicle and transit travel times along the corridor.
- Adding several HAWK and BikeHAWK signals along 1st Avenue has the potential to impact traffic flow between traffic signals along the corridor and could affect vehicle travel times and intersection operations. The Vissim model accounts for the interaction between signals along the corridor and how pedestrians and cyclists activating new HAWK and BikeHAWK signals may influence traffic operations.

Table 26 presents the 2045 Build peak-hour intersection operations Vissim results for the signalized intersections along the 1st Avenue study corridor. As shown in the table, the level of delay at each intersection under Build conditions is similar to the delay under No-Build conditions. During the AM peak hour, all intersections are anticipated to maintain the same level of service, except for 1st Avenue & Limberlost Drive, which is expected to operate acceptably at LOS C (LOS B in No-Build). During the PM peak hour, all intersections are expected to maintain the same or better level of service compared to No-Build conditions.

Table 26: Year 2045 Peak Hour Intersection Operations Results (Vissim)

Intersection with 1 st Avenue	Weekday AM Peak Hour				Weekday PM Peak Hour			
	No-Build		Build		No-Build		Build	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
River Road	45.1	D	44.1	D	62.2	E	54.2	D
Wetmore Road	24.5	C	28.1	C	43.2	D	34.8	C
Limberlost Drive	14.3	B	20.4	C	36.9	D	24.8	C
Roger Road	17.7	B	16.6	B	40.8	D	27.4	C
Prince Road	23.1	C	23.8	C	32.1	C	31.1	C
Fort Lowell Road	27.1	C	31.6	C	31.4	C	33.7	C
Glenn Street	11.0	B	15.2	B	14.4	B	14.5	B
Grant Road	19.1	B	19.4	B	24.8	C	25.3	C

Source: Vissim

Under No-Build conditions, one intersection (1st Avenue and River Road) would operate below LOS D at the intersection level (as modeled in Vissim), and two other intersections would have individual movements expected to experience high levels of delay. Those deficiencies, and how the delay and LOS for those intersections and movements differ between No-Build and Build conditions, are described below.

- **1st Avenue & River Road**— Under 2045 No-Build conditions, the intersection is anticipated to operate at LOS E during the PM peak hour, and the northbound approach would experience excessive queueing during the PM peak hour. With the implementation of Project components such as signal phasing improvements, westbound right-turn overlap, and turn-lane extensions, operations at the intersection are expected to improve to LOS D.
- **1st Avenue & Wetmore Road** – Under 2045 No-Build conditions, the intersection is anticipated to operate at LOS C and LOS D during the weekday AM and weekday PM peak hours, respectively; however, the northbound approach would operate with extensive queueing and delays associated with the northbound left-turn in the PM peak hour. Under Build conditions, the implementation of dual northbound left-turn lanes increases capacity for this movement and significantly reduces delay, reducing the intersection LOS from D to C.
- **1st Avenue & Roger Road** - Under 2045 No-Build conditions, the intersection is anticipated to operate at LOS B and LOS D during the weekday AM and weekday PM peak hours, respectively; however, the westbound right-turn and left-turn movements are anticipated to operate at LOS F during the weekday PM peak hour. Under Build conditions, the addition of a dedicated westbound right-turn lane alleviates congestion and reduces delay for the westbound approach and for the intersection, enhancing operations from LOS D to LOS C.

A comparison of Synchro and Vissim delay and LOS at the movement level for the 2045 Build conditions is included in Appendix H.

INTERSECTION QUEUEING ANALYSIS

The Pima County / City of Tucson's *Signing and Pavement Marking Manual* (2020) recommends using 95th percentile queue analysis to determine left and right-turn lane storage lengths. Accordingly, queueing analyses were conducted for the study intersections to calculate storage demands for 2045 Build conditions. Synchro provides 50th percentile (median) and 95th percentile back-of-queue lengths. As noted earlier, the Vissim model includes pedestrian, bicyclist, and transit bus iterations, along with physical features such as raised crosswalks at channelized right-turn lanes. As a result, Vissim was used to evaluate operations at a microscopic level to estimate average (mean) and maximum queue lengths.

Table 27 summarizes Synchro 50th and 95th percentile peak-hour queue lengths and Vissim average and maximum peak-hour queues. Results are highlighted in yellow and orange where queue lengths are expected to exceed available storage or where turn movements are anticipated to be blocked by through lane traffic.

Turn lane storage length recommendations were developed using the minimum left- and right-turn lane requirements from the *Signing and Pavement Marking Manual* and engineering judgment that considered the Synchro 95th percentile queues, the Vissim average and maximum queue lengths. For right-turn lanes, storage recommendations accounted for the adjacent bicycle lane. The recommended storage lengths are presented in **Table 27**.

Table 27: 2045 Build Conditions – Peak-Hour Queue Lengths (ft)

Intersection		MOE	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Glenn Street	Synchro	50th %	50	150	--	100	200	--	25	50	--	25	50	--
		95th %	100	200	--	150	275	--	25	100	--	25	75	--
	Vissim	Avg.	25	50	50	25	100	100	25	50	50	25	50	50
		Max	125	325	325	150	425	425	75	325	325	150	575	575
	Recommended		110		--	150		--	110		--	110		--
Fort Lowell Road	Synchro	50th %	50	250	--	75	275	0	25	200	0	125	175	0
		95th %	100	375	--	175	400	0	50	275	0	175	225	0
	Vissim	Avg.	75	125	125	75	125	25	25	125	25	75	175	50
		Max	325	475	475	350	525	200	150	700	500	375	900	625
	Recommended		150		--	175		110	150		110	200		110
Prince Road	Synchro	50th %	75	225	--	50	225	--	50	150	0	125	500	25
		95th %	125	325	--	75	375	--	100	175	0	150	500	25
	Vissim	Avg.	75	125	125	25	125	125	50	150	50	50	100	25
		Max	300	450	450	175	400	400	225	800	525	375	775	500
	Recommended		150		--	110		--	175		110	225		110
Roger Road	Synchro	50th %	50	225	--	50	175	25	25	250	--	75	550	--
		95th %	75	350	--	100	275	75	25	300	--	100	625	--
	Vissim	Avg.	25	100	100	25	100	25	25	125	150	25	150	150
		Max	125	425	425	150	500	125	225	975	975	200	800	800
	Recommended		110		--	110		110	125		--	110		--

YELLOW =Exceeds capacity. ORANGE =Through lane blocking interaction.

Values represent the higher queue between the weekday AM and weekday PM peak hours.

Intersection		MOE	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Limberlost Drive	Synchro	50th %	50	125	--	100	125	25	25	550	--	50	325	--
		95th %	100	175	--	150	175	75	50	625	--	75	475	--
	Vissim	Avg.	25	50	50	50	50	25	25	100	100	100	150	150
		Max	125	275	275	200	225	175	125	775	775	825	825	850
	Recommended		110		--	175		110	125		--	200		--
Wetmore Road	Synchro	50th %	225	75	0	75	75	--	125	150	--	25	350	0
		95th %	350	125	0	125	125	--	150	475	--	50	625	0
	Vissim	Avg.	225	50	75	50	50	50	50	100	100	25	225	25
		Max	700	425	575	150	200	200	225	725	725	175	875	450
	Recommended		350		150	125		--	200		--	110		110
River Road	Synchro	50th %	100	400	25	200	525	400	150	450	125	200	350	0
		95th %	150	475	125	300	650	575	225	550	250	300	400	25
	Vissim	Avg.	50	150	25	100	275	100	75	325	100	100	150	25
		Max	175	625	175	325	1,100	675	250	1,200	825	300	475	125
	Recommended		175		175	300		400	300		300	300		125

YELLOW =Exceeds capacity. ORANGE =Through lane blocking interaction.
Values represent the higher queue between the weekday AM and weekday PM peak hours.

ROADWAY CORRIDOR LEVEL OF SERVICE

Level of service (LOS) was determined for the roadway corridor, using travel speed estimates calculated by the Vissim model. **Table 28** presents weekday AM and PM roadway travel times and level of service for 2024 existing conditions, 2025 existing conditions (with reduced posted speeds), and for the 2045 No-Build and Build conditions.

Safety improvements proposed by the project that affect corridor travel times and LOS include:

- Eight HAWKS or BikeHAWKS will be provided along the corridor, compared to only three under No-Build conditions. Since these crossings are pedestrian-activated and not coordinated with other signals along the corridor, vehicle travel times may increase during periods of high pedestrian activity.
- Implementing a yellow flashing arrow with pedestrian-protected-only phasing at multiple locations along the corridor may increase vehicle delay at signalized intersections.
- The introduction of a raised median along the length of the corridor will re-route existing left-turns into businesses along the corridor to the next available median break or signalized intersection, which may impact vehicle operations at these locations.

Table 28: Corridor Travel Time and Level of Service

Corridor Direction	Weekday AM Peak Hour				Weekday PM Peak Hour			
	2024 Analysis ¹	2025 Analysis ²	2045 No-Build	2045 Build	2024 Analysis ¹	2025 Analysis ²	2045 No-Build	2045 Build
Northbound (Travel Time)	05:56	07:33	07:47	08:25	06:56	08:36	11:10	09:22
Northbound (LOS)	B	C	C	C	C	C	D/E	D
Southbound (Travel Time)	06:17	07:44	08:03	09:07	06:46	08:31	08:40	09:07
Southbound (LOS)	C	C	C	D	C	C	C	D

Source: Highway Capacity Manual, 7th Edition

¹ 2024 Existing Conditions is based on a 40 MPH posted speed

² 2025 Existing Conditions is based on a 30 MPH posted speed

As shown in the table, northbound operations on the corridor, particularly during the weekday PM peak hour, which represents the highest traffic volumes and the critical direction and period, are expected to maintain or improve the level of service and significantly improve travel times under Build conditions. During the weekday PM peak hour, improvements associated with the dual northbound left-turn lanes at Wetmore Road outweigh any traffic impacts associated with multimodal improvements, resulting in a significantly better travel time along the corridor. Traffic operations for the southbound direction, however, degrade slightly under Build conditions during both peak hours, from LOS C to LOS D. Although travel times increase slightly during peak hours for southbound traffic, the level of service remains acceptable and within City standards (LOS D or better).

TRANSIT OPERATIONS

Quality of service (QOS) for transit vehicles along the corridor was determined, using transit travel speeds estimated by the Vissim model. These travel speeds were compared to the total vehicles' travel speeds to understand transit competitiveness along the corridor. The ratio between transit travel time and vehicle travel time provides insight into transit operations; lower ratios mean that transit vehicles are able to move along the corridor at speeds similar to passenger vehicles, which supports transit as a reliable and timely option. **Table 29** provides definitions for each transit level of service based on ratios between transit travel time and automobile travel time.

Table 29: Transit Quality of Service Definitions

Transit Quality of Service ¹	Transit Vehicle to Automobile Travel Time Ratio	Description
QOS A	Less than 1.00	Transit is competitive with automobiles
QOS B	1.00 to 1.25	Transit is slightly slower than automobiles
QOS C	1.25 to 1.50	Transit is moderately slower than automobiles
QOS D	1.50 to 1.75	Transit is significantly slower than automobiles
QOS E	1.75 to 2.00	Transit is much slower than automobiles
QOS F	Greater than 2.00	Transit is uncompetitive with automobiles

Source: Transit Capacity and Quality of Service Manual, 3rd Edition

¹ The Transit Capacity and Quality and Service Manual does not provide A through F "grades" of QOS, as shown in the table. These grades were assigned to each QOS level to simplify the presentation of results in Table 12.

Table 30 provides a comparison of transit quality of service results under 2025 existing conditions, 2045 No-Build conditions, and 2045 Build conditions. This analysis focuses only on in-corridor transit travel time and does not include other door-to-door travel components. Under both No-Build and Build conditions, transit travel times in 2045 are expected to be closer to travel times of automobiles on the corridor, compared to existing conditions.

Table 30: Transit Quality of Service

Corridor Direction	Weekday AM Peak Hour			Weekday PM Peak Hour		
	2025 Existing ¹	2045 No-Build	2045 Build	2025 Existing ¹	2045 No-Build	2045 Build
Northbound	E	E	D	E	D	C
Southbound	D	C	C	C	C	C

Source: Transit Capacity and Quality of Service Manual, 3rd Edition

¹ 2025 Existing Conditions is based on a 30 MPH posted speed

PEDESTRIAN OPERATIONS

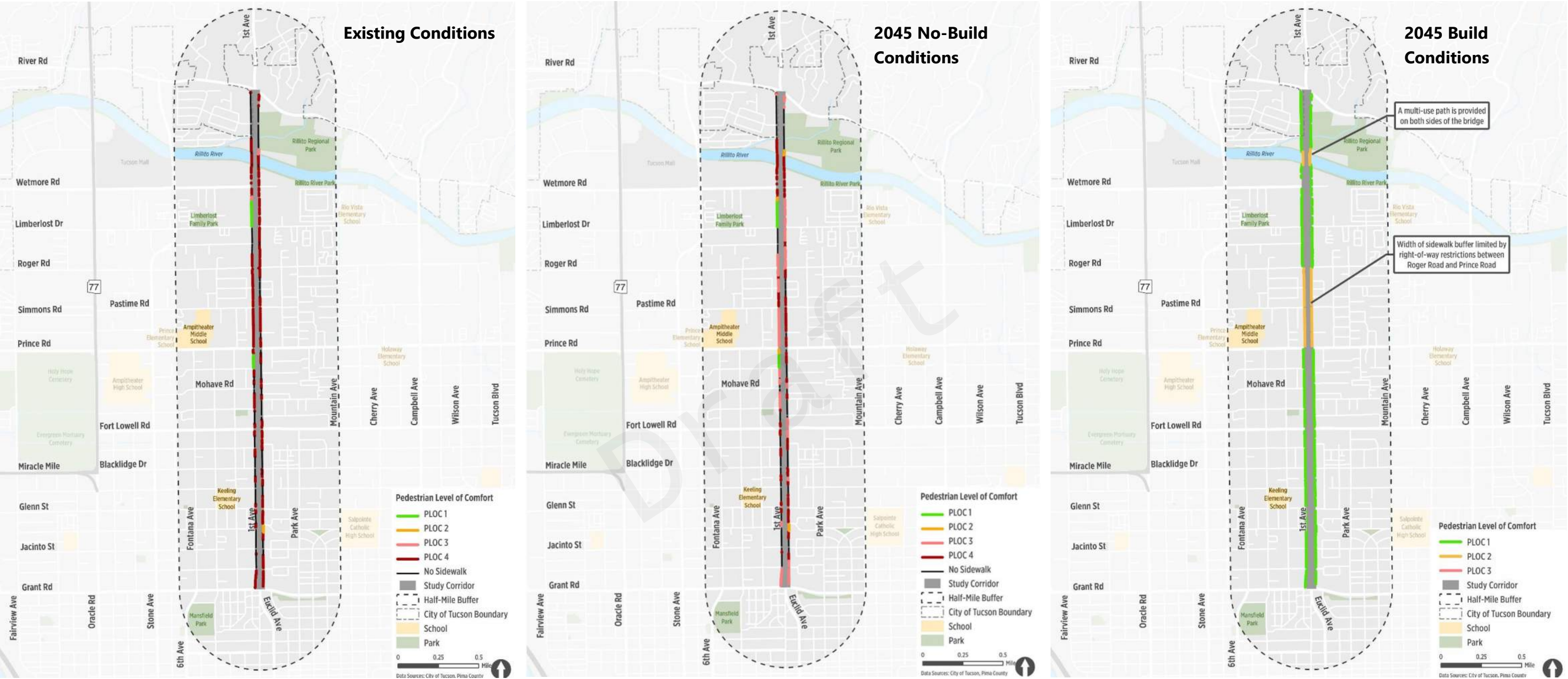
Under existing 2024 conditions, the PLOC along the study corridor is largely PLOC 4. The corridor in some segments includes 4 to 5-foot sidewalks with little to no buffer on a roadway with a speed limit of 40 or 45 miles per hour.

Under 2045 No-Build conditions, the corridor was assessed with no roadway changes or improvements to pedestrian facilities but with a reduction in speed limit along the corridor (30 MPH). Pedestrian comfort under No-Build conditions reduced to PLOC 3 where 5-foot sidewalks were present, but otherwise remained at PLOC 4.

Under 2045 Build conditions, pedestrian level of comfort is significantly improved. For much of the corridor, the implementation of wide landscaped buffers and 6-foot sidewalks improves the PLOC to PLOC 1. Two locations along the corridor would operate with slightly worse PLOC scores. Between Prince Road and Roger Road, right-of-way restrictions narrowed the proposed buffer between the bike facility; however, a 3-foot bike buffer will still allow for vertical separation from the roadway. On the Rillito River Bridge, the available right-of-way will be used to prioritize a separated multi-use path with a barrier for bicyclists and pedestrians on both sides, while also accommodating on-road bike facilities.

Figure 37 compares the Pedestrian Level of Comfort scores along 1st Avenue between existing conditions, 2045 No-Build conditions, and 2045 Build conditions.

Figure 37: Pedestrian Level of Comfort Along the Corridor – Existing vs. 2045 No-Build vs. 2045 Build



BICYCLE OPERATIONS

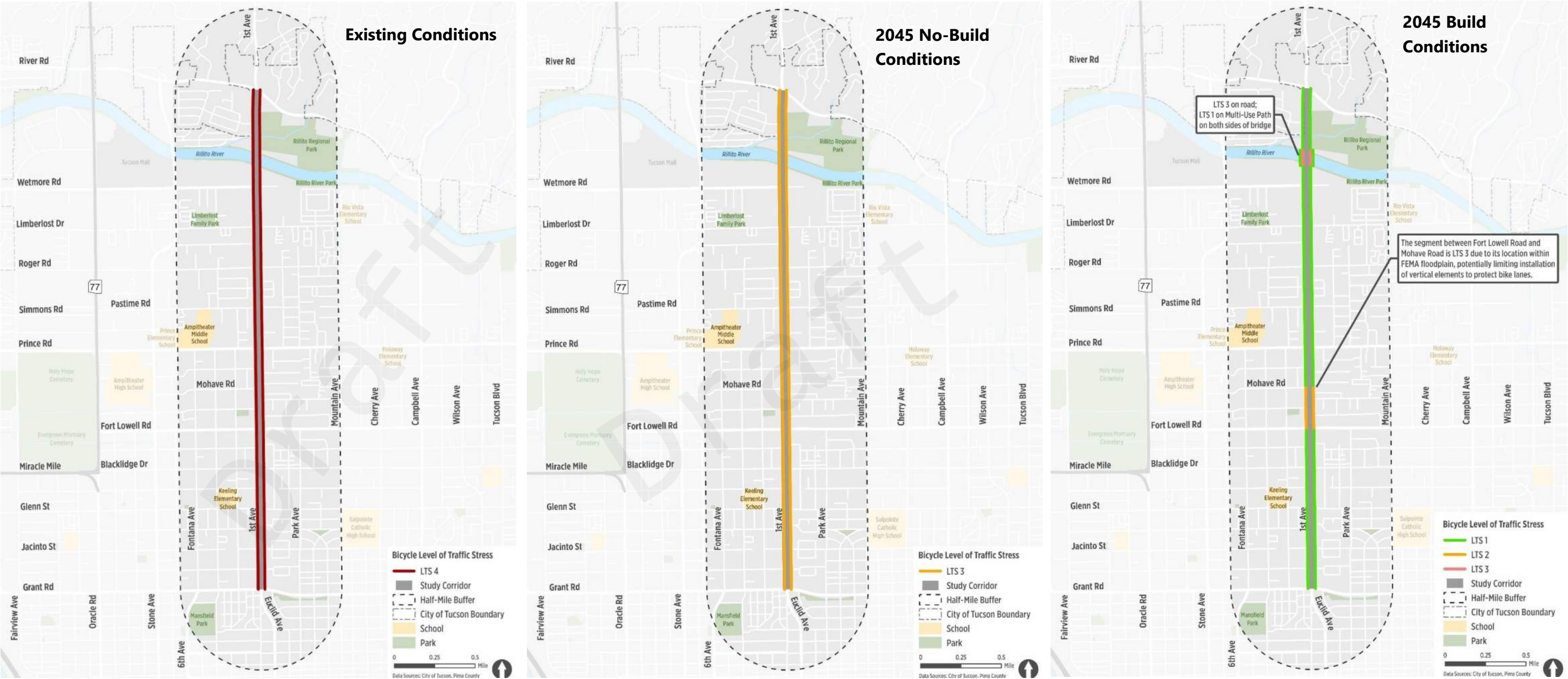
Under existing 2024 conditions, the entire length of the study corridor from Grant Road to River Road is categorized as BLTS 4, due to 1st Avenue's speed limit (40+ MPH), number of lanes, and lack of buffered or protected bicycle facilities.

Under 2045 No-Build conditions, the BLTS along the corridor lowers to BLTS 3, based solely on the reduction in posted speeds, which still reflects a relatively high level of traffic stress for bicyclists. It is important to note that the No-Build conditions do not include any bicycle infrastructure improvements.

Under 2045 Build conditions, BLTS is significantly improved. For much of the corridor, new protected bicycle facilities provide increased comfort and safety for bicyclists, resulting in a BLTS score of 1. Between Fort Lowell Road and Mohave Road, buffered bike lanes reduce BLTS from No-Build conditions to BLTS 2. If concrete medians or raised barriers cannot be accommodated, other forms of vertical protection such as flex posts or K71-style delineators may be incorporated. Along the Rillito Bridge, bicyclists using on-road bicycle lanes will experience a higher level of traffic stress (BLTS 3); however, bicyclists may also utilize the wide sidewalk/multi-use path proposed by the project to provide further separation from vehicles (BLTS 1).

Figure 38 present the existing, No-Build, and Build Bicyclist Level of Traffic Stress scores along 1st Avenue for comparison.

Figure 38: Existing Bicyclist Level of Traffic Stress Along the Corridor



7. Conclusion & Recommendations

KEY FINDINGS

This section summarizes the principal findings of this report, including project goals and study framework, data collection and methodology, existing multimodal conditions, safety evaluation, and 2045 future condition scenarios. Together these study components provide an integrated understanding of existing and future corridor performance across all users and modes. The findings presented below reflect consistent themes identified throughout the study and form the basis for the recommendations that follow. The following details the key findings of this traffic report.

■ Project Background & Goals

- The improvements associated with the 1st Avenue Improvement Project are the result of years of planning and have shifted significantly since the project was first identified as part of the 2006 RTA Plan. Originally a plan to widen 1st Avenue to increase vehicle capacity, the plan and its goals have been updated to meet the needs and long-term vision for the corridor based on Complete Streets principles.
- Six project goals were developed by the project team, the 1st Avenue Improvement Project Task Force, and community members that reflect community priorities and needs. The goals demonstrate the community's desire to prioritize multimodal safety, provide active transportation infrastructure, and improve the quality of the pedestrian and bicycling environment.

This project applies Complete Streets principles to modernize 1st Avenue into a safer and more accessible multimodal corridor that accommodates all users

■ Literature Review & Best Practices

- A literature review was conducted to provide the foundational context for the 1st Avenue corridor project through a review of city and regional transportation plans, Complete Streets policies, and multimodal design standards. The literature review confirmed that city and regional plans support the Complete Streets approach to 1st Avenue; that 1st Avenue's crash history and designation as part of the High Injury Network reinforces a need for enhanced safety features; that the corridor serves lower income and transit-dependent populations; and that 1st Avenue plays an important role in the city's transit network and should provide safe multimodal access to regional transit.
- Case studies from comparable arterial roadways in Arizona and Washington demonstrate that lane repurposing and Complete Streets strategies can improve safety and multimodal conditions without significantly degrading traffic operations.

■ Data Collection & Methodology

A comprehensive multimodal dataset was assembled to support operational and safety analysis. Key findings related to data collection and methodology include:

- Comprehensive Multimodal Data: The study incorporated traffic volumes (TMCs and 24-hour counts), vehicle classification, speeds, signal timing, crash history, near-miss events, transit ridership, INRIX travel time data, and Replica origin-destination data.
- Crash & Safety Data: Ten years of crash data were collected (2014-2023), with the most recent five years used for analysis. Nearly 2,000 near-miss events were captured through video analytics at high-priority intersections.
- Transit Data: Ridership data at 23 Sun Tran stops confirmed active transit use along the corridor.
- Multimodal Operations Analysis Methodology: These data support multimodal analyses, including vehicular level of service (LOS) through Synchro and VISSIM modeling software packages, Pedestrian Level of Comfort (PLOC), and Bicyclist Level of Traffic Stress (BLTS).

■ Existing Conditions

The existing conditions analysis establishes the operational, multimodal, and equity baseline for the corridor. It highlights current performance patterns and identifies key deficiencies affecting safety and comfort. Key findings from the existing conditions analysis include:

- The study area includes over 23,000 residents within a half-mile buffer and serves dense residential, commercial, school, and retail destinations. The corridor ranks moderate to high on the Equity Priority Index, indicating elevated social vulnerability.
- Travel Patterns: Approximately 82,000 weekday trips occur within the study area, with 78% made by automobile and roughly 12% by walking. Short trips remain heavily automobile-oriented despite high walk potential.
- Traffic Volumes: Daily volumes range from 22,000 to 33,000 vehicles, with approximately 29,600 vehicles per day corridor-wide. Traffic volumes have declined about 10% since 1998.
- Operational Performance: Most signalized intersections operate at LOS D or better during peak hours; however, several unsignalized intersections (e.g., Bromley Street, Blacklidge Drive, Jacinto Street) operate at LOS F during peak periods.
- Speed Profile: Average vehicle speeds are generally below posted limits (at the time of data collection), but 28–57% of vehicles exceed posted speeds in certain segments, particularly north of Grant Road.
- Pedestrian Conditions: Sidewalk coverage is incomplete (approximately 60%), many curb ramps are non-compliant (only ~34% with truncated domes), and most of the corridor is categorized as Pedestrian Level of Comfort (PLOC) 4 (undesirable). Fort Lowell and Grant Road show the highest pedestrian activity.
- Bicycle Conditions: Existing striped bike lanes lack separation and are classified as Bicycle Level of Traffic Stress (BLTS) 4, suitable primarily for confident riders. Bicycle volumes are modest, with higher activity near Glenn Street and Blacklidge Drive.
- Transit Activity: Sun Tran Route 6 serves 23 stops along the corridor, with the highest ridership at Fort Lowell Road and Grant Road.

■ Safety Analysis

The safety analysis identifies potential contributing factors, particularly for vulnerable road users (VRUs), and highlights locations where targeted design interventions are most critical. Key safety trends include:

- Between 2019 and 2023, 765 crashes occurred; 6.2% resulted in fatal or serious injury (FSI). Pedestrian crashes comprised 34% of serious injuries and 69% of fatalities. Overall, 52% of FSI crashes involved a pedestrian or bicyclist.
- Approximately 75% of crashes occurred within 250 feet of 12 intersections. The buffers to the north and south of these intersections total approximately 6,000 feet, representing about one-third of the corridor.
- Left-turn and angle crashes were most frequent. However, pedestrian, bicyclist, and head-on crashes had the highest severity rates. Nearly 39% of pedestrian crashes resulted in FSI.
- 70% of VRU crashes involved pedestrians crossing outside marked crosswalks, with many clustered between Fort Lowell and Pastime Road.
- Failure to yield contributed to 31% of crashes (23% of FSI crashes). Speeding was less frequent overall but more prevalent in high-severity crashes, indicating a strong relationship between speed and injury severity.
- Pedestrian crashes were overrepresented in dark conditions, reinforcing the need for enhanced pedestrian-scale lighting.
- Nearly 2,000 near-miss events were recorded in 24 hours at two intersections. Critical near-misses most often involved through-moving vehicles interacting with left-turning vehicles or right-turning vehicles interacting with pedestrians.
- Higher vehicle speeds were associated with lower Post-Encroachment Times (PET), increasing conflict severity. Many critical near-misses involved vehicles traveling at higher speeds through intersections.
- Partial 2024 data confirms continued concentration of crashes near intersections, high injury rates for VRUs, and failure to yield as the most common contributing factor.

■ 2045 Future Conditions

Future condition modeling evaluates corridor performance under projected growth through 2045, both without improvements (No-Build) and with multimodal enhancements (Build).

No-Build findings include:

- By 2045, daily volumes are expected to increase by about 10% (3,000 vehicles per day), with no geometric or multimodal improvements assumed.
- Most intersections operate at LOS D or better; however, localized PM peak issues occur at River Road (LOS E), Wetmore Road (northbound left-turn delay), and Roger Road (turn movement LOS F).
- Corridor-level operations decline to LOS D/E in the PM peak due to reduced travel speeds.
- Pedestrian comfort improves slightly on some segments and bicycle stress reduces marginally (BLTS 4 → 3), based solely on incorporating the lower posted speeds implemented by the City of Tucson in 2025. No additional bicycle/pedestrian infrastructure upgrades are assumed under No-Build conditions.

Build findings include:

- Study intersection operations are maintained under 2045 Build conditions (generally LOS D or better), while introducing Complete Streets design elements.
- Turn lane modifications, access management, and signal timing refinements address localized congestion identified under No-Build conditions.
- New sidewalk, enhanced crossings, and speed management substantially improve pedestrian level of comfort along the corridor.
- Implementation of protected or buffered bicycle facilities lowers traffic stress and improves corridor connectivity.

RECOMMENDATIONS

Based on the analysis of the existing and projected traffic demand, as well as safety and operational evaluations, the following recommendations should be considered for the 1st Avenue corridor from River Road to Grant Road.

Safety Enhancements

- **Implement Leading Pedestrian Intervals (LPIs)** at Glenn Street, Roger Road, and Limberlost Drive to increase pedestrian visibility and reduce conflicts with turning vehicles.
- **Install FYA and Pedestrian Protected-Only Phasing** at Fort Lowell Road, Prince Road, Roger Road, Limberlost Drive, and Wetmore Road to manage turning movements and reduce vehicle-pedestrian conflicts.
- **Add Protected Left-Turn Phasing** at Wetmore Road and River Road to accommodate dual left-turn lanes.
- **Provide High-Visibility Crosswalks** at signalized intersections along 1st Avenue to increase pedestrian visibility.
- **Include Channelized Right-Turn Lanes with Raised Crosswalks** at Fort Lowell Road, Prince Road, Wetmore Road, and River Road to slow turning vehicles and make pedestrians more visible to drivers.
- **Add HAWK and BikeHAWK Crossing Signals** to improve safety and connectivity at the following locations:
 - Bromley Street (HAWK)
 - Sprouts Driveway, between Limberlost Drive and Wetmore Road (HAWK)
 - Calle Arizona (HAWK)
 - Pastime Road (BikeHAWK)
 - Graybill Drive (BikeHAWK)
 - Navajo Road (HAWK)
 - Blacklidge Drive (BikeHAWK)
 - Jacinto Street (BikeHAWK)
- **Enhance Street Lighting** to increase nighttime visibility for all users.
- **Convert the TWLTL to a Raised Median⁹** to reduce conflict points, support access management, and provide pedestrian refuge.

Bicycle and Pedestrian Improvements

- **Construct Protected Bike Lanes** along the corridor to reduce bicyclist exposure to vehicles, improve bicyclist level of traffic stress, and enhance bicycle network connectivity.
- **Install Protected Intersections** at Glenn Street, Roger Road, and Limberlost Drive.
- **Use Pedestrian-Friendly Driveway Design** throughout 1st Avenue to limit conflicts at driveways.
- **Provide New Sidewalks** separated with a landscaped buffer along both sides of the corridor to close existing gaps in the pedestrian network.

⁹ Except for segment between Roger Road and Prince Road

Transit Upgrades

- **Enhance Bus Stops** to include shelters, seating, shade, lighting, and ADA/PROWAG-compliant boarding areas, where applicable.
- **Relocate Bus Stops** based on Sun Tran bus stop spacing guidelines to optimize stop locations and improve transit accessibility by reducing distances to pedestrian crossings.
- **Add Bus Pullouts** at high-ridership locations to reduce impacts to traffic while maintaining reliable transit service.

Speed Management

- **Narrow Travel Lanes** from 11 feet to 10 feet to encourage speed limit compliance among motorists and improve pedestrian and bicyclist comfort.
- **Install Speed Feedback Signs** to reinforce posted speed limits and increase driver awareness.

Operational Improvements

- **Add Dual-Left Turn and Dedicated Right-Turn Lanes** to accommodate turning demand and reduce delay.
 - Dual left-turn additions or extensions at the following signalized intersections:
 - Add a second left-turn lane at Wetmore Road
 - Extend dual left-turn lane storage at River Road
 - Dedicated right-turn lane additions at the following signalized intersections:
 - Northbound and southbound approaches at Fort Lowell Road
 - Northbound and southbound approaches at Prince Road
 - Westbound approach at Roger Road
 - Dedicated right-turn lane additions at the following unsignalized intersections may be required:
 - Fry's Food & Drug shopping center, north of Roger Road
 - Three driveways at LA Fitness / Sprouts shopping center, between Limberlost Drive and Wetmore Road (maintain existing turn lanes)
- **Provide Adequate Turn-Lane Storage Lengths** at signalized intersections to enhance intersection operations, based on minimum lengths shown in **Table 31** on the following page.
- **Implement Adaptive Signal Controls** throughout the corridor to dynamically adjust signal timing to accommodate real-time traffic demand.
- **Update Traffic Signal Phasing** to remove ring barriers at intersections operating with protected-only left turn phases.

Table 31: Minimum Storage Length Recommendations for Turn Lanes

Intersection	Approach/ Lane Group	Min. Storage Length (ft)
Glenn St & 1st Ave	EBL	110
	WBL	150
	NBL	110
	SBL	110
Fort Lowell Rd & 1st Ave	EBL	150
	WBL	175
	WBR	110
	NBL	150
	NBR	110
	SBL	200
	SBR	110
Prince Rd & 1st Ave	EBL	150
	WBL	110
	NBL	175
	NBR	110
	SBL	225
	SBR	110
Roger Rd & 1st Ave	EBL	110
	WBL	110
	WBR	110
	NBL	125
	SBL	110
Limberlost Dr & 1st Ave	EBL	110
	WBL	175
	WBR	110
	NBL	125
	SBL	200
Wetmore Rd & 1st Ave	EBL	350
	EBR	150
	WBL	125
	NBL	200
	SBL	110
	SBR	110
River Rd & 1st Ave	EBL	175
	EBR	175
	WBL	300
	WBR	400
	NBL	300
	NBR	300
	SBL	300
	SBR	125



Appendix A Local Literature Review and National Best Practices

TECHNICAL MEMORANDUM

December 23, 2025

Project# 29660

To: Patrick Hartley - Planning Administrator
City of Tucson Department of Transportation and Mobility
201 N Stone Avenue, 6th Floor
Tucson, AZ 85701

From: Andrew McIntyre and Felipe Ladron de Guevara, P.E.

CC: Brent Kirkman, P.E. - HDR

RE: Local Literature Review & National Best Practices Memo

Project Background

The City of Tucson Department of Transportation and Mobility (DTM), in partnership with the Regional Transportation Authority (RTA), is advancing a project to improve the 1st Avenue corridor from River Road to Grant Road. This project will modernize the corridor using a **Complete Streets** approach to improve safety for all users, increase transportation options, upgrade existing infrastructure, support mobility, and improve the visual character, all while minimizing impacts to adjacent property and business.

The 1st Avenue improvements include:

- Continuous, accessible sidewalk
- Physically separated bicycle facilities from motor vehicles
- Frequent pedestrian and bicycle crossings
- Upgraded traffic signals with adaptive signal technology
- Raised medians and/or pedestrian islands
- Adequate and continuous street lighting
- Upgraded transit stops
- Drainage improvements to accommodate common storm events
- Pavement reconstruction
- New bridge over the Rillito River
- Green Stormwater Infrastructure

The study corridor was first identified for improvement in the 2006 RTA plan, which called for widening of 1st Avenue from four to six lanes, with the addition of bike lanes and sidewalks. However, by 2021, DTM conducted a **Needs Assessment Study** that re-evaluated mobility and complete streets needs through 2045. The study concluded that traffic projections had changed significantly since 2006, justifying an updated project scope.

Instead of widening the roadway, the revised scope maintains the existing two travel lanes in each direction and focuses on incorporating complete streets and Intelligent Transportation System (ITS) solutions to enhance safety and optimize traffic operations.

This memorandum summarizes the review of planning documents, policies, and ordinances from the City of Tucson and the Pima Association of Governments (PAG) to assess how a Complete Streets approach aligns with existing guidance and priorities for the 1st Avenue corridor. It also presents two case studies of Complete Streets projects with similar existing conditions that have successfully implemented Complete Streets-oriented designs. Local Literature Review

CITY OF TUCSON POLICIES & PLANS

Tucson's growth is guided by several policies and plans to create a cohesive approach to advancing bike and pedestrian infrastructure as a key element in the city's urban development strategy. These include:

- Complete Streets Policy (2019),
- Street Design Guide (2021)
- Pedestrian Safety Action Plan (2019)
- Move Tucson (2019)
- Norte-Sur Strategic Plan (2020)
- Housing Affordability Strategy for Tucson (HAST) (2021)
- Tucson Resilient Together Climate Action and Adaptation Plan (2020)
- Plan Tucson (2013)
- Bicycle Boulevard Master Plan (BBMP) (2017)

These initiatives demonstrate the City's commitment to creating more multimodal, accessible, and sustainable transportation networks that reduce reliance on cars, improve public health, and strengthen community resilience. Together, they outline a vision where active transportation options, such as biking and walking, are seamlessly integrated into Tucson's transportation and land-use planning. This approach aligns policies with the city's broader goals of carbon neutrality, equitable access, housing affordability, and economic vitality. A key component of this plan is the development of corridors like 1st Avenue, where bike and pedestrian projects are prioritized to improve safety, connectivity, and mobility for all residents.

Complete Streets Policy

The City of Tucson adopted its [Complete Streets Policy](#) by Ordinance No. 1161 on February 5, 2019. This policy reinforces Tucson's commitment to prioritizing multimodal street improvements to develop a safe, connected, and equitable transportation network that promotes greater mobility for people of all ages and abilities. According to the policy document, the City shall "consistently fund, plan, design, construct, and operate an interconnected transportation network that safely accommodates all anticipated users and transportation modes".

Oversight and implementation of the policy are led by the Complete Streets Coordinating Council (CSCC), a 20-member body of residents responsible for reviewing projects, prioritizing transportation investments, and providing public accountability.

The policy is built upon the six guiding principles of Complete Streets:

1. **Safety** – eliminate preventable traffic fatalities.
2. **Accessibility** – serve people of all ages and abilities.
3. **Equity, Diversity, and Inclusivity** – implement equitably and inclusively throughout the city.
4. **Land Use** – consider the land use and transportation requirements of the local community.
5. **Environment and Health** – support the health of residents and the sustainability of the natural environment.
6. **Economic Vitality** – support business and job creation to increase access to employment opportunities.



APPLYING THE TUCSON COMPLETE STREETS POLICY TO 1ST AVENUE

Compared to citywide averages, the population surrounding the 1st Avenue corridor is generally younger, has lower educational attainment, and experiences a lower median household income. These characteristics align with the equity, diversity, and inclusivity focus outlined in Tucson's Complete Street policy. This area demographic represents the communities identified in Tucson's Complete Streets policy, particularly underserved populations and individuals who have historically been marginalized in the transportation planning process.

Implementing multimodal improvements in this area is crucial to provide equitable access, as enhancing options for walking, biking, and public transit will make transportation more affordable and accessible for everyone in the area.

A Complete Streets approach along 1st Avenue also supports mixed land use, promoting a more connected and walkable environment where people can safely walk or bike to meet their daily needs.

Tucson Street Design Guide

The City of Tucson adopted the [Complete Streets Design Guide](#) by Ordinance No. 11885 on November 23, 2021. The Street Design Guide provides a comprehensive framework for translating the City's Complete Streets Policy into project design solutions for all city transportation projects. The document is intended to be used by policymakers, City staff, engineering consultants, and developers to understand when, where, and how to design projects using Complete Streets best practices and should be referenced throughout the life of the project, from planning to final design.

The Street Design Guide is structured to support each phase of project development:

- **Network Planning** – Identify streets that do not align with Complete Streets principles and determine where improvements are needed to enhance safety, accessibility, and multimodal options.
- **Corridor Planning** – Assess corridor needs, identify the appropriate street type, and shape the initial design approach to align with policy goals early in the process.
- **Conceptual Design** – Guide the selection of design elements, allocation of right-of-way, and establishment of preliminary dimensions and layout.
- **Engineering Design** – Serve as a reference to review submittals and ensure that final designs remain consistent with the City's Complete Streets objectives.

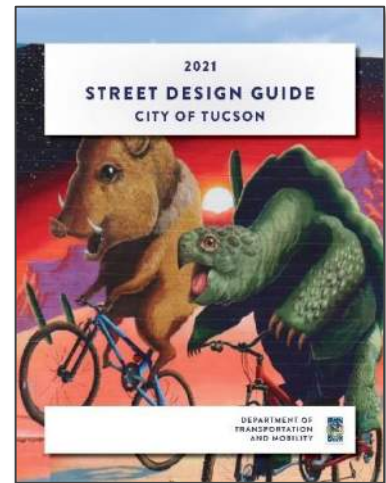
The document indicates that the guide is primarily intended for use during the Corridor Planning and Conceptual Design phases of projects.

APPLYING THE TUCSON STREET DESIGN GUIDE TO 1ST AVENUE

The design guide introduces a new way to categorize Tucson's streets, referred to as "street types". These typologies combine traditional functional classification categories with land use and the competing needs of all transportation modes. According to the guide, much of 1st Avenue falls under the Urban Thoroughfare category. This typology is characterized by:

- High traffic volumes
- Moderate to high speeds
- Predominantly commercial land use, with some residential areas
- Frequent driveways that intersect the corridor

The Urban Thoroughfare designation aligns with the existing conditions of 1st Avenue, which serves as a major arterial for commuters, shoppers, and residents. The area's combination of commercial and residential uses makes it an ideal candidate for Complete Streets improvements. Redesign efforts need to accommodate both pedestrians and cyclists while maintaining vehicle flow, emphasizing safety and



accessibility for all. The classification of 1st Avenue as an Urban Thoroughfare influences design and layout decisions under the Complete Streets policy. Key components include:

Pedestrian Realm:

- **Frontage Zone:** At least 2 feet of space is recommended adjacent to buildings or property edges to provide pedestrian comfort and separation from storefronts, residential areas, and other structures such as walls/fences.
- **Sidewalk Zone:** Sidewalk widths range from 6 feet to 8 feet (preferred), ensuring ample space for pedestrians in this highly trafficked corridor.
- **Planting/Amenity Zone:** This zone, which may include trees, benches, or bike racks, ranges from 8 feet to 12 feet (preferred), prioritizing the comfort and safety of pedestrians.

Street Realm:

- **Bicycle Lanes:** At least 5 feet, but preferably 8 to 11 feet, is allocated for bike lanes. This would enhance the safety and mobility of cyclists along 1st Avenue, which already sees a higher share of biking compared to other parts of the city.
- **Curb Lanes:** Allocated at a minimum of 10 feet with a preferred width of 11 feet, balancing the need for vehicle traffic with multimodal considerations.
- **Inside Lanes:** Lane widths range from 10 feet (minimum) to 11 feet, with moderate speeds ensuring safer conditions for both vehicles and pedestrians.
- **Left-Turn Lanes:** A width of 10 to 12 feet is typical, designed to keep traffic flowing smoothly while accommodating turning movements at intersections.
- **Raised Medians:** Raised medians (or refuge islands) are recommended on roadways with pedestrian activity and Average Daily Traffic (ADT) above 12,000. The minimum width for a median with left-turn lane openings is 14 feet.

If space is limited on 1st Avenue, the guide prioritizes the sidewalk and planting zones (high priority), recognizing the importance of pedestrian safety and the benefits of green infrastructure. The curb and inside lanes are medium priority, balancing the needs of vehicles, transit, and other modes of transportation.

Applying the design elements of this road classification would transform 1st Avenue into a more multimodal corridor, with enhanced sidewalks, bike lanes, and streetscapes that prioritize the comfort and safety of vulnerable road users like pedestrians and cyclists, while supporting efficient vehicle travel.

Dimension	Pedestrian Realm			CURB	Street Realm			Median
	Frontage Zone	Sidewalk Zone	Planting / Amenity Zone		Bicycle	Curb Lane	Inside Lane(s)	Left-Turn Lane
Minimum	2'	5'	6'		5'	10'	10'	10'
Maximum	-	-	-		-	11'	11'	12'
Preferred	2' +	6' – 8'	8' – 12'		8' – 11'	11'	10'	10'
Priority, if ROW constrained	Low	High	High		High	Med	Med	Med

Tucson Pedestrian Safety Action Plan

The [Pedestrian Safety Action Plan](#) (PSAP) was developed by the City of Tucson in 2019 as part of the City of Tucson's Department of Transportation and Mobility (DTM) Five-Year Traffic Safety Plan. The PSAP identified citywide transportation safety trends and proposed engineering, policy, education, and enforcement solutions to make walking in Tucson safe, comfortable, convenient, and enjoyable.

The PSAP includes an action plan identifying key strategies and action items to address pedestrian safety throughout the City. Strategies and actions include:



- **Prioritize High Injury Network (HIN) Safety Improvements** – Identify locations for Pedestrian Safety Corridors and infrastructure improvements on the HIN.
- **Improve Pedestrian Visibility and Comfort at Street Crossings** - Prioritize crosswalk treatments on streets with high concentrations of pedestrian injuries; crosswalks should be installed with appropriate countermeasures, as described in Tucson's Complete Street Guidelines.
- **Manage Vehicle Speeds and Improve Driver Awareness** - Identify speed reduction opportunities on streets included in the HIN.
- **Reduce Turning Movement Conflicts at Intersections** - Consider installing leading pedestrian intervals (LPIs) and pursue funding for intersection safety improvements
- **Provide Adequate Street Lighting for Pedestrians** – Use the HIN to prioritize locations for lighting enhancements.
- **Seek Cost-Effective and creative Solutions for pedestrian improvements** – Establish quick-build design guidelines.
- **Expand Safety Education & Outreach efforts focusing on People Driving** – Develop a safety campaign that prioritizes pedestrian safety.
- **Promote the Importance of Walking for Transportation, Recreation & Health** – Lead neighborhood walkability audits to identify opportunities to improve safety.
- **Prioritize Data-Driven Enforcement and Evaluation to Improve Safety** – Reassess the use of camera enforcement at traffic signals.

APPLYING THE PSAP TO 1ST AVENUE

The PSAP identified the 1st Avenue corridor as part of its HIN and proposed several locations that could benefit from pedestrian safety improvements. The following provides an overview of key findings and recommendations included in the PSAP for the 1st Avenue corridor.

- 1st Avenue between Campana Drive and Elm Street was identified as part of the City's "Pedestrian High Injury Network". The study corridor of 1st Avenue between Grant Road & River Road is almost entirely located within the HIN (except for about 500 feet between Campana Drive & River Road).
- 1st Avenue between Roger Road and Fort Lowell Road was designated as a "Pedestrian Safety Corridor". Installing warning signs, flashing beacons, and targeted police enforcement could improve pedestrian safety conditions.
- The following intersections are part of a list of 161 candidates for new Pedestrian Hybrid Beacons (PHBs) and were identified as located near high-ridership transit stops.
 - 1st Avenue & Jacinto Street (City Rank: 11)
 - 1st Avenue & Blacklidge Drive (City Rank: 39)

Following the completion of the PSAP, several changes have occurred along the 1st Avenue Corridor. A HAWK has been installed at Jacinto Street, and the ranking for the HAWK signal at Blacklidge Drive was changed from #39 to #14 and is being installed as part of the Bicycle Boulevard Master Plan project. The city has also identified two additional locations for future HAWK installations: 1st Avenue & Pastime (designated as site #2) and 1st Avenue & Navajo.

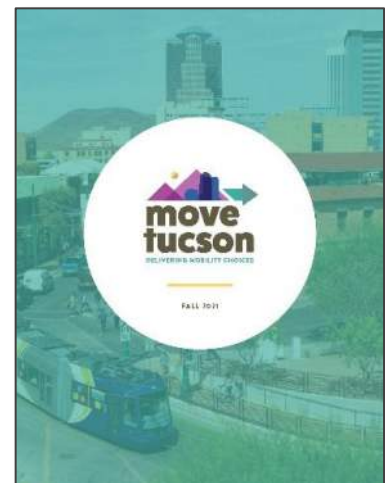
- Two intersections along the 1st Avenue corridor are part of the top 25 "Priority Locations" for pedestrian investment. Locations were screened and improvements prioritized based on crash severity scores, contributing factors, and equity scores.
 - 1st Avenue & Fort Lowell Road (Rank: 6)
 - 1st Avenue & Grant Road (Rank: 8)

Move Tucson Transportation Master Plan

Move Tucson is Tucson's transportation master plan – it outlines a vision for the future mobility of the city and provides guidance on achieving it. The plan was created with significant community involvement in an effort to focus on traditionally underrepresented populations.

Move Tucson was heavily focused on community engagement and stakeholder input. The following themes are the primary focus of the document:

- Safety for all modes, with an emphasis on bicyclists and pedestrians
- Invest in improvements to existing facilities
- More transportation options for getting around
- Increased mobility/efficiency for longer, cross-town travel



- Heat resilience and sustainability-focused improvements
- Comfortability for all modes through lower speeds and traffic calming
- Improved reliability for public transit

APPLYING *MOVE TUCSON* TO 1ST AVENUE

Move Tucson applies a street typology methodology to the entire City transportation network. The plan designates 1st Avenue as the following two street types¹:

- Urban Thoroughfare – Grant Road to Roger Road
- Suburban Thoroughfare - Roger Road to River Road

The plan identified the following specific recommendations for the 1st Avenue study corridor:

- 1st Avenue & Pastime Road – second highest ranked location for HAWK Signal (page 288)
- 1st Avenue & Blacklidge Drive – sixteenth highest ranked location for HAWK Signal (page 288)
- 1st Avenue (River Road to Grant Road) – planned project to “modernize 4-lane roadway, bike lanes, and sidewalks (page 311)

The Move Tucson process also identified packaged improvements for sidewalk and pedestrian accessibility needs throughout the city. As part of its “Sidewalks and Pedestrian Accessibility Plan”, prioritized network improvements were developed for specific high-demand and corridors. The Network Screening Results map² within the Move Tucson document shows that the majority of the 1st Avenue corridor (from Grant Road to Limberlost Road) is categorized as “Higher Priority” for bicycle and pedestrian accessibility improvements.

Tucson Norte-Sur Strategic Plan

The Tucson Norte-Sur Strategic Plan is an equitable transit-oriented development (eTOD) strategic planning project for a future 15-mile-long north-south high-capacity transit (HCT) corridor from the Tucson Mall/Tohono Tadaí Transit Center to the Tucson International Airport. Phase 1 of the project (Outreach & Data Collection) was completed in April 2023; the following two phases (Policy and Project Recommendations; Implementation and Build-Out) are currently in progress.

In early 2024, Stone Avenue was selected as the “Locally Preferred Alternative” for the northern section of the project (between Tucson Mall and the Ronstadt Transit Center in Downtown Tucson). This segment is expected to be constructed between 2026 and 2030.

While 1st Avenue is not part of the primary transit corridor in the Tucson Norte-Sur plan, it falls within the study area, which includes all areas within $\frac{3}{4}$ miles east and west of the proposed alignment. This means that improvements to 1st Avenue should be coordinated with broader changes in the transit network and land use planning influenced by the HCT project.

¹ *Move Tucson* (2021) – Map 12. Types of Streets (page 75)

² *Move Tucson* (2021) – Map 19. Network Screening Results (page 338)

APPLYING THE NORTE-SUR STRATEGIC PLAN TO 1ST AVENUE

The plan identified 1st Avenue (north of Prince Road to River Road) as one of the "highest stress" roadways for pedestrians, with missing sidewalks on at least one side of the street. This highlights the importance of improving pedestrian infrastructure along 1st Avenue in alignment with Complete Streets principles. Addressing these gaps would enhance safety, accessibility, and connectivity for the residents and businesses that rely on this corridor, even if it is not a high-capacity transit route.

Although 1st Avenue is not needed as a primary transit corridor in the plan due to the proximity of Stone Avenue and Oracle Road as alternatives, the street will still serve as an important connector for local transit services and non-motorized modes of travel. Enhancing pedestrian and bike infrastructure along 1st Avenue would complement the transit-oriented development (TOD) goals, ensuring that residents can safely access high-capacity transit routes on adjacent streets, such as Stone Avenue.

Housing Affordability Strategy for Tucson (HAST)

The Housing Affordability Strategy for Tucson was adopted by the Tucson Mayor and Council on December 21, 2021, and updated on January 9, 2024. The HAST Plan introduces housing concepts, examines data driving Tucson's decisions, and presents policy initiatives to guide the City in strategically investing in affordable housing.

APPLYING THE HAST PLAN TO 1ST AVENUE

By developing alternative transportation options through pedestrian and bike projects, the city can significantly reduce the transportation cost burden on residents, making the area more affordable. This is consistent with Tucson's broader goals of creating a more equitable and livable city where housing and transportation costs are manageable for all residents.

Tucson Resilient Together: Climate Action and Adaptation Plan

Tucson Resilient Together is the City's Climate Action and Adaptation Plan and acts as a roadmap to reduce greenhouse gas emissions and adapt and build community-wide resilience to current and future impacts of climate change. The City aims to neutralize carbon emissions from City operations by 2030 and reach carbon neutrality communitywide by 2045. These goals can only be met through decarbonizing the transportation sector by promoting Complete Streets-type projects that promote the mode shift away from automobiles.

The plan identifies the following actions (among others) to reduce carbon emissions associated with transportation and land use:

- **T-1.1** Use various funding sources, including Prop 411, to implement bicycle, pedestrian, and other zero-emission mobility projects identified in Move Tucson to create a transportation network aligned with the Complete Streets approach.
- **T-1.2** Promote walking, biking, and rolling by creating attractive and universally accessible street environments through ADA ramps, traffic signal safety enhancements, accessible seating, shaded

sidewalks, protected bike paths and lanes, bike- and scooter-share programs, and other improvements.

- **T-1.5** Increase safety for all road users by eliminating lanes on wide roads and creating public space, walkways, enhanced crossings and signals, and protected bike lanes.

APPLYING THE TUCSON RESILIENT TOGETHER PLAN TO 1ST AVENUE

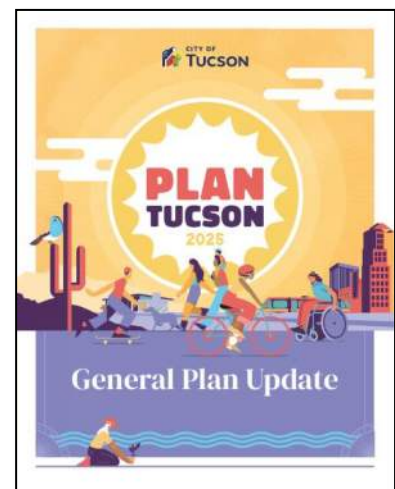
Options to reduce carbon emissions associated with transportation and land use on 1st Avenue include:

- Investments in sidewalks, protected bike lanes, and transit infrastructure would directly contribute to the decarbonization goals outlined in the plan by reducing reliance on cars and promoting zero-emission modes of transport.
- Improvements like adding ADA-compliant ramps, shaded sidewalks, protected bike lanes, and enhanced safety at traffic signals could transform the street into a more inviting, safe, and climate-resilient corridor.
- Road diets—narrowing or removing lanes to repurpose space for bike lanes, wider sidewalks, and pedestrian plazas. By not widening the street, more people might choose active and sustainable modes of travel, contributing to GHG emission reductions.

Tucson Comprehensive Plan

The City of Tucson approved [Plan Tucson](#) (via Proposition 417) in November 2025, updating the city's general plan for the next 20 years. The plan reflects feedback from over 14,000 public comments gathered through a multi-year outreach process. The update establishes a long-term vision for Tucson build around resilience, equity, environmental stewardship, and sustainable growth.

One of the overarching goals of the 2025 Plan Tucson is to expand access to high-quality transportation choices, to enhance safety, and to improve the condition of city transportation facilities.



APPLYING THE TUCSON COMPREHENSIVE PLAN TO 1ST AVENUE

1st Avenue, along with proposed bike boulevard improvements on nearby Roger Road and Glenn Street, serves as a key corridor for advancing multimodal transportation goals. Its alignment with 2025 Plan Tucson's vision for an efficient, interconnected network supports sustainable growth while enhancing mobility options for residents. Additionally, the majority of the study area is surrounded by land that is designated in the 2025 Plan as moderate-high to high on the Tucson Equity Priority Index, which identifies areas of greatest need.

Key policies relevant to 1st Avenue from the 2025 update:

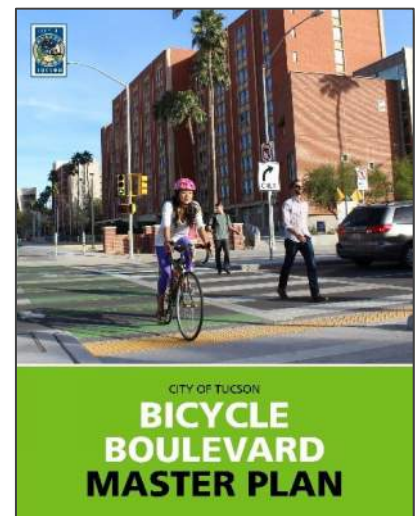
- **Transportation 4:** Develop safe, convenient, accessible, and connected transportation networks for walking, biking, and rolling that are in alignment with the Complete Streets Policy.
- **Transportation 5:** Support policies and initiatives to develop a coordinated, multi-modal transportation system that improves the efficiency, safety, and reliability of transporting people and goods in and outside of the region.
- **Transportation 6:** Design future streets and rights-of-way, as well as retrofits, that are sized in a way and include amenities that will make multi-modal transportation choices convenient, attractive, safe, and heat resilient.
- **Transportation 7:** Continue to develop and maintain a connected urban greenway system that provides low-stress mobility options and supports human and environmental health benefits.
- **Transportation 8:** Improve road conditions and implement design features to reduce traffic crashes and enhance public safety
- **Transportation 10:** Improve low-emission or no-emission transportation options that are safe, reliable, and accessible to all ages and abilities.

As Tucson continues to update and implement its long-range transportation plans, developing 1st Avenue into a bike-friendly, multimodal corridor will be important to meet the city's goals for improving mobility and transportation equity. These proposed improvements will provide the corridor with safe and convenient alternatives for residents to walk, bike, and access public transit, reducing car dependency and promoting more sustainable urban growth.

City of Tucson Bicycle Boulevard Master Plan

The [Bicycle Boulevard Master Plan](#) (BBMP) was adopted in February 2017 and establishes a comprehensive framework for creating a connected network of bicycle boulevards throughout the City of Tucson. Bicycle boulevards are shared roadways that provide bicyclist amenities such as traffic calming, safer intersections crossings, signs, pavement markings that prioritize the safety and comfort of people walking and biking. The Plan provides design guidance, conceptual plans, cost estimates, and a prioritization methodology for implementing bicycle boulevards across the City to expand opportunities for healthy transportation and recreation for individuals of all ages and abilities.

The BBMP envisions a well-integrated, low-stress bicycle network that seamlessly connects neighborhoods, destinations, and activity centers throughout Tucson. While 1st Avenue itself is classified as an Urban Thoroughfare and not designated as a bike boulevard, and the Plan identifies several bike boulevards that will intersect the 1st Avenue corridor, strengthening connectivity.



APPLYING THE BICYCLE BOULEVARD MASTER PLAN TO 1ST AVENUE

The BBMP establishes key goals of reducing vehicular congestion, improving air quality, providing fitness opportunities, and enhancing neighborhood vibrancy through active transportation. The BBMP also outlines a toolbox of design elements that are highly relevant to the 1st Avenue corridor, including:

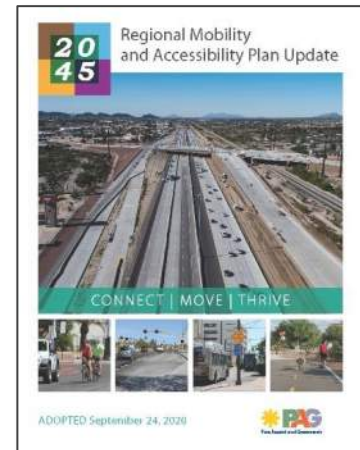
- **Crossing Treatments:** The BBMP emphasizes the importance of safe, convenient crossings at major streets and recommends treatments such as HAWK signals, TOUCANs, median refuge islands, and enhanced crosswalks. First Avenue includes several intersections identified for pedestrian safety improvements, including new HAWK installations and prioritized crossings at high-injury locations.
- **Network Connectivity and Equity:** The BBMP's prioritization model considers demand, connectivity, and the needs of vulnerable users (e.g., low-income households, seniors, people without cars). The First Avenue corridor serves a population with lower median income and higher transit dependency, making equitable access to safe biking and walking infrastructure especially important.
- **Pavement Condition:** Pavement condition has a significant effect on the comfort and safety of cyclists. As such, it is an important factor in the effectiveness of a bicycle boulevard to attract riders. Many cyclists are likely to go out of their way to enjoy a ride on a well-paved street. At best, damaged pavement may create a frustrating and uncomfortable ride. At worst, bumpy, cracked or severely pot-holed roads can pose a challenge to a rider's ability to control a bike.
- **Streetscape Enhancements:** Streetscape design plays a critical role in encouraging more people to use Tucson's bicycle boulevards. Street amenities include improved lighting for pedestrian and cyclist safety, public art to enrich the corridor's character, street kiosks for wayfinding and community information, bike corrals for space-saving bicycle parking, and multimodal technologies such as automated detection and alert systems.

The City of Tucson conducted multiple public engagement efforts to inform the community of the Plan, including a survey. Survey results from the BBMP highlight barriers to walking and biking in Tucson from over 600 respondents, including busy roads that are difficult to cross, long distances between destinations, and discontinuous sidewalks and bike facilities. Additionally, bicyclists cite high vehicle speeds and poor pavement conditions as barriers to biking in the City. These findings are directly relevant to 1st Avenue, where gaps in pedestrian and bike infrastructure, in conjunction with high traffic volumes and speeds, reinforces the need for a Complete Streets approach to improve safety, comfort, and connectivity.

PIMA ASSOCIATION OF GOVERNMENTS (PAG) POLICIES & PLANS

2045 Regional Mobility and Accessibility Plan Update

The [2045 Regional Mobility and Accessibility Plan Update](#) (2045 RMAP) was adopted in September 2020 and builds upon the 2045 RMAP adopted in 2016, which developed a long-range, performance-based transportation plan promoting a safe and efficient transportation system to meet the mobility needs of people and freight across the Tucson metropolitan area. The 2045 RMAP envisions a state-of-the-art, reliable, multimodal, and environmentally responsible regional transportation system incorporating multiple modes of travel. This system will be continuously maintained, interconnected, and integrated with sustainable land use patterns to support a high quality of life and a healthy, safe, and economically vibrant region. The following goals of the 2045 RMAP support this vision:



- **Maintenance:** Roadways, bike and pedestrian infrastructure, and transit systems that are rehabilitated, complete, and maintained in a state of good repair.
- **Safety:** Safety and security for all transportation users across the region.
- **Multimodal Choices:** A variety of integrated, high-quality, accessible, and interconnected transportation choices to meet all mobility needs and changing travel preferences.
- **Performance:** Improved regional mobility, congestion management, and travel time reliability through reducing travel demand, enhancing operations, and adding system capacity for all modes where necessary.
- **Environmental Stewardship:** Environmental stewardship, natural resource protection, and energy efficiency in transportation planning, design, construction, and management.
- **Land Use and Transportation:** Land use decisions and transportation investments that are complementary and result in improved access to important destinations and vibrant and healthy communities.
- **Freight and Economic Growth:** Regional freight transportation infrastructure that supports global competitiveness, economic activity, and job growth by providing for the efficient movement of goods within our region, giving access to national and international markets, and improving intermodal connections.

The 2045 RMAP establishes performance measures to track plan outcomes and guide investments toward achieving regional goals (Appendix 1 of 2045 RMAP). Several performance measures are specific to complete streets and bicycle and pedestrian projects:

- Improving roadway conditions
- Reducing pedestrian, bicycle, and transit vehicle crashes,
- Increase the mode share of pedestrians, bicyclists, and transit
- Increase the availability of pedestrian and bicycle infrastructure
- Reduce the number of miles the average resident drives
- Reduce per capita annual on-road greenhouse gas emissions
- Improve access by transit

APPLYING 2045 RMAP TO 1ST AVENUE

1st Avenue was identified as one of over 90 roadway projects in the region and was also recognized as part of the proposed high-frequency bus network. Proposed projects include implementing bike lanes, sidewalks, and bus pullouts.

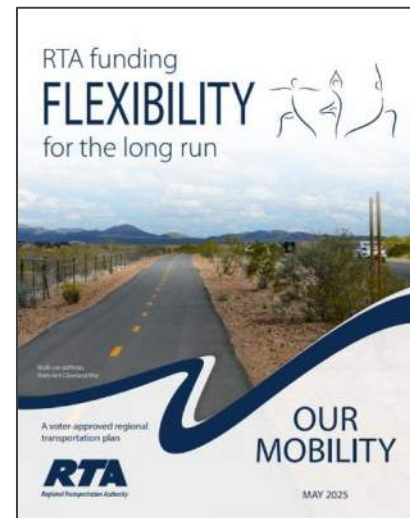
Regional Transportation Authority Plan

The [Regional Transportation Authority \(RTA\) Plan](#) is the voter-approved initiative that has funded regional transportation projects in Pima County for the past 20 years. Currently known as “Our Mobility,” the Plan is nearing its end; its successor, “RTA Next,” will be on the ballot for Pima County residents in 2026.

The Plan encompasses a wide range of projects in roadway improvements, transit enhancements, safety upgrades, and economic and environmental vitality. The Plan’s objectives are to:

- Continue investing in a multimodal transportation network,
- Capitalize flexible local funding,
- Support regional economic development,
- Provide equitable access to transportation improvements

As the region prepares for the next phase of investment, the RTA Plan continues to serve as a model for delivering impactful transportation solutions.



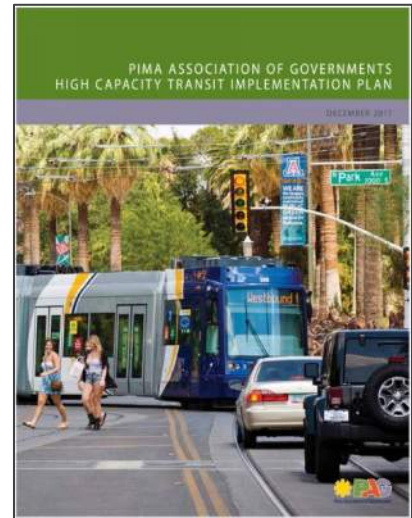
APPLYING THE RTA PLAN TO 1ST AVENUE

In the original 2006 RTA Plan, 1st Avenue was identified for widening from four to six lanes with the addition of bike lanes and sidewalks. However, following updated traffic projections and a 2021 Needs Assessment Study, the project scope was revised to reflect a Complete Streets approach. Rather than expanding roadway capacity, the updated design maintains the existing lane configuration and focuses on multimodal enhancements, safety improvements, and Intelligent Transportation System (ITS) solutions. This shift aligns with the RTA Plan’s long-standing commitment to investing in multimodal infrastructure, supporting regional mobility, and ensuring equitable access to transportation improvements.

PAG High-Capacity Transit Implementation Plan

The [2017 High Capacity Transit Implementation Plan](#) (HCTIP) identified and prioritized future high capacity transit improvements in Pima County and the Tucson metropolitan area. A three-step evaluation process was conducted to identify the top transit corridors, resulting in six priority corridors for the area:

- A Oracle
- C2 Speedway to Kolb
- F3 Broadway to Wilmont
- E3 6th Avenue to Irvington
- F2 Broadway to Alvernon
- N2 Stone to 4th Avenue



While further studies are needed to develop specific improvements, all projects are intended to enhance transit connections in the region.

APPLYING HCTIP TO 1ST AVENUE

Of the identified priority corridors, the A and N2 lines are within a mile of 1st Avenue and run parallel to the corridor. Transit users are likely to travel to or from 1st Avenue via foot, bike, or other transit routes to access the A and N2 lines. Improvements identified in the 1st Avenue DCR should align with the PHCTIP to enhance transit connections.

PAG Long Range Regional Transit Plan

The 2020 Long Range Regional Transit Plan (LRRTP) was developed to guide decision-making, enhancing the community's ability to travel around the region using public transportation. The objectives of the LRRTP are to:

- Establish a long-term strategic vision for the regional transit system
- Estimate the future transit demand and identify service gaps
- Understand the long-term financial outlook and the cost of system improvements
- Reinforce and build on the frequent transit network



The plan focuses on increasing the frequency of public transportation, including enhanced frequency seven days a week and in the evenings. Targeted improvements include access to suburban transit routes and infrastructure improvements that enhance the speed, reliability, and quality of public transportation.

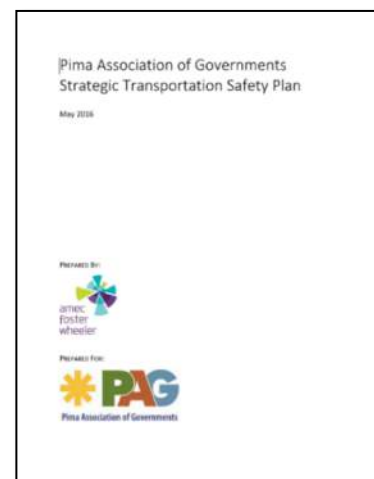
APPLYING LRRTP TO 1ST AVENUE

Currently, the 6 Line runs along 1st Avenue, connecting people to the Tohono Transit Center in northern Tucson. Additional routes are recommended in suburban areas to the north that would bring transit riders to the Transit Center. While the plan did not specify additional service or increased frequency along 1st Avenue, improvements identified in the 1st Avenue DCR should plan for increased pedestrian and bicycle activity that results from increased ridership from the Tohono Transit Center.

PAG Strategic Transportation Safety Plan

The plan analyzes crash data from 2009-2013 for the Pima Association of Governments (PAG) region, which includes Tucson. It identifies several emphasis areas for improving safety, including vulnerable users (pedestrians and bicyclists), intersections, and road/lane departures. The data shows that Tucson had the highest number of total and fatal crashes in the region during the study period. Bicycle crash rates were higher in the PAG region compared to statewide rates.

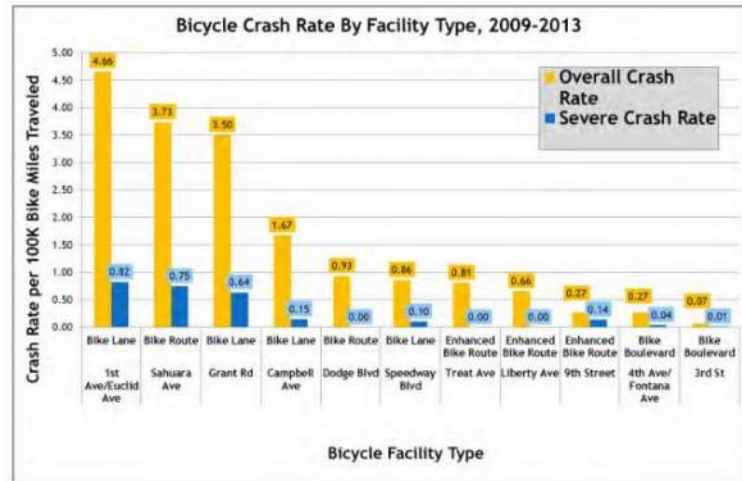
The analysis found that bike lanes and bike routes had the highest crash rates among bicycle facilities. In contrast, enhanced bike routes and bike boulevards had significantly lower crash rates, crash frequency, and injury severity. The plan recommends safety strategies like midblock crossings, high-visibility crosswalks, rightsizing, and buffered bike lanes.



APPLYING THE STRATEGIC TRANSPORTATION SAFETY PLAN TO 1ST AVENUE

As a major arterial in Tucson, 1st Avenue experiences high traffic volumes and higher crash rates, especially for vulnerable users like cyclists and pedestrians.

The findings from the bike crash rates by facility type (Figure 4.1, pg. 23) show that 1st Avenue has the highest overall crash rate per 100,000 bike miles traveled in the region. The corridor also has the highest severe crash rate in the region, emphasizing the support for safety interventions on 1st Avenue.



The recommendations for safety improvements, such as enhanced bike facilities, buffered bike lanes, or improved crossings, apply to 1st Avenue to reduce crash rates and improve safety for all users.

Best Practices Case Studies

This section of the memorandum presents case studies of Complete Streets projects constructed on corridors across the U.S. that share similar characteristics to the 1st Avenue corridor. The criteria used to identify comparable corridors included:

- Street classification: 1st Avenue is classified as an arterial street
- Posted Speed: the posted speed limit ranges from 30 to 35 MPH
- Traffic volumes: 1st Avenue carries approximately 30,000 vehicles per day
- Number of lanes: the corridor consists of four travel lanes and a center turn lane
- Adjacent land uses: the corridor has a mix of commercial and residential land uses.

1ST AVENUE CHARACTERISTICS

STREET CLASSIFICATION | Arterial

RIGHT OF WAY | 90 FT

POSTED SPEED |
30 to 35 MPH

AVERAGE DAILY TRAFFIC
30,000

After an extensive search, only two corridors were identified as closely comparable: Broadway Road in Tempe, AZ, and Aurora Avenue in Shoreline, WA. The case studies highlight the challenges encountered and benefits realized from the final project outcomes.

BROADWAY ROAD (TEMPE, AZ)

In March 2016, the City of Tempe completed the Broadway Road Streetscape Project to enhance pedestrian and bicycle infrastructure along the segment between Mill Avenue and Rural Road. Once a heavily traveled corridor, this segment of Broadway Road had experienced a consistent decline in traffic volumes, from nearly 39,000 vehicles per day in 2003 to approximately 25,000 vehicles per day by 2012.

The project aimed to improve the corridor by adding bike lanes, widening sidewalks, and planting street trees along the south side. Improvements also included landscaped median islands and a buffer wall treatment along the north side of the roadway.

Approach: Lane Repurposing

Prior to the project, this section of Broadway Road consisted of three eastbound lanes, two westbound lanes, a center turn lane, and sidewalks on both sides. Given the limited right of way and the City's desire to minimize property impacts, a lane repurposing approach was proposed.

To assess the feasibility of repurposing a travel lane, the City of Tempe conducted an impact analysis in 2013 by temporarily closing one of the three eastbound lanes. This real-world test simulated the proposed lane configuration and assessed its effects on vehicular operations. The analysis concluded that permanently removing a lane would not significantly affect traffic operations and would provide opportunities to enhance facilities for pedestrians and cyclists. The study played a key role in building community support to move the project forward.

STREET CLASSIFICATION | Arterial

RIGHT OF WAY | 80 FT

POSTED SPEED | 40 MPH

AVERAGE DAILY TRAFFIC

BEFORE: 25,000 (2012)

AFTER: 28,000 (2018)

APPROACH

Lane Repurposing



Results:

The project successfully implemented bicycle and pedestrian facilities while minimizing right of way acquisition. This was achieved by repurposing the previous roadway cross-section to better match the actual traffic demand. It is worth noting that traffic volumes were likely declining due to Tempe's surrounding freeway network, which helps to divert traffic from local streets.

Although the City of Tempe has not conducted a formal, data-driven before-and-after study, anecdotal information suggests that corridor operations remain acceptable in accommodating vehicular demand. Additionally, the corridor does not appear in the City's safety priority list based on crash data.

This approach is especially relevant to the 1st Avenue corridor, where traffic volumes have similarly declined over time and the right of way is constrained in certain segments of the corridor.

AURORA AVENUE (SHORELINE, WA)

The City of Shoreline, Washington, completed an extensive project to redefine Aurora Avenue, the main arterial roadway through town. The roadway's original cross section consisted of two through lanes in each direction with a center two-way left-turn lane. Sidewalks and pedestrian crossings were absent or intermittent, and accidents were common occurrences (one per day on average⁴). The project aimed to increase multimodal options, enhance safety, and increase connectivity. Significant public participation and review processes were required.

Approach: Pedestrian Enhancements

Enhanced pedestrian crossings with improved signage, markings, and visibility features were installed to reduce crossing distances, and continuous sidewalks were installed along both sides of the corridor to fill previous gaps in the pedestrian network. Additionally, two connections to the Interurban Trail, a 15-mile bike and pedestrian off-street trail running parallel to Aurora Avenue, were constructed.

These improvements provide a safe, continuous path throughout the length of the project area, improving walkability and access to transit stops, homes, and businesses.

Approach: Dedicated Bus/Right-Turn Lanes

Instead of adding general-purpose travel lanes, the City decided to improve transit service by introducing dedicated bus/right-turn lanes in both directions. This was accomplished by converting the existing roadway shoulders into lanes that function as dedicated bus lanes and right-turn lanes for access to adjacent properties. By utilizing existing roadway space, the project met the goal of minimizing right-of-way impacts.

Approach: Landscaped Median Installation

The existing Two-Way-Left-Turn Lane (TWLTL) was replaced with a landscaped median to improve access control and enhance safety for all users along the corridor. This conversion required a slight widening of the original TWLTL to accommodate a raised median that includes left turn lanes. At median opening, the median was narrowed to fit within the available roadway width. This design element was critical during the project development phase, as the removal of the TWLTL was originally perceived as limiting access to

STREET CLASSIFICATION

Major Arterial

RIGHT OF WAY | 90 FT

POSTED SPEED

BEFORE: 40 MPH

AFTER: 45 MPH

AVERAGE DAILY TRAFFIC

BEFORE: 38,000

AFTER: 35,000

APPROACH

Pedestrian Enhancements

Dedicated Bus/Right-Turn Lanes

Landscaped Median Installation

Right-of-Way Acquisition

⁴ *Rethinking Streets: An Evidence-Based Guide to 25 Complete Street Transformations* (2013). Sustainable Cities Initiative. <https://www.rethinkingstreets.com/download.html>

adjacent businesses. To address this concern, U-turns were incorporated to maintain access to properties along the corridor.

Approach: Right-of-Way Acquisition

To accommodate the planned multimodal enhancements, the city acquired an additional 20 feet of right-of-way. This expansion created the physical space necessary to incorporate improvements without compromising existing traffic flow and significant impacts to adjacent properties.

Results:

The project transformed the area into a vibrant, pedestrian-friendly main street. Key outcomes resulting from the project include spurring economic development, reducing crashes (by 60%), and increasing sales for businesses along the corridor. Anecdotal information highlights the critical role of public involvement in the project's overall success.

This project serves as a relevant example for the 1st Avenue corridor, which experiences high traffic volumes and has a similar posted speed. It demonstrates that a Complete Street approach can be successfully implemented on arterial facilities, delivering benefits in traffic operations, multimodal safety, and economic development along the corridor.



CONCLUSION

The City of Tucson has developed a comprehensive set of policies and strategic plans that reflect a strong commitment to sustainable, multimodal, and equitable urban transportation. Collectively, these documents provide a framework for transforming major corridors, like 1st Avenue, into safer and more accessible streets that serve all users, especially vulnerable road users such as pedestrians and cyclists. Plans like Move Tucson, the Complete Streets Policy and Design Guide, and the Pedestrian Safety Action Plan reinforce the city's vision for prioritizing non-automobile modes, improving connectivity, and reducing transportation-related greenhouse gas emissions.

These policies and strategic plans provide an opportunity to reimagine 1st Avenue as a Complete Street that aligns with Tucson's broader goals of climate resilience, affordability, and social equity. Implementing the proposed improvements will not only enhance safety and connectivity but also have the potential to support economic development, livability, and sustainability across the corridor.

The case studies of Broadway Road in Tempe, AZ, and Aurora Avenue in Shoreline, WA, offer insights into implementing Complete Streets strategies on arterial corridors comparable to 1st Avenue. These projects demonstrate how a Complete Street approach can be successfully applied to improve multimodal safety and overall corridor operations despite right-of-way constraints.

In general, the 1st Avenue corridor can serve as a model for Complete Streets implementation, demonstrating how Tucson's policy, community engagement, and infrastructure investment can deliver benefits to residents and businesses.



Appendix B

Data Collection

TECHNICAL MEMORANDUM

January 3, 2025

Project# 29660

To: Brent Kirkman, PE

HDR, Inc.

1 South Church Ave, Suite 1400

Tucson, AZ 85701

From: Joel Amarillas, PE; Morgan Dean, PhD, RSP; Felipe Ladron de Guevara, PhD, PE, RSP

RE: 1st Avenue DCR - Data Collection Final Memo

INTRODUCTION

This memorandum outlines and describes the data collection effort for the 1st Avenue Design Concept Report (DCR). The data collection included:

- Traffic volume counts - Turning Movement Counts (TMCs) and 24-hours
- Vehicle classification counts
- Vehicle speed counts
- Signal timing data
- Crash data
- Near-miss data
- Sun Tran ridership data
- INRIX data
- Replica data

The project limits on 1st Avenue are from River Road to Grant Road; however, due to the 1st Avenue/Grant Road intersection being an indirect left-turn signalized intersection (also known as Michigan Left Turn or MUT) the two adjacent U-turn signalized intersections along Grant Road were also included in data collection. Furthermore, the Park Avenue/Grant Road intersection was included due to its proximity to the easternmost U-turn signalized intersection at 1st Avenue/Grant. As a result, the following intersections were selected for data collection:

Study Intersections:

- 1st Ave and River Rd - signalized
- 1st Ave and Bromley St - TWSC
- 1st Ave and Best Buy Dwy - TWSC
- 1st Ave and Wetmore Rd - signalized
- 1st Ave and Verde Apartment Dwy - TWSC
- 1st Ave and Sprouts Dwy - TWSC
- 1st Ave and LA Fitness Dwy - TWSC
- 1st Ave and Limberlost Dr - signalized
- 1st Ave and Fry's Dwy 1 - TWSC
- 1st Ave and Fry's Dwy 2 - TWSC
- 1st Ave and Roger Rd - signalized
- 1st Ave and Prince Rd - signalized
- 1st Ave and Graybill Dr - HAWK
- 1st Ave and Halcyon Rd - TWSC
- 1st Ave and Fort Lowell Rd - signalized
- 1st Ave and Blacklidge Dr - signalized
- 1st Ave and Glenn St - signalized
- 1st Ave and Jacinto/Copper St - HAWK
- 1st Ave and Grant Rd - signalized

Additional Intersections (TMCs Only)

- Los Altos Ave and Grant Rd - signalized
- CVS Dwy and Grant Rd - signalized
- Park Ave and Grant Rd - signalized

TRAFFIC COUNT DATA

The project study area includes nine signalized intersections, two pedestrian hybrid beacon (HAWK) crossings, and eight major unsignalized intersections. Turning Movement Counts (TMCs) were collected on Tuesday, March 26, 2024, between 7:00 a.m. to 10:00 a.m. and between 2:00 p.m. and 6:00 p.m. TMCs included vehicle, pedestrian and bicycle volumes at the study intersections.

24-hour tube counts were also collected on Tuesday, March 26, 2024. These were used to collect daily traffic volumes along the study corridor to assist in identifying the weekday volume peak periods. The 24-hour tubes were placed between signalized intersections along 1st Avenue. In addition, four segments along 1st Avenue were selected to collect vehicle classification and speed data, particularly near commercial/retail areas where heavy vehicle activity is anticipated. The selected segments for additional vehicle classification and speed data are:

- Between Bromley Street and Best Buy Driveway (south of Rillito River bridge)
- Between Sprouts Driveway and LA Fitness Driveway (north of Limberlost Drive)
- Between Fry's Driveway 1 and Fry's Driveway 2 (north of Roger Road)
- Between Jacinto St/Cooper Street and Grant Road (north of Alturas Street)

See Figure 1 for a map of the location of all the traffic count data collected.

Figure 1. Traffic Count Data Collection Locations



EXISTING SIGNAL TIMING

City of Tucson staff provided electronic copies of the signal timing sheets for each of the nine signalized study intersections and the two HAWK crossings. The signal timing data was used for the Synchro analysis and VISSIM model developed as part of the project.

CRASH DATA

Crash data was collected from ADOT's Arizona Crash Information System (ACIS) to include all crash incidents that occurred within a 300' buffer around the 1st Avenue study corridor (River Road to Grant Road) between January 1, 2013 and December 31, 2023. The most recent five years of data (January 1, 2019 through December 31, 2023) will be used for the analysis. The data includes information on the crash, the road users involved, and contributing circumstances.

NEAR MISS DATA

Street Simplified collected near-miss data using video cameras at two signalized intersections: 1st Avenue at Fort Lowell Road and 1st Avenue at Wetmore Road. These locations were selected based on a preliminary review of the crash and road user volume data. The cameras recorded motor vehicle, pedestrian, and bicycle movements over a 24-hour period (nighttime on March 26th to nighttime on March 27th) to identify near miss events among road users, red light running incidents, and speeding incidents. The cameras recorded nearly 2,000 near miss events. Additional video cameras were placed at the Fort Lowell Road intersection to capture road user activity on the approaches to the intersection. These cameras recorded midblock crossing trajectories.

SUN TRAN RIDERSHIP DATA

Sun Tran provided average daily ridership data for 2024 at 23 stops along the project study area. Average daily ridership counts were provided for a weekday, Saturday, and Sunday. This data included travel time for northbound and southbound buses.

■ 1st Ave/Grant (NE)	■ 1st Ave/Roger (NE)
■ 1st Ave/Grant (NW)	■ 1st Ave/Roger (SW)
■ 1st Ave/Glenn (NE)	■ 1st Ave/Pastime (NE)
■ 1st Ave/Glenn (SW)	■ 1st Ave/Pastime (SW)
■ 1st Ave/ Blacklidge (SE)	■ 1st Ave/Prince (SE)
■ 1st Ave/Blacklidge (SW)	■ 1st Ave/Prince (SW)
■ 1st Ave/Ft Lowell (SW)	■ 1st Ave/Yavapai (SW)
■ 1st Ave/Ft Lowell (NE)	■ 1st Ave/Graybill (NE)
■ 1st Ave/Halcyon (NE)	■ 1st Ave/Jacinto (SW)
■ 1st Ave/Halcyon (SW)	■ 1st Ave/Wetmore (SW)
■ 1st Ave/Limberlost (NE)	■ 1st Ave/Copper (NE)
■ 1st Ave/Limberlost (NW)	

INRIX TRAVEL TIME DATA

INRIX gathers Global Positioning System (GPS) probe data from multiple sources, including commercial vehicles, connected automobiles, and mobile applications, to provide roadway analytics and visualizations on congestion, traffic incidents, parking, and weather-related road conditions. The INRIX travel time data collected will be used to assist in calibrating the VISSIM modeling effort.

REPLICA DATA

Replica data was obtained to collect all available origin-destination data to also assist in the calibration of the VISSIM modeling effort and to identify travel patterns on the corridor.

SUMMARY

The data that was collected as part of the effort described above is being used to evaluate the existing and future conditions on 1st Avenue between River Road and Grant Road.



Appendix C

Vissim Model Calibration

Technical Memorandum

December 30, 2025

Project# 29660

To: Patrick Hartley
City of Tucson Department of Transportation & Mobility (DTM)

From: Felipe Ladron de Guevara, PhD, PE, PTOE, Jon Crisafi, PE¹, PTOE, Ryan Casburn, PE², Qiming Sun, Barbara Mosier, Ali Razmpa, PE³, PTOE, Joel Amarillas, PE, Yadiel Duarte

RE: 1st Avenue Design Concept Report
Existing Conditions - Vissim Model Calibration

This memorandum summarizes the microsimulation model development and calibration conducted as part of the 1st Avenue Design Concept Report (DCR). The microsimulation model development utilized PTV Vissim 2024 microsimulation software and locally collected data for the project. The microsimulation model was calibrated to existing conditions utilizing Inrix and Sun Tran data and comparing the simulation traffic operations results to the analysis performed with deterministic analysis methods as documented in this memorandum.

Introduction

The City of Tucson (COT) Department of Transportation and Mobility (DTM) has initiated a project to modernize 1st Avenue from River Road to Grant Road in the northern part of the city. The initial phase of the project consists of preparing a DCR to evaluate and document the complete streets improvements needed on the corridor. In addition to providing complete streets elements, the project includes remediating pavement conditions and drainage issues, while improving safety along the corridor, especially for people walking and biking. **Figure 1** shows the project study area.

A microsimulation analysis will be used on the 1st Avenue DCR to evaluate the effects of complete streets improvements on the corridor with a range of multi-modality metrics not available on typical deterministic analysis such as Synchro. While the extents of the complete streets improvements will be limited to 1st Avenue between River Road and Grant Road, the Vissim model includes an expanded study area to simulate realistic vehicle arrivals to study intersections. The modeled study area comprises the roadways shown in **Figure 1** and includes the intersections listed in **Table 1**.

The microsimulation existing condition models are first developed and calibrated to serve as a baseline condition for the future scenarios (No-Build and Build Alternatives). The existing condition models are calibrated to best replicate actual traffic conditions (based on a variety of field performance measures) to support the validity and accuracy of model results.

¹ Jon is a licensed PE in Florida, Maryland, Pennsylvania, Virginia, and Washington D.C. only.

² Ryan is a licensed PE in Florida only.

³ Ali is a licensed PE in Oregon only

Figure 1 Study Area and Model Extent



Table 1. Study Intersections Modeled

Vissim No. ¹	DTM Signal ID	Intersection	Existing Traffic Control
1	3491	Los Altos Ave & Grant Rd	Traffic Signal (Indirect Left)
2	3492	1st Ave & Grant Rd	Traffic Signal
3	3493	Tyndall Ave & Grant Rd	Traffic Signal (Indirect Left)
4	3501	Park Ave & Grant Rd	Traffic Signal
5	3334	1st Ave & Jacinto St/Copper St	Pedestrian Hybrid Beacon (BikeHAWK)
6	3111	1st Ave & Glenn St	Traffic Signal
7	-	1st Ave & Blacklidge Dr	Two-Way Stop
8	2771	1st Ave & Fort Lowell Rd	Traffic Signal
9	2676	1st Ave & Graybill Dr	Pedestrian Hybrid Beacon (HAWK)
10	2451	1st Ave & Prince Rd	Traffic Signal
11	-	1st Ave & Halcyon Rd	Two-Way Stop
12	2141	1st Ave & Roger Rd	Traffic Signal
13	2031	1st Ave & Limberlost Dr	Traffic Signal
14	-	1st Ave & Fry's DWY	Two-Way Stop
15	1971	1st Ave & Wetmore Rd	Traffic Signal
16	-	1st Ave & Bromley St	Two-Way Stop
17	1541	1st Ave & E River Rd	Traffic Signal
18	-	1st Ave & LA Fitness DWY	Two-Way Stop
19	-	1st Ave & Walmart DWY	Two-Way Stop
20	-	1st Ave & Verde Apartments North DWY	Two-Way Stop
21	-	1st Ave & Sprouts DWY	Two-Way Stop
22	-	1st Ave & Fry's DWY 2	Two-Way Stop

¹Refers to the Node number coded within Vissim models for referencing purposes.

Data Collection

Traffic Volumes

Existing traffic volumes for the model development were derived from turning movement counts (TMCs) collected on Tuesday, March 26, 2024. The TMCs were collected between 7:00 a.m. to 10:00 a.m. and between 2:00 p.m. and 6:00 p.m. TMCs included vehicle, pedestrian and bicycle volumes at the following intersections:

■ 1 st Ave and River Rd - signalized	■ 1 st Ave and Prince Rd - signalized
■ 1 st Ave and Bromley St - TWSC	■ 1 st Ave and Graybill Dr - HAWK
■ 1 st Ave and Best Buy Dwy - TWSC	■ 1 st Ave and Halcyon Rd - TWSC
■ 1 st Ave and Wetmore Rd - signalized	■ 1 st Ave and Fort Lowell Rd - signalized
■ 1 st Ave and Verde Apartment Dwy - TWSC	■ 1 st Ave and Blacklidge Dr - signalized
■ 1 st Ave and Sprouts Dwy - TWSC	■ 1 st Ave and Glenn St - signalized
■ 1 st Ave and LA Fitness Dwy - TWSC	■ 1 st Ave and Jacinto/Copper St - HAWK
■ 1 st Ave and Limberlost Dr - signalized	■ 1 st Ave and Grant Rd - signalized
■ 1 st Ave and Fry's Dwy 1 - TWSC	■ Los Altos Ave and Grant Rd – signalized
■ 1 st Ave and Fry's Dwy 2 - TWSC	■ CVS Dwy and Grant Rd - signalized
■ 1 st Ave and Roger Rd - signalized	■ Park Ave and Grant Rd - signalized

In addition, 24-hour counts were collected on Tuesday, March 26, 2024. The 24-hour counts were used to collect daily traffic volumes along the study corridor to assist in identifying the weekday volume peak periods. The 24-hour tubes were placed between signalized intersections along 1st Avenue. In addition, four segments along 1st Avenue were selected to collect vehicle classification and speed data, particularly near commercial/retail areas where heavy vehicle activity is anticipated. The selected segments for additional vehicle classification and speed data were:

- Between Bromley Street and Best Buy Driveway (south of Rillito River bridge)
- Between Sprouts Driveway and LA Fitness Driveway (north of Limberlost Drive)
- Between Fry's Driveway 1 and Fry's Driveway 2 (north of Roger Road)
- Between Jacinto St/Cooper Street and Grant Road (north of Alturas Street)

Counts were collected while schools were in session. System-wide peak hours were identified as 7:30 AM to 8:30 AM and 4:30 PM to 5:30 PM and were used for the analysis. Traffic volumes were balanced between study intersections during these peak hours. See **Appendix A** for turning movement counts, **Appendix B** for 24-hour counts, and **Appendix C** for balanced TMCs that were used as inputs in the Vissim model.

Traffic Signal Timing/Phasing

An existing Synchro model for AM and PM time of day plans was provided by City of Tucson Department of Transportation and Mobility (DTM). Signal timing sheets were also provided by DTM and were used to verify the signal timing parameters coded in the Synchro model. This data was used to develop the ring barrier controllers (RBCs) that run simulated traffic signal timing and phasing in Vissim.

Transit

Local transit service was included in model development based on routes and schedules available on Sun Tran's website as well as travel time data provided by Sun Tran. Bus routes in the study area and associated peak hour service are summarized in **Table 2**.

Table 2 Modeled Transit Routes and Headways

Bus Route	AM Headways	PM Headways
Sun Tran 6	20 min	20 min
Sun Tran 9	20 min	20 min
Sun Tran 15	30 min	30 min
Sun Tran 17	30 min	30 min
Sun Tran 34	20 min	20 min

Sun Tran Route #6 is the primary bus service along 1st Avenue, from south of Grant Road to Wetmore Road within the model extent. The route services twenty-four (24) stops (12 northbound, 12 southbound). Future scenarios will use Route #6 current schedule as a baseline to compare anticipated transit travel time and Quality of Service.

Passenger boarding/alighting is captured through dwell time distributions, i.e. the bus will dwell at a given stop for a variable duration of time. These dwell time distributions were empirically derived from transit AVL data with a lower bound of 5 seconds and an upper bound 30 seconds.

Model Development

Kittelson used PTV Vissim 2024 microsimulation software for this analysis. The model was developed based on the data described in the previous section. The following sections provide details into the modeling decisions and choices made for the simulation.

Model Geometry

The network within the area of influence was developed as part of the Vissim model. Model links and connectors for the study corridor were made to fit the Bing Aerial imagery provided within Vissim current as of the modeling date (late 2024). Lane configurations, turn bay lengths, and stop bar locations were coded based on the aerial imagery. Within the model extents, 1st Avenue utilizes a two-way left turn lane (TWLTL) to separate left turns from the through lanes. Vissim does not have a function to model TWLTL; as a result, intersections and driveways were treated as dedicated left turn lanes, with the storage based on relative left-turn demand or geometric constraints.

Links along curves were adjusted by creating a spline from the beginning to the end of the curve. The shapes of the links and connectors were coded so that if the model is run with the aerial imagery in the background, the simulation will show the vehicles running smoothly on the aerial image's road network.

Driver Behavior

Wiedemann 74 driving behavior was used for all arterials within the model. The traffic flow model in Vissim is a discrete, stochastic, time step based, microsimulation model with driver-vehicle-units as single entities. The model contains a psycho-physical model for longitudinal vehicle movement and a rule-based algorithm for lateral movements. The Wiedemann 74 model is contained within Vissim and is the driver behavior typically used with urban roadways.

Routing Decisions

Static routing decisions were used for the primary routing throughout the network. Visum, a companion software to Vissim, was used to develop these routing decisions. Static routing decisions (proportional assignment of incoming volumes from each origin to all possible destinations) were created for all Origin-Destination (OD) pairs in Visum using Origin-Destination Matrix Estimation (ODME). These routes were imported from Visum using route coordinate files (rcf). Coding full OD routes in the model enables vehicles to anticipate their routes appropriately and be prepared to change lanes as needed. This minimizes unrealistic lane changing behaviors that can occur with using static routing decisions at each intersection (non-OD routes).

Speed Control

The following summarizes the various speed control elements coded into the model including desired speed distributions, desired speed decisions, and reduced speed areas.

Desired Speed Distributions

Speed distributions for main traffic flow were based on the Vissim default values provided by posted speed limits. These provide a distribution around the speed limit. A desired speed distribution was created for right turns between 7.5 and 15.5 miles per hour as well as one for left turns between 12.4 and 18.6 miles per hour. These turn speeds are standard values commonly used in Vissim modeling.

Desired Speed Decisions

Vehicle inputs were coded with vehicle compositions with defined speed distributions where possible; otherwise, speed decisions were placed at each entrance to the model (intersection approach). These were placed such that vehicles change speeds as soon as they are on the link with each new anticipated speed. Speed decisions were placed downstream of left or right turn connectors at intersections.

Reduced Speed Areas

Reduced speed areas were placed on the apex of curves on links or connectors whose corresponding roadway geometry would cause vehicles to temporarily slow down to navigate the area, including intersection turns. The lengths of the reduced speed areas were generally modeled to be between 5 and 15 feet.

Vehicle Inputs

Model traffic volume inputs were divided into six (6) 15-minute time intervals, summarized in **Table 3**. The individual intervals allow for modeling traffic volumes to surge and dissipate over the peak hour as observed in field conditions.

Table 3. Modeling Time Interval Summary

Period	Begin (min)	End (min)	Description
1	0	15	Warm-up – populate network with traffic
2	15	30	Peak Hour – 1st 15-minute period (7:30 AM to 7:45 AM or 4:30 PM to 4:45 PM)
3	30	45	Peak Hour – 2nd 15-minute period (7:45 AM to 8:00 AM or 4:45 PM to 5:00 PM)
4	45	60	Peak Hour – 3rd 15-minute period (8:00 AM to 8:15 AM or 5:00 PM to 5:15 PM)
5	60	75	Peak Hour – 4th 15-minute period (8:15 AM to 8:30 AM or 5:15 PM to 5:30 PM)
6	75	90	Stabilization – continues to populate network with shoulder peak traffic

Bold indicates time periods where model data is collected/results processed.

Conflict Management

Conflict areas were modeled for conflicting movements that might occur (e.g., permissive left-turns, right turn-on-red). Conflict areas were also used in combination with stop signs for stop-controlled intersection approaches. Adjustments to conflict areas were used to adjust the aggressiveness or passiveness of particular movements to reflect traffic field conditions, including at permissive dual-left turn locations.

Traffic Control

The following section includes a description of the traffic control elements including traffic signals, detectors and stop signs.

Traffic Signals

Traffic signals were modeled using the Ring Barrier Controller (RBC) within Vissim. Controller parameters and coordination patterns were coded into the RBC files. Right Turn on Red (RTOR) conditions were coded at applicable intersections where vehicles are permitted to turn if the signal is red.

Detectors

Traffic Signal Detectors were placed on approaches to signalized intersections that use detection to make phase calls to the signal controller. The detector layout and length were determined from the City-provided Synchro model; no as-built signal plans were obtained. Detection was primarily assumed to be implemented as stop bar detection with zone lengths estimated to be 25 feet.

Stop-Controlled Intersections

Stop signs were placed at the stop bar of unsignalized intersections. Conflict areas were used to model the conflicts for the stopped movements.

Pedestrian Hybrid Beacons/HAWKs

Pedestrian Hybrid Beacons (also known as PHBs or HAWKs) were also modeled using RBCs similar to traffic signals. However, HAWKs do not use vehicle detectors and instead rely on pedestrian actuation for the signals to stop vehicles in the model while pedestrians cross the street during the pedestrian clearance phase. Side street traffic at HAWK intersections operate as a stop-controlled approach.

Simulation Parameters

This section summarizes the simulation parameters used in the simulation models including simulation resolution, network warm-up & cooldown periods, and the simulation run time.

Simulation Resolution

The simulation resolution is the number of times the position of a vehicle will be calculated within one simulated second. This value can range from 1 to 20. The input parameter of one will result in the vehicles moving once per simulation second, while an input of 20 will result in the position of the vehicle being calculated 20 times in one simulated second. The higher the resolution number, the smoother the movement of the vehicles in the simulation. A higher resolution also leads to more accurate results and a longer run time. A value of 10 was used on the model to balance animation quality and model run efforts. This resolution value will be consistent between existing and future analyses but may be adjusted for model visualization outputs only.

Network Warm-up & Cooldown Periods

A warm-up period of 15 minutes (900 seconds) was used prior to the analysis period to allow for the model to populate with a sufficient number of vehicles to better represent field conditions and be at a solid state before data analysis begins. The measures of effectiveness (MOEs) are not reported for the warm-up period. A 15-minute (900 second) cool down period was also included after the analysis period to improve the analysis result performance. Similar to the warm-up period, MOEs were not reported for the cooldown period.

Simulation Run Time

Simulation runs were conducted for each AM and PM one-hour peak period in addition to the warm-up and cooldown periods described above. The simulated peak hour times are based on the system peak hours and are as follows:

- AM Peak Hour: 7:30 a.m. - 8:30 a.m.
- PM Peak Hour: 4:30 p.m. - 5:30 p.m.

Model Calibration

The existing conditions model was calibrated to match the existing traffic volumes and travel times along 1st Avenue during the AM and PM peak hours.

Traffic Volumes

Traffic volumes were calibrated in Vissim to the turning movement counts collected in the field and balanced between study intersections. Volume calibration uses 10 model runs with 10 different random seeds to vary the results. Those results are then averaged over all runs to serve as a comparison to field data. Calibration acceptance targets are compared to a variance statistic called the GEH Statistic (Equation 1).

Equation 1

$$GEH = \sqrt{\frac{(E - V)^2}{(E + V)/2}}$$

where:

E = model estimated volume

V = field count

The smaller the GEH statistic, the closer estimated volumes from the model are to field counts. Wisconsin DOT model calibration criteria⁴ suggest the following targets for GEH statistics:

- At least 85 percent of modeled volumes should have GEH < 2
- At least 98 percent of modeled volumes should have GEH < 5
- 100 percent of modeled volumes should have GEH < 10

The traffic volume calibration results are summarized in **Table 4** for the AM and PM peak periods.

Table 4. Existing Conditions Volume Calibration Results

Calibration Metric	AM Modeled Result	PM Modeled Result	Target	AM Met Target?	PM Met Target?
GEH Below 2	98.8%	98.3%	85%	Yes	Yes
GEH Below 5	100%	99.4%	98%	Yes	Yes
GEH Below 10	100%	100%	100%	Yes	Yes

The modeled vehicle volumes for both AM and PM peak hour models have met all GEH statistic targets and are considered calibrated. The intersection movement GEH statistics are available in **Appendix D**.

⁴ Source: "Freeway System Operational Assessment," Paramics Calibration and Validation Guidelines (Draft), Technical Report I-33, Wisconsin DOT, District 2, June 2002. The Wisconsin DOT calibration criteria were developed to acknowledge that modeling results are unlikely to precisely match field results. These targets have been adopted by FHWA, and presented in their best-practices document, "Traffic Analysis Toolbox Volume 3: Guidelines for Applying Traffic Microsimulation Modeling Software, PUBLICATION NO. FHWA-HRT-04-040, July 2004".

Travel Times

Travel times along 1st Avenue were analyzed and calibrated to travel times reported by Inrix. Per standard industry practice, simulation travel times are calibrated to a level of plus or minus one minute compared to field travel times when travel times are less than seven minutes. **Table 5** shows the Inrix and simulation travel times for each direction and time period reported in minutes. The Inrix data is reported from March 26th, 2024, the same day that traffic counts were collected. All targets have been met. **Table 6** shows a comparison of travel times collected by Sun Tran on Route 6 between Grant and Wetmore and simulation travel times for each direction and time period reported in minutes.

Table 5. Existing Conditions Travel Time Calibration Results (All vehicles – River to Grant)

Direction	AM Peak Hour			PM Peak Hour		
	Inrix Travel Time	Vissim Travel Time	Met Target?	Inrix Travel Time	Vissim Travel Time	Met Target?
Northbound	6.3	6.3	Yes	7.3	7.2	Yes
Southbound	6.6	6.4	Yes	6.7	7.0	Yes

Table 6. Existing Conditions Travel Time Calibration Results (Route 6 Buses – Wetmore to Grant)

Direction	AM Peak Hour			PM Peak Hour		
	Sun Tran 6 Travel Time	Vissim Travel Time	Met Target?	Sun Tran 6 Travel Time	Vissim Travel Time	Met Target?
Northbound	14.0	13.4	Yes	15.0	14.3	Yes
Southbound	11.0	11.1	Yes	11.0	11.6	Yes

Vehicle Speeds

Vehicle speeds along 1st Avenue were calibrated to average speeds that were collected in the field on four segments within the study corridor. Per industry practice, vehicle speeds were calibrated so that at least 85% of the studied Vissim segments are within 10 miles per hour (mph) of the observed vehicle speeds. **Table 7** shows observed and simulated average speeds for each direction and peak period in mph.

Table 7. Existing Conditions Average Speeds Calibration Results (All vehicles)

Location	Dir.	AM Peak Hour			PM Peak Hour		
		Observed Speeds	Vissim Speeds	Met Target?	Observed Speeds	Vissim Speeds	Met Target?
North of Wetmore	NB	43.0	45.1	Yes	40.7	44.6	Yes
	SB	40.9	41.7	Yes	40.6	40.3	Yes
North of Limberlost	NB	38.6	39.2	Yes	30.3	37.2	Yes
	SB	39.2	38.5	Yes	31.4	37.7	Yes
North of Roger	NB	40.6	38.6	Yes	34.2	37.2	Yes
	SB	30.2	35.2	Yes	26.2	33.8	Yes
North of Grant	NB	39.4	39.0	Yes	39.8	39.2	Yes
	SB	37.2	39.4	Yes	38.2	39.7	Yes

Queue Length

The queue lengths in Vissim were qualitatively calibrated to match the field conditions. Key queuing conditions to be met are focused on replicating any queue spillback to upstream intersections that would interfere with other movements. Queues results are generally consistent with the field observations and Synchro results. Per these results, modeled queues are considered to be calibrated.

Visual Calibration

The existing conditions model was visually calibrated beyond the queue observations to capture congestion and driving behaviors consistent with field observed conditions.

Pedestrian crossings were modeled and reviewed to produce similar vehicle yielding behavior observed in the field, and to replicate the effects of reducing capacity for turning movements. Right-turn-on-red movements were qualitatively observed at intersections.

Based on the observations above, the modeling team considers this model to be visually calibrated.

Number of Runs

Vissim simulations were run multiple times with different random seeds to capture the stochastic nature of day-to-day variations in traffic on the results. Ten simulation runs were performed first with different random seed numbers. After the ten simulation runs, the adequacy of the number of runs was assessed using the following equation (Equation 2).

Equation 2

$$n = \left(\frac{s * t_{\alpha/2}}{\mu * \varepsilon} \right)^2$$

Where:

n is the required number of simulation runs.

s is the standard deviation of the system performance measure (such as total traffic volume) based on previously conducted simulation runs.

$t_{\alpha/2}$ is the critical value of two-sided Student's t-statistic at the confidence level of α and $n-1$ degrees of freedom. An α of 5% is typical.

μ is the mean of the system performance measure.

ε is the tolerable error, specified as a fraction of μ . A 10% error is desired.

In the equation above, the system performance measure used is the "average delay time per vehicles (sec), all vehicle types" for the peak hour period through vehicle network performance. With 10 runs and an alpha of 5%, the critical t value is approximately 2.262. A 10% tolerable error was used.

Table 8 shows the minimum required number of runs for each scenario. This calculation shows the minimum number of runs for the AM and PM peak hours is one; however, it is standard practice is to use no fewer than ten runs, so ten runs were used for each scenario.

Table 8. Required Number of Runs

Scenario	Average Delay (s)	Average Delay - Standard Deviation (s)	Number of Runs Required
AM	48.4	0.61	1
PM	62.0	2.27	1

Calibration Conclusion

The existing conditions model is calibrated for the AM and PM peak hours as all of the quantitative and qualitative calibration targets are met.

Existing Operations Results

The simulated model's traffic operations results are summarized in this section, with a specific emphasis on the Measures of Effectiveness (MOEs) employed in the analysis. These MOEs, which include parameters such as delay times, Level of Service (LOS), and travel times, serve as critical indicators of the operational performance of the traffic system under examination.

Intersection Operations

Table 9 and **Table 10** present the overall intersection results, focusing on delay and LOS as primary MOEs. These tables provide a comparison between the Vissim microsimulation results and the Synchro deterministic analysis results. For a more detailed breakdown of intersection operation results, please refer to **Appendix E**.

Table 9. Weekday AM Study Intersection Traffic Operations (Vissim and Synchro Results Comparison)

Vissim No. ¹	Intersection	Vissim		Synchro ²	
		Delay (s)	LOS	Delay (s)	LOS
2	1st Ave & Grant Road	17.9	B	23.7	C
6	1st Ave & Glenn Street	12.9	B	10.5	B
8	1st Ave & Fort Lowell Road	24.1	C	31.7	C
10	1st Ave & Prince Road	24.4	C	28.5	C
12	1st Ave & Roger Road	16.0	B	19.3	B
13	1st Ave & Limberlost Drive	14.0	B	17.7	B
15	1st Ave & Wetmore Road	18.6	B	25.0	C
17	1st Ave & River Road	32.3	C	38.8	D

¹Refers to the Node number coded within Vissim models for referencing purposes.

²Analysis completed via Highway Capacity Manual 2000 Methodology (Reference 1) due to DTM standard barrier methodology.

Table 10. Weekday PM Study Intersection Traffic Operations (Vissim and Synchro Results Comparison)

Vissim No. ¹	Intersection	Vissim		Synchro ²	
		Delay (s)	LOS	Delay (s)	LOS
2	1st Ave & Grant Road	22.1	C	26.7	C
6	1st Ave & Glenn Street	13.8	B	10.8	B
8	1st Ave & Fort Lowell Road	25.9	C	31.2	C
10	1st Ave & Prince Road	36.4	D	31.3	C
12	1st Ave & Roger Road	29.5	C	23.0	C
13	1st Ave & Limberlost Drive	19.5	B	21.3	C
15	1st Ave & Wetmore Road	28.4	C	29.4	C
17	1st Ave & River Road	39.5	D	42.0	D

¹Refers to the Node number coded within Vissim models for referencing purposes.

²Analysis completed via Highway Capacity Manual 2000 Methodology (Reference 1) due to DTM standard barrier methodology.

As shown in **Table 9** and **Table 10**, the microsimulation results calculated in the Vissim model are similar to the Highway Capacity Manual (HCM) methodology calculated results in Synchro. Deviations in LOS between the two analysis methods are within one letter-grade of each other and do not suggest significant errors in the model development. The simulation results are generally better than the HCM results due to better representation of coordination between signals and right-turn-on-red. The deviation in results between the two methods may also be partially attributed to the use of individual peak hours in the Synchro analysis and the system-wide peak hour in the Vis analysis.

Overall, the simulation results show performance with no worse than LOS D experienced during either weekday AM or PM peak hours.

Travel Times

Table 11 summarizes the travel times simulated during the existing weekday AM and PM peak periods, in the northbound and southbound directions. Vehicle travel times range from 6 to 8 minutes, while bus travel times (Sun Tran Route 6) range from 11 to 15 minutes. Weekday PM peak hour travel times are longer than those during the AM peak, primarily due to substantial commercial areas along the corridor, which contribute to increased vehicular traffic volumes in the afternoon peak period.

Table 11. Vissim Travel Time Results

No	Dir.	Travel Time Segments	Vissim Average Travel Time – secs (mins)			
			Passenger Cars		Buses	
			AM	PM	AM	PM
1	Northbound	Grant Rd to Glenn St	51.0	53.5	140.2	136.5
2		Glenn St to Fort Lowell Rd	55.8	61.1	158.8	164.1
3		Fort Lowell Rd to Prince Rd	55.8	70.6	223.5	250.5
4		Prince Rd to Roger Rd	50.4	52.9	102.4	108.4
5		Roger Rd to Limberlost Dr	37.9	39.4	64.8	78.7
6		Limberlost Dr to Wetmore Rd	29.4	43.9	123.5	136.6
7		Wetmore Rd to River Rd	96.7	112.3	N/A ¹	N/A ¹
		Total (Sum of Individual Segments)	377 (6.3)	434 (7.2)	813 (13.6)	875 (14.6)
		Total (End-to-End Trajectories)	356 (5.9)	416 (6.9)	806 (13.4)	860 (14.3)
11	Southbound	River Rd to Wetmore Rd	66.1	79.4	N/A ¹	N/A ¹
12		Wetmore Rd to Limberlost Dr	29.5	36.1	97.4	102.6
13		Limberlost Dr to Roger Rd	34.1	39.2	53.6	56.0
14		Roger Rd to Prince Rd	65.5	80.0	123.7	146.5
15		Prince Rd to Fort Lowell Rd	62.6	62.9	153.8	158.0
16		Fort Lowell Rd to Glenn St	52.4	51.2	131.7	135.1
17		Glenn St to Grant Rd	76.4	71.6	181.9	182.3
		Total (Sum of Individual Segments)	387 (6.4)	420 (7.0)	742 (12.4)	781 (13.0)
		Total (End-to-End Trajectories)	377 (6.3)	406 (6.8)	663 (11.1)	697 (11.6)

¹SunTran Route 6 travels to/from West on Wetmore Rd, therefore there are no bus travel times between River Rd and Wetmore Rd.

Network Statistics

In addition to the corridor-specific analysis provided in the previous sections, an evaluation of the network-wide statistics, as presented in **Table 12**, provides a comprehensive understanding of the overall transportation network performance. This table provides an aggregate view of key metrics such as average speed, total delay, and vehicle throughput, which are indicative of the network's operational efficiency. For instance, the average speed across the network reveals the general pace of traffic flow, while the total delay gives an insight into the degree of congestion experienced by road users. The vehicle throughput, on the other hand, indicates the capacity of the network to accommodate the traffic demand.

Table 12. Existing Network-Wide Statistics — Weekday AM and PM Peak Hour

Network-wide Statistics	AM Peak Hour	PM Peak Hour
Average Delay (sec)	48.4	62.0
Average Speed (mph)	24.2	21.5
Total Delay (hr)	185	300
Active Vehicles (at end of peak hour)	478	721
Vehicles Arrived (during peak hour)	13,298	16,676
Total peak hour vehicles (Active + Arrived)	13,776	17,397
Latent Demand (at end of peak hour)/ Percentage of total peak hour vehicles	0.1 / 0.0%	13.0 / 0.1%
Latent Delay (hr)/ Percentage of total delay	0.1 / 0.1%	7.1 / 2.3%

The network-wide results in **Table 12** show that the total delay is about 185 and 300 hours during the weekday AM and PM peak hour, respectively. The results also show the model is performing as expected for an existing conditions model with limited latent delay and demand. Existing conditions models are expected to have low latent demand and delay as existing conditions models should capture all existing congestion within the model.

REFERENCES

1. Transportation Research Board. *Highway Capacity Manual 2000*.
2. "Freeway System Operational Assessment," Paramics Calibration and Validation Guidelines (Draft), Technical Report I-33, Wisconsin DOT, District 2, Milwaukee, WI, June 2002.

APPENDICES

- A. Turning Movement Counts
- B. 24-Hour Counts
- C. Balanced TMC Figures
- D. Vissim GEH Statistics
- E. Vissim Traffic Operations Results



Appendix C-A Turning Movement Counts



(303) 216-2439
www.alltrafficdata.net

Location: 1 N FLORES DR & GRANT RD AM

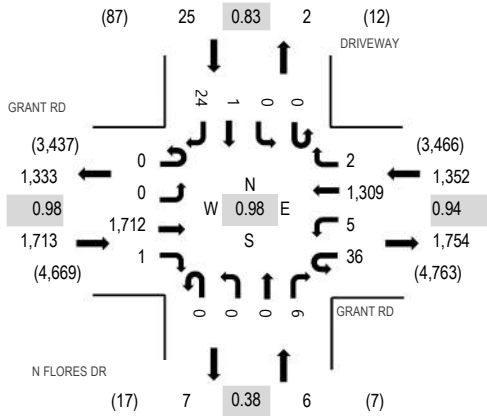
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

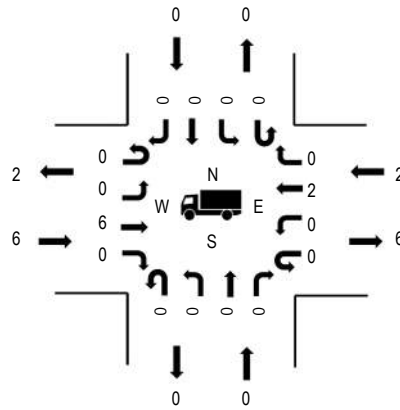
Peak 15-Minutes: 08:00 AM - 08:15 AM

Peak Hour

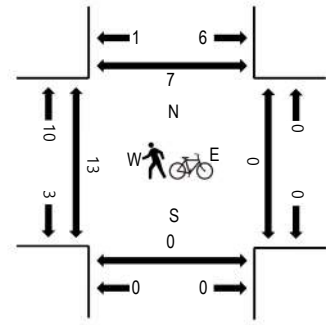
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.4%	0.98
WB	0.1%	0.94
NB	0.0%	0.38
SB	0.0%	0.83
All	0.3%	0.98

Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				N FLORES DR Northbound				DRIVEWAY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	303	0	3	0	193	1	0	0	0	0	0	0	0	4	504	2,778
7:15 AM	0	0	448	1	3	0	274	0	0	0	0	0	0	0	1	5	732	3,061
7:30 AM	0	0	447	1	4	0	324	1	0	0	0	1	0	0	0	5	783	3,096
7:45 AM	0	0	422	0	12	0	321	0	0	0	0	1	0	0	0	3	759	3,025
8:00 AM	0	0	443	0	8	1	321	1	0	0	0	4	0	0	1	8	787	2,994
8:15 AM	0	0	400	0	12	4	343	0	0	0	0	0	0	0	0	8	767	2,804
8:30 AM	0	0	418	0	9	3	277	3	0	0	0	0	0	0	0	2	712	2,638
8:45 AM	0	0	413	1	5	2	293	2	0	0	0	0	0	0	0	12	728	2,555
9:00 AM	0	0	342	0	9	0	234	3	0	0	0	0	0	0	0	9	597	2,457
9:15 AM	0	0	330	0	6	1	250	1	0	0	0	0	0	0	0	13	601	
9:30 AM	0	0	362	0	13	0	244	0	0	0	0	1	0	1	0	8	629	
9:45 AM	0	0	338	0	4	1	280	0	0	0	0	0	0	1	0	6	630	
Count Total	0	0	4,666	3	88	12	3,354	12	0	0	0	7	0	2	2	83	8,229	
Peak Hour	0	0	1,712	1	36	5	1,309	2	0	0	0	6	0	0	1	24	3,096	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	3	0	4	7:00 AM	0	0	0	1	1	7:00 AM	1	0	0	0	1
7:15 AM	3	0	0	0	3	7:15 AM	0	0	0	0	0	7:15 AM	2	1	0	3	6
7:30 AM	2	0	1	0	3	7:30 AM	0	0	0	0	0	7:30 AM	5	0	0	2	7
7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0	7:45 AM	2	0	0	1	3
8:00 AM	2	0	0	0	2	8:00 AM	0	0	0	0	0	8:00 AM	1	0	0	1	2
8:15 AM	2	0	1	0	3	8:15 AM	0	0	0	0	0	8:15 AM	5	0	0	3	8
8:30 AM	1	0	0	0	1	8:30 AM	0	0	0	1	1	8:30 AM	4	1	0	0	5
8:45 AM	2	0	2	0	4	8:45 AM	0	0	0	1	1	8:45 AM	3	0	0	2	5
9:00 AM	3	0	1	0	4	9:00 AM	0	0	0	0	0	9:00 AM	5	1	0	5	11

9:15 AM	2	0	1	0	3	9:15 AM	0	0	1	1	2	9:15 AM	2	0	0	3	5
9:30 AM	1	0	2	0	3	9:30 AM	1	0	0	0	1	9:30 AM	3	1	0	3	7
9:45 AM	0	0	1	0	1	9:45 AM	0	0	0	0	0	9:45 AM	3	2	0	0	5
Count Total	19	0	12	0	31	Count Total	1	0	1	4	6	Count Total	36	6	0	23	65
Peak Hour	6	0	2	0	8	Peak Hour	0	0	0	0	0	Peak Hour	13	0	0	7	20



(303) 216-2439
www.alltrafficdata.net

Location: 2 1ST AVE & GRANT RD AM

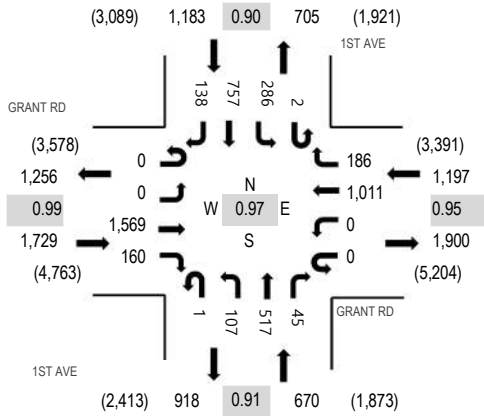
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

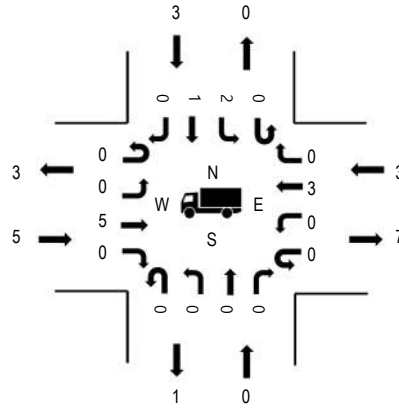
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

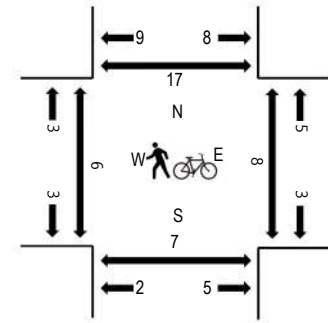
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.3%	0.99
WB	0.3%	0.95
NB	0.0%	0.91
SB	0.3%	0.90
All	0.2%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	283	23	0	0	192	33	0	26	84	8	1	35	106	23	814	4,340
7:15 AM	0	0	416	35	0	0	258	43	0	24	106	10	0	37	154	18	1,101	4,714
7:30 AM	0	0	411	41	0	0	279	50	0	18	126	5	1	54	182	24	1,191	4,752
7:45 AM	0	0	379	56	0	0	257	47	0	28	143	13	1	73	197	40	1,234	4,779
8:00 AM	0	0	417	38	0	0	255	47	0	30	115	11	0	67	173	35	1,188	4,704
8:15 AM	0	0	384	28	0	0	264	47	0	16	120	10	0	61	179	30	1,139	4,531
8:30 AM	0	0	389	38	0	0	235	45	1	33	139	11	1	85	208	33	1,218	4,395
8:45 AM	0	0	374	44	0	0	264	35	0	35	114	13	2	71	171	36	1,159	4,205
9:00 AM	0	0	309	42	0	0	210	35	0	41	94	9	1	67	176	31	1,015	4,072
9:15 AM	0	0	304	32	0	0	200	41	0	33	119	17	0	71	156	30	1,003	
9:30 AM	0	0	346	31	0	0	232	40	0	25	119	13	2	71	116	33	1,028	
9:45 AM	0	0	309	34	0	0	236	46	0	22	124	18	0	53	152	32	1,026	
Count Total	0	0	4,321	442	0	0	2,882	509	1	331	1,403	138	9	745	1,970	365	13,116	
Peak Hour	0	0	1,569	160	0	0	1,011	186	1	107	517	45	2	286	757	138	4,779	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	1	0	0	2	7:00 AM	0	0	0	1	1	7:00 AM	3	4	1	3	11
7:15 AM	3	0	2	0	5	7:15 AM	1	0	0	0	1	7:15 AM	1	0	2	4	7
7:30 AM	2	1	3	1	7	7:30 AM	1	0	1	0	2	7:30 AM	2	3	1	4	10
7:45 AM	0	0	1	1	2	7:45 AM	1	0	2	0	3	7:45 AM	1	1	1	2	5
8:00 AM	2	0	0	0	2	8:00 AM	0	0	0	0	0	8:00 AM	1	2	0	3	6
8:15 AM	2	0	1	1	4	8:15 AM	0	0	0	0	0	8:15 AM	2	3	3	7	15
8:30 AM	1	0	1	1	3	8:30 AM	1	0	0	0	1	8:30 AM	2	1	4	5	12
8:45 AM	2	0	2	2	6	8:45 AM	0	0	2	1	3	8:45 AM	2	0	2	7	11
9:00 AM	3	0	1	0	4	9:00 AM	0	0	0	1	1	9:00 AM	0	1	4	4	9

9:15 AM	2	1	0	1	4	9:15 AM	0	0	0	0	0	9:15 AM	4	0	2	5	11
9:30 AM	1	0	1	1	3	9:30 AM	0	0	0	0	0	9:30 AM	1	1	2	5	9
9:45 AM	0	0	4	0	4	9:45 AM	0	1	0	1	2	9:45 AM	4	1	2	5	12
Count Total	19	3	16	8	46	Count Total	4	1	5	4	14	Count Total	23	17	24	54	118
Peak Hour	5	0	3	3	11	Peak Hour	2	0	2	0	4	Peak Hour	6	7	8	17	38



(303) 216-2439
www.alltrafficdata.net

Location: 3 PED CROSS 2 & GRANT RD AM

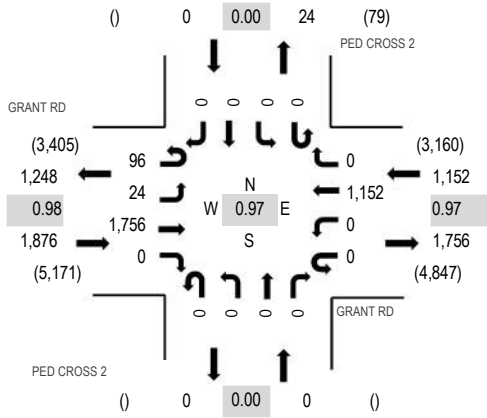
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

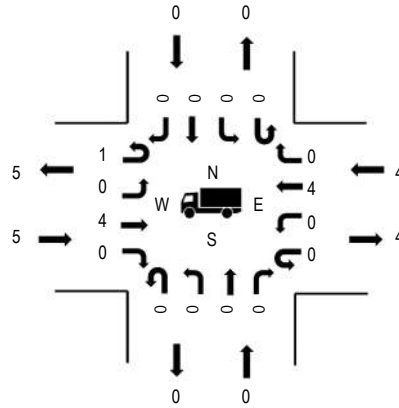
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

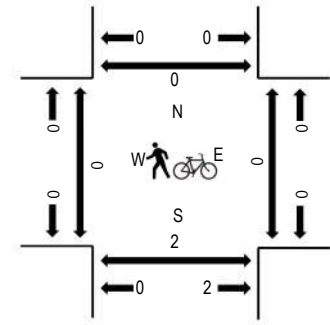
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.3%	0.98
WB	0.3%	0.97
NB	0.0%	0.00
SB	0.0%	0.00
All	0.3%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				PED CROSS 2 Northbound				PED CROSS 2 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	18	2	298	0	0	0	205	0	0	0	0	0	0	0	0	0	523	2,773
7:15 AM	24	3	421	0	0	0	292	0	0	0	0	0	0	0	0	0	740	3,013
7:30 AM	19	4	463	0	0	0	298	0	0	0	0	0	0	0	0	0	784	3,028
7:45 AM	21	9	411	0	0	0	285	0	0	0	0	0	0	0	0	0	726	2,985
8:00 AM	28	5	446	0	0	0	284	0	0	0	0	0	0	0	0	0	763	3,008
8:15 AM	28	6	436	0	0	0	285	0	0	0	0	0	0	0	0	0	755	2,864
8:30 AM	24	6	453	0	0	0	257	1	0	0	0	0	0	0	0	0	741	2,721
8:45 AM	12	3	443	0	0	0	290	1	0	0	0	0	0	0	0	0	749	2,655
9:00 AM	22	11	365	0	0	0	221	0	0	0	0	0	0	0	0	0	619	2,550
9:15 AM	18	12	362	0	0	0	219	1	0	0	0	0	0	0	0	0	612	
9:30 AM	15	6	383	0	0	0	270	1	0	0	0	0	0	0	0	0	675	
9:45 AM	20	8	366	0	0	0	250	0	0	0	0	0	0	0	0	0	644	
Count Total	249	75	4,847	0	0	0	3,156	4	0	0	0	0	0	0	0	0	8,331	
Peak Hour	96	24	1,756	0	0	0	1,152	0	0	0	0	0	0	0	0	0	3,028	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	0	1	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	1	1
7:15 AM	3	0	1	0	4	7:15 AM	1	0	0	0	1	7:15 AM	0	1	0	0	1
7:30 AM	1	0	2	0	3	7:30 AM	0	0	0	0	0	7:30 AM	0	1	0	0	1
7:45 AM	1	0	1	0	2	7:45 AM	0	0	2	0	2	7:45 AM	0	0	0	0	0
8:00 AM	1	0	0	0	1	8:00 AM	0	0	0	0	0	8:00 AM	0	1	0	0	1
8:15 AM	2	0	1	0	3	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	2	0	1	0	3	8:30 AM	0	0	0	0	0	8:30 AM	0	1	0	4	5
8:45 AM	4	0	1	0	5	8:45 AM	0	0	2	0	2	8:45 AM	0	4	0	0	4
9:00 AM	2	0	1	0	3	9:00 AM	0	0	0	0	0	9:00 AM	0	1	0	5	6

9:15 AM	2	0	0	0	2	9:15 AM	0	0	1	0	1	9:15 AM	0	0	0	0	0
9:30 AM	1	0	2	0	3	9:30 AM	0	0	0	0	0	9:30 AM	0	1	0	0	1
9:45 AM	0	0	3	0	3	9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	1	1
Count Total	20	0	13	0	33	Count Total	1	0	5	0	6	Count Total	0	10	0	11	21
Peak Hour	5	0	4	0	9	Peak Hour	0	0	2	0	2	Peak Hour	0	2	0	0	2



(303) 216-2439
www.alltrafficdata.net

Location: 4 PARK AVE & GRANT RD AM

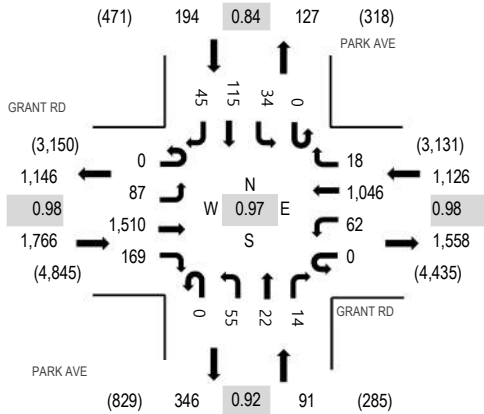
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

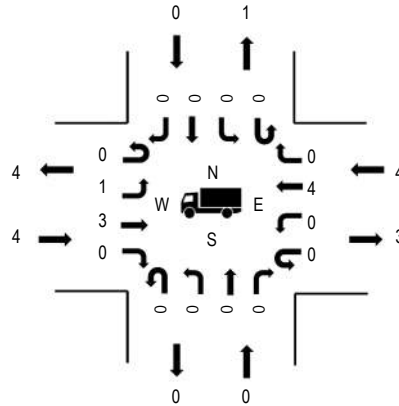
Motorized Vehicles



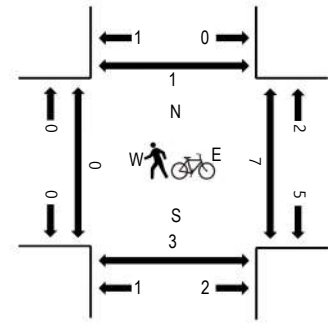
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.2%	0.98
WB	0.4%	0.98
NB	0.0%	0.92
SB	0.0%	0.84
All	0.3%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				PARK AVE Northbound				PARK AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	11	280	9	0	10	205	0	0	6	3	7	0	8	16	3	558	2,885
7:15 AM	0	10	377	20	0	3	267	4	0	6	10	2	0	4	17	8	728	3,128
7:30 AM	0	20	422	31	0	15	267	6	0	9	3	6	0	6	23	14	822	3,177
7:45 AM	0	22	334	57	0	20	261	4	0	12	6	3	0	8	39	11	777	3,148
8:00 AM	0	22	381	42	0	17	255	5	0	16	6	3	0	13	29	12	801	3,161
8:15 AM	0	23	373	39	0	10	263	3	0	18	7	2	0	7	24	8	777	3,001
8:30 AM	0	22	410	22	0	16	248	3	0	12	9	7	0	10	28	6	793	2,877
8:45 AM	1	13	396	31	0	17	265	1	0	8	12	10	0	6	21	9	790	2,795
9:00 AM	0	11	312	39	0	19	199	1	0	9	5	4	0	9	24	9	641	2,686
9:15 AM	1	11	317	34	0	19	205	2	0	13	7	8	0	7	26	3	653	
9:30 AM	0	18	337	26	0	14	253	2	0	14	11	4	0	14	13	5	711	
9:45 AM	1	13	335	22	0	18	232	2	0	12	10	5	0	8	19	4	681	
Count Total	3	196	4,274	372	0	178	2,920	33	0	135	89	61	0	100	279	92	8,732	
Peak Hour	0	87	1,510	169	0	62	1,046	18	0	55	22	14	0	34	115	45	3,177	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	0	1	7:00 AM	0	0	0	0	0	7:00 AM	1	0	0	0	1
7:15 AM	3	0	1	0	4	7:15 AM	1	0	0	0	1	7:15 AM	0	0	2	0	2
7:30 AM	0	0	2	0	2	7:30 AM	0	0	0	1	1	7:30 AM	0	1	2	0	3
7:45 AM	1	0	1	0	2	7:45 AM	0	0	1	1	2	7:45 AM	0	0	2	0	2
8:00 AM	1	0	0	0	1	8:00 AM	0	0	0	0	0	8:00 AM	0	1	0	0	1
8:15 AM	2	0	1	0	3	8:15 AM	0	0	0	2	2	8:15 AM	0	1	3	1	5
8:30 AM	2	0	1	0	3	8:30 AM	0	0	0	1	1	8:30 AM	1	1	0	0	2
8:45 AM	3	0	1	0	4	8:45 AM	0	0	0	1	1	8:45 AM	0	1	0	0	1
9:00 AM	2	0	1	0	3	9:00 AM	0	0	0	1	1	9:00 AM	0	4	0	3	7

9:15 AM	2	0	0	0	2	9:15 AM	0	0	1	0	1	9:15 AM	0	0	2	0	2
9:30 AM	1	0	2	0	3	9:30 AM	0	0	0	0	0	9:30 AM	0	0	0	0	0
9:45 AM	0	0	3	0	3	9:45 AM	0	0	0	0	0	9:45 AM	1	0	0	0	1
Count Total	18	0	13	0	31	Count Total	1	0	2	7	10	Count Total	3	9	11	4	27
Peak Hour	4	0	4	0	8	Peak Hour	0	0	1	4	5	Peak Hour	0	3	7	1	11



(303) 216-2439
www.alltrafficdata.net

Location: 5 1ST AVE & JACINTO ST AM

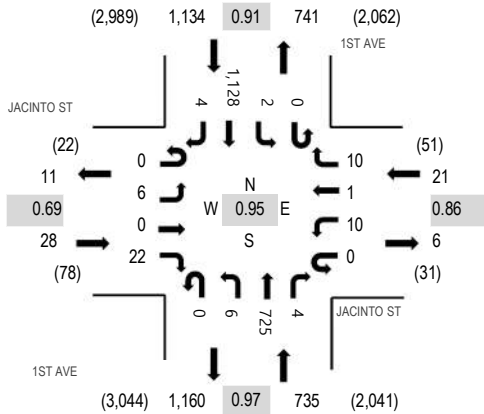
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour

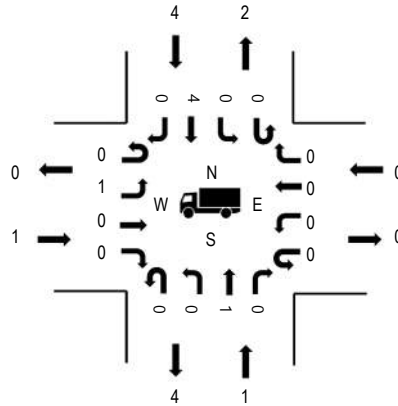
Motorized Vehicles



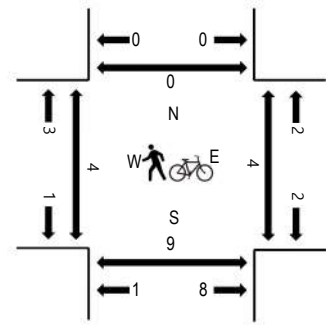
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.6%	0.69
WB	0.0%	0.86
NB	0.1%	0.97
SB	0.4%	0.91
All	0.3%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	JACINTO ST Eastbound				JACINTO ST Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	0	3	0	1	0	1	0	1	124	0	0	0	149	0	280	1,598
7:15 AM	0	1	1	4	0	2	0	3	0	0	160	1	0	1	219	1	393	1,808
7:30 AM	0	0	0	4	0	0	0	1	0	1	182	1	0	0	277	0	466	1,878
7:45 AM	0	1	0	9	0	5	0	1	0	1	186	0	0	1	254	1	459	1,918
8:00 AM	0	2	0	1	0	0	0	2	0	2	188	1	0	0	294	0	490	1,911
8:15 AM	0	2	0	4	0	3	0	3	0	1	178	1	0	1	270	0	463	1,853
8:30 AM	0	1	0	8	0	2	1	4	0	2	173	2	0	0	310	3	506	1,777
8:45 AM	0	3	0	10	0	4	0	3	0	0	177	2	0	2	251	0	452	1,698
9:00 AM	0	4	1	3	0	2	0	2	0	0	140	3	0	2	275	0	432	1,650
9:15 AM	0	2	0	1	0	0	0	3	0	0	154	2	0	2	222	1	387	
9:30 AM	0	4	0	2	0	1	0	3	0	1	181	2	0	3	229	1	427	
9:45 AM	0	1	0	5	0	1	1	2	0	3	169	2	0	0	219	1	404	
Count Total	0	22	2	54	0	21	2	28	0	12	2,012	17	0	12	2,969	8	5,159	
Peak Hour	0	6	0	22	0	10	1	10	0	6	725	4	0	2	1,128	4	1,918	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	1	1	7:00 AM	0	2	0	0	2
7:15 AM	0	0	0	1	1	7:15 AM	0	0	0	0	0	7:15 AM	1	0	0	0	1
7:30 AM	0	2	0	0	2	7:30 AM	0	0	0	0	0	7:30 AM	0	2	1	0	3
7:45 AM	0	0	0	1	1	7:45 AM	1	0	0	0	1	7:45 AM	0	2	1	0	3
8:00 AM	1	0	0	1	2	8:00 AM	0	0	0	0	0	8:00 AM	1	2	1	0	4
8:15 AM	0	0	0	1	1	8:15 AM	1	0	1	0	2	8:15 AM	2	2	1	0	5
8:30 AM	0	1	0	1	2	8:30 AM	2	0	0	0	2	8:30 AM	1	3	1	0	5
8:45 AM	0	0	0	1	1	8:45 AM	0	0	0	0	0	8:45 AM	1	1	0	0	2
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	1	1

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	3	3	1	0	7
9:30 AM	0	0	0	1	1	9:30 AM	1	0	0	0	1	9:30 AM	1	1	0	0	2
9:45 AM	0	0	0	0	0	9:45 AM	1	1	0	0	2	9:45 AM	1	1	1	0	3
Count Total	1	5	0	7	13	Count Total	6	1	1	1	9	Count Total	11	19	7	1	38
Peak Hour	1	1	0	4	6	Peak Hour	4	0	1	0	5	Peak Hour	4	9	4	0	17



(303) 216-2439
www.alltrafficdata.net

Location: 6 1ST AVE & GLENN ST AM

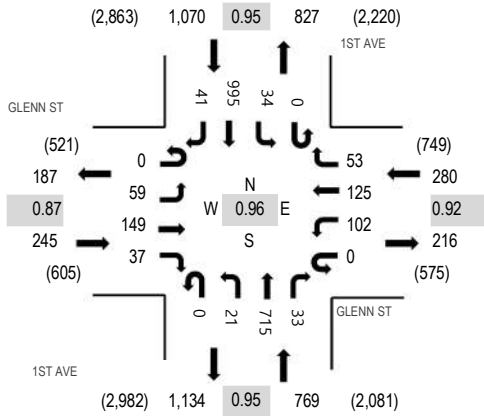
Date: Tuesday, March 26, 2024

Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour

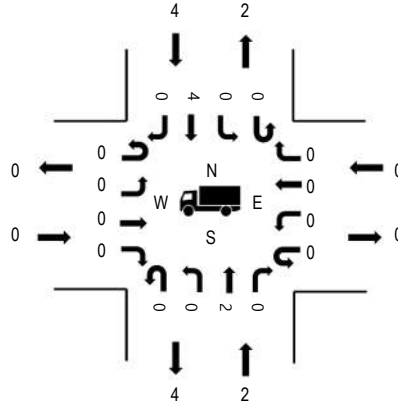
Motorized Vehicles



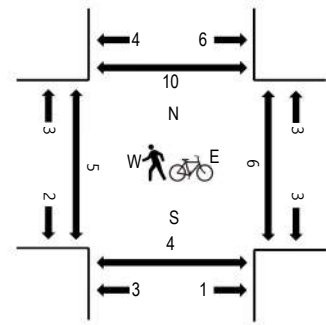
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.87
WB	0.0%	0.92
NB	0.3%	0.95
SB	0.4%	0.95
All	0.3%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	GLENN ST Eastbound				GLENN ST Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	9	26	1	0	14	22	8	0	4	110	5	0	10	110	5	324	1,925
7:15 AM	0	7	41	7	0	19	32	10	0	8	145	5	0	8	187	6	475	2,197
7:30 AM	0	8	21	9	0	22	29	9	0	7	156	8	0	16	262	6	553	2,275
7:45 AM	0	21	31	9	0	18	43	22	0	6	155	9	0	16	238	5	573	2,339
8:00 AM	0	14	35	10	0	22	37	15	0	7	175	11	0	7	251	12	596	2,364
8:15 AM	0	12	41	5	0	26	29	16	0	6	168	8	0	13	219	10	553	2,272
8:30 AM	0	20	42	10	0	25	40	12	0	4	183	5	0	7	260	9	617	2,215
8:45 AM	0	13	31	12	0	29	19	10	0	4	189	9	0	7	265	10	598	2,096
9:00 AM	0	14	20	13	0	20	21	9	0	9	160	9	0	10	213	6	504	2,009
9:15 AM	0	11	19	12	0	17	24	13	0	7	124	7	0	14	242	6	496	
9:30 AM	0	9	20	10	0	12	25	14	0	9	172	7	0	14	198	8	498	
9:45 AM	0	14	23	5	0	15	32	19	0	5	174	11	0	9	195	9	511	
Count Total	0	152	350	103	0	239	353	157	0	76	1,911	94	0	131	2,640	92	6,298	
Peak Hour	0	59	149	37	0	102	125	53	0	21	715	33	0	34	995	41	2,364	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	1	2	7:00 AM	0	0	0	5	5
7:15 AM	0	1	1	0	2	7:15 AM	0	0	0	0	0	7:15 AM	0	1	3	0	4
7:30 AM	0	0	1	1	2	7:30 AM	1	0	3	0	4	7:30 AM	2	4	0	4	10
7:45 AM	0	0	0	0	0	7:45 AM	1	0	0	0	1	7:45 AM	0	0	2	5	7
8:00 AM	0	2	0	2	4	8:00 AM	0	0	0	0	0	8:00 AM	2	0	2	3	7
8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0	8:15 AM	0	2	0	4	6
8:30 AM	0	0	0	2	2	8:30 AM	0	0	0	0	0	8:30 AM	0	1	1	1	3
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	3	1	3	2	9
9:00 AM	0	2	0	0	2	9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	2	2

9:15 AM	0	1	0	0	1	9:15 AM	0	1	1	1	3	9:15 AM	3	5	1	2	11
9:30 AM	0	0	0	1	1	9:30 AM	0	0	0	2	2	9:30 AM	2	0	3	1	6
9:45 AM	0	0	0	1	1	9:45 AM	1	0	0	1	2	9:45 AM	1	2	0	2	5
Count Total	0	6	2	7	15	Count Total	3	2	4	5	14	Count Total	13	16	15	31	75
Peak Hour	0	2	0	4	6	Peak Hour	0	0	0	0	0	Peak Hour	5	4	6	10	25



(303) 216-2439
www.alltrafficdata.net

Location: 7 1ST AVE & BLACKLIDGE DR AM

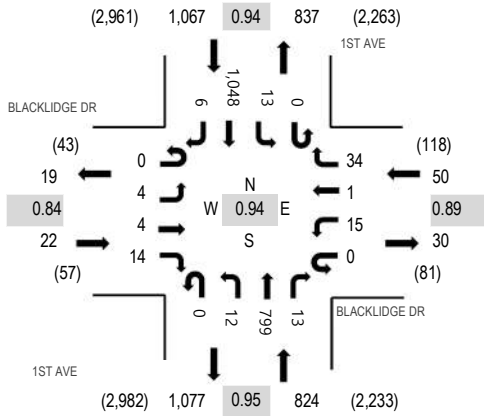
Date: Tuesday, March 26, 2024

Peak Hour: 08:00 AM - 09:00 AM

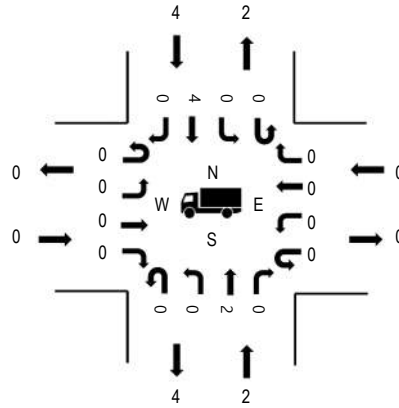
Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour

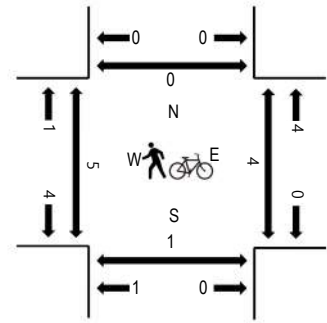
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.84
WB	0.0%	0.89
NB	0.2%	0.95
SB	0.4%	0.94
All	0.3%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	BLACKLIDGE DR Eastbound				BLACKLIDGE DR Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	4	0	0	0	3	0	0	129	4	0	1	146	1	288	1,648
7:15 AM	0	1	1	2	0	2	0	10	0	1	151	3	0	2	205	1	379	1,815
7:30 AM	0	0	2	5	0	4	0	8	0	2	194	3	0	2	278	1	499	1,915
7:45 AM	0	0	1	2	0	3	0	3	0	1	182	2	0	3	284	1	482	1,940
8:00 AM	0	0	0	3	0	2	0	9	0	4	177	5	0	3	252	0	455	1,963
8:15 AM	0	2	1	3	0	3	1	8	0	1	202	5	0	4	247	2	479	1,953
8:30 AM	0	1	3	4	0	7	0	7	0	1	211	2	0	2	283	3	524	1,907
8:45 AM	0	1	0	4	0	3	0	10	0	6	209	1	0	4	266	1	505	1,806
9:00 AM	0	2	0	6	0	1	0	5	0	1	183	2	0	4	239	2	445	1,758
9:15 AM	0	2	0	1	0	4	0	2	0	2	145	3	0	1	273	0	433	
9:30 AM	0	1	0	1	0	6	0	5	0	1	180	5	0	5	216	3	423	
9:45 AM	0	3	0	1	0	4	0	8	0	2	209	4	0	3	218	5	457	
Count Total	0	13	8	36	0	39	1	78	0	22	2,172	39	0	34	2,907	20	5,369	
Peak Hour	0	4	4	14	0	15	1	34	0	12	799	13	0	13	1,048	6	1,963	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0	7:00 AM	0	0	2	0	2
7:15 AM	0	1	0	0	1	7:15 AM	1	0	0	0	1	7:15 AM	2	0	3	3	8
7:30 AM	0	1	1	1	3	7:30 AM	0	0	0	0	0	7:30 AM	2	0	0	1	3
7:45 AM	0	0	0	1	1	7:45 AM	0	0	0	0	0	7:45 AM	1	0	0	0	1
8:00 AM	0	2	0	2	4	8:00 AM	0	1	0	0	1	8:00 AM	1	1	0	0	2
8:15 AM	0	0	0	0	0	8:15 AM	0	1	0	1	2	8:15 AM	2	0	2	0	4
8:30 AM	0	0	0	2	2	8:30 AM	0	1	0	0	1	8:30 AM	0	0	1	0	1
8:45 AM	0	0	0	0	0	8:45 AM	1	0	1	1	3	8:45 AM	2	0	1	0	3
9:00 AM	0	2	1	0	3	9:00 AM	1	1	0	0	2	9:00 AM	0	0	0	1	1

9:15 AM	0	1	0	0	1	9:15 AM	0	1	1	0	2	9:15 AM	1	0	0	0	1
9:30 AM	0	0	0	1	1	9:30 AM	0	1	1	2	4	9:30 AM	0	0	1	0	1
9:45 AM	0	0	0	1	1	9:45 AM	1	1	0	0	2	9:45 AM	1	0	1	0	2
Count Total	0	8	2	8	18	Count Total	4	7	3	4	18	Count Total	12	1	11	5	29
Peak Hour	0	2	0	4	6	Peak Hour	1	3	1	2	7	Peak Hour	5	1	4	0	10



(303) 216-2439
www.alltrafficdata.net

Location: 8 1ST AVE & FORT LOWELL RD AM

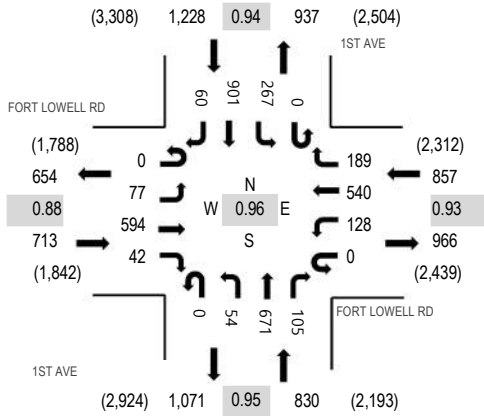
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

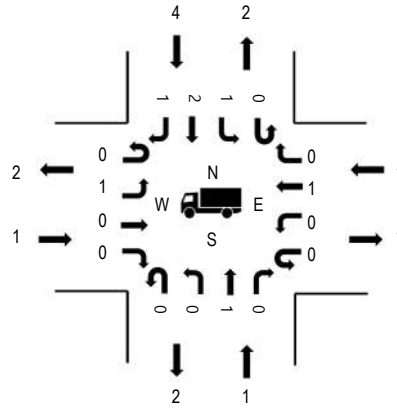
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

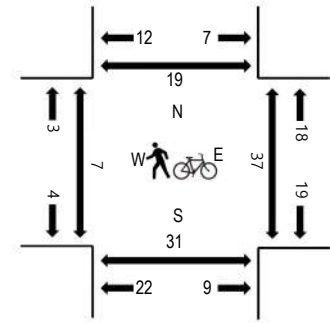
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.1%	0.88
WB	0.1%	0.93
NB	0.1%	0.95
SB	0.3%	0.94
All	0.2%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	FORT LOWELL RD Eastbound				FORT LOWELL RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	12	89	7	0	11	85	36	0	7	97	9	0	49	143	10	555	3,175
7:15 AM	0	20	125	6	0	25	138	33	0	12	135	17	0	37	191	17	756	3,507
7:30 AM	0	18	177	8	0	35	135	40	0	11	171	31	0	68	210	12	916	3,628
7:45 AM	0	22	140	8	0	29	152	43	0	13	174	32	0	69	246	20	948	3,601
8:00 AM	0	19	133	10	0	35	137	59	0	11	160	15	0	66	226	16	887	3,514
8:15 AM	0	18	144	16	0	29	116	47	0	19	166	27	0	64	219	12	877	3,424
8:30 AM	0	15	134	9	0	21	131	56	0	11	157	16	0	63	260	16	889	3,237
8:45 AM	0	9	154	7	0	27	136	44	0	15	160	25	0	65	207	12	861	3,119
9:00 AM	0	13	158	10	0	23	104	37	0	9	124	27	0	45	235	12	797	2,966
9:15 AM	0	9	80	9	0	22	108	52	0	6	144	16	0	37	191	16	690	
9:30 AM	0	12	127	15	0	21	122	41	0	14	156	20	0	38	194	11	771	
9:45 AM	0	9	87	13	0	21	121	40	0	13	156	17	0	38	185	8	708	
Count Total	0	176	1,548	118	0	299	1,485	528	0	141	1,800	252	0	639	2,507	162	9,655	
Peak Hour	0	77	594	42	0	128	540	189	0	54	671	105	0	267	901	60	3,628	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	1	0	2	7:00 AM	0	1	1	1	3	7:00 AM	2	0	3	2	7
7:15 AM	0	0	1	0	1	7:15 AM	0	0	0	0	0	7:15 AM	2	3	3	2	10
7:30 AM	1	0	1	0	2	7:30 AM	0	0	0	0	0	7:30 AM	0	5	15	4	24
7:45 AM	0	1	0	1	2	7:45 AM	0	0	0	0	0	7:45 AM	1	6	5	5	17
8:00 AM	0	0	0	1	1	8:00 AM	0	1	0	0	1	8:00 AM	4	9	9	5	27
8:15 AM	0	0	0	2	2	8:15 AM	0	0	0	0	0	8:15 AM	2	11	8	5	26
8:30 AM	1	0	1	0	2	8:30 AM	0	0	0	0	0	8:30 AM	4	17	6	5	32
8:45 AM	1	0	0	0	1	8:45 AM	0	0	0	0	0	8:45 AM	1	10	8	4	23
9:00 AM	1	0	0	0	1	9:00 AM	2	0	0	0	2	9:00 AM	6	10	16	0	32

9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0	9:15 AM	7	12	12	1	32
9:30 AM	0	1	0	1	2	9:30 AM	0	0	1	0	1	9:30 AM	2	15	12	2	31
9:45 AM	1	0	0	0	1	9:45 AM	0	0	0	0	0	9:45 AM	4	13	8	2	27
Count Total	6	2	4	5	17	Count Total	2	2	2	1	7	Count Total	35	111	105	37	288
Peak Hour	1	1	1	4	7	Peak Hour	0	1	0	0	1	Peak Hour	7	31	37	19	94



(303) 216-2439
www.alltrafficdata.net

Location: 9 1ST AVE & GRAYBILL DR AM

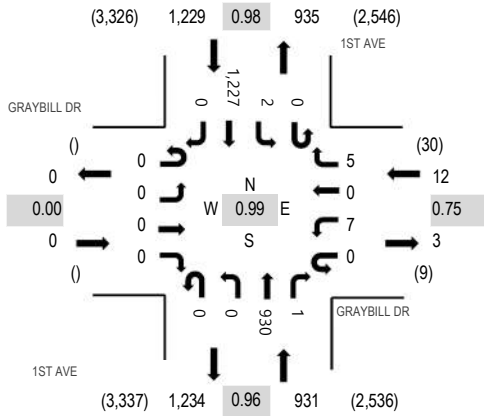
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

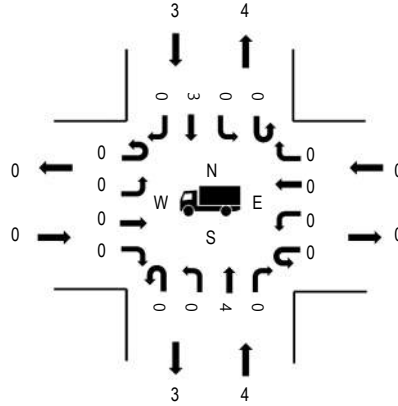
Peak 15-Minutes: 08:00 AM - 08:15 AM

Peak Hour

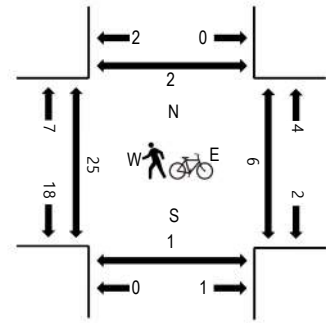
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.75
NB	0.4%	0.96
SB	0.2%	0.98
All	0.3%	0.99

Traffic Counts - Motorized Vehicles

Interval Start Time	GRAYBILL DR Eastbound				GRAYBILL DR Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	2	0	2	0	0	168	0	0	0	194	0	366	1,896
7:15 AM	0	0	0	0	0	0	0	0	0	0	198	0	0	1	256	0	455	2,081
7:30 AM	0	0	0	0	0	4	0	0	0	0	211	0	0	2	311	0	528	2,152
7:45 AM	0	0	0	0	0	3	0	0	0	0	242	0	0	1	301	0	547	2,172
8:00 AM	0	0	0	0	0	0	0	2	0	0	239	0	0	0	310	0	551	2,144
8:15 AM	0	0	0	0	0	1	0	2	0	0	219	1	0	0	303	0	526	2,064
8:30 AM	0	0	0	0	0	3	0	1	0	0	230	0	0	1	313	0	548	1,985
8:45 AM	0	0	0	0	0	1	0	1	0	0	220	1	0	0	296	0	519	1,912
9:00 AM	0	0	0	0	0	1	0	0	0	0	171	0	0	1	298	0	471	1,852
9:15 AM	0	0	0	0	0	2	0	1	0	0	204	0	0	0	240	0	447	
9:30 AM	0	0	0	0	0	0	0	1	0	0	208	0	0	1	265	0	475	
9:45 AM	0	0	0	0	0	1	0	2	0	0	224	0	0	0	232	0	459	
Count Total	0	0	0	0	0	18	0	12	0	0	2,534	2	0	7	3,319	0	5,892	
Peak Hour	0	0	0	0	0	7	0	5	0	0	930	1	0	2	1,227	0	2,172	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1	7:00 AM	1	0	3	0	4
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	1	1	2	0	4
7:30 AM	0	2	0	1	3	7:30 AM	0	0	0	0	0	7:30 AM	4	4	2	0	10
7:45 AM	0	2	0	1	3	7:45 AM	0	0	0	0	0	7:45 AM	2	0	4	2	8
8:00 AM	0	1	0	0	1	8:00 AM	0	0	0	0	0	8:00 AM	1	0	1	0	2
8:15 AM	0	1	0	2	3	8:15 AM	0	0	0	0	0	8:15 AM	17	1	0	0	18
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	5	0	1	0	6
8:45 AM	0	2	0	0	2	8:45 AM	0	0	0	0	0	8:45 AM	3	3	0	0	6
9:00 AM	0	0	0	1	1	9:00 AM	0	0	0	0	0	9:00 AM	2	1	2	0	5

9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0	9:15 AM	0	0	1	0	1
9:30 AM	0	1	0	1	2	9:30 AM	0	0	0	0	0	9:30 AM	1	3	1	0	5
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	1	1	9:45 AM	7	3	2	0	12
Count Total	0	9	0	6	15	Count Total	0	1	0	1	2	Count Total	44	16	19	2	81
Peak Hour	0	4	0	3	7	Peak Hour	0	0	0	0	0	Peak Hour	25	1	6	2	34



(303) 216-2439
www.alltrafficdata.net

Location: 10 1ST AVE & PRINCE RD AM

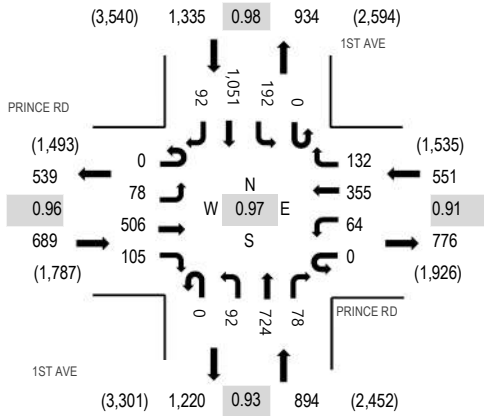
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:00 AM - 08:15 AM

Peak Hour

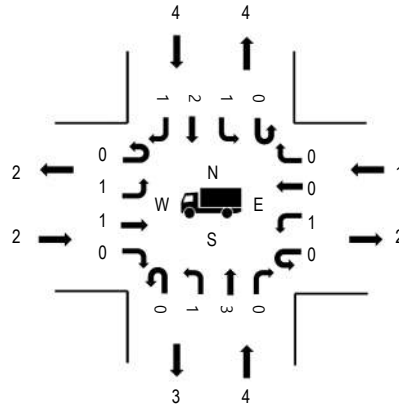
Motorized Vehicles



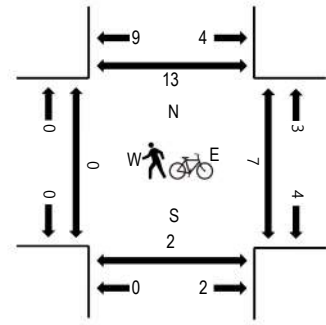
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.3%	0.96
WB	0.2%	0.91
NB	0.4%	0.93
SB	0.3%	0.98
All	0.3%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PRINCE RD Eastbound				PRINCE RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	9	85	19	0	8	58	22	0	29	107	13	0	32	166	15	563	2,953
7:15 AM	0	19	78	24	0	19	71	47	0	23	164	12	0	32	205	16	710	3,282
7:30 AM	0	18	101	36	0	17	77	37	0	29	171	11	0	46	250	20	813	3,418
7:45 AM	0	21	127	22	0	22	100	29	0	31	171	22	0	45	258	19	867	3,469
8:00 AM	0	21	121	33	0	16	78	35	0	32	184	24	0	49	274	25	892	3,447
8:15 AM	0	23	133	23	0	14	82	34	0	14	189	16	0	47	244	27	846	3,269
8:30 AM	0	13	125	27	0	12	95	34	0	15	180	16	0	51	275	21	864	3,134
8:45 AM	0	22	100	22	0	14	88	34	0	18	183	18	0	48	277	21	845	3,034
9:00 AM	0	24	97	29	0	18	87	22	0	22	121	14	0	33	229	18	714	2,914
9:15 AM	0	21	106	16	0	19	71	34	0	26	147	9	0	33	210	19	711	
9:30 AM	0	23	102	21	0	15	78	23	0	19	184	10	0	33	241	15	764	
9:45 AM	0	16	97	13	0	15	84	26	0	29	186	13	0	27	198	21	725	
Count Total	0	230	1,272	285	0	189	969	377	0	287	1,987	178	0	476	2,827	237	9,314	
Peak Hour	0	78	506	105	0	64	355	132	0	92	724	78	0	192	1,051	92	3,469	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	0	1	7:00 AM	0	1	0	0	1	7:00 AM	0	2	7	4	13
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	1	4	3	8
7:30 AM	0	2	0	1	3	7:30 AM	0	1	0	0	1	7:30 AM	0	2	2	1	5
7:45 AM	1	2	0	3	6	7:45 AM	1	0	1	0	2	7:45 AM	0	1	4	3	8
8:00 AM	0	1	0	0	1	8:00 AM	0	1	0	0	1	8:00 AM	0	0	1	5	6
8:15 AM	0	1	1	1	3	8:15 AM	0	1	0	0	1	8:15 AM	0	0	0	2	2
8:30 AM	1	0	0	0	1	8:30 AM	0	0	0	0	0	8:30 AM	0	1	2	3	6
8:45 AM	1	2	0	0	3	8:45 AM	0	0	0	0	0	8:45 AM	0	1	3	2	6
9:00 AM	1	0	0	0	1	9:00 AM	0	0	0	1	1	9:00 AM	0	3	1	3	7

9:15 AM	1	0	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	0	2	0	1	3
9:30 AM	0	1	1	1	3	9:30 AM	1	0	0	0	1	9:30 AM	0	1	1	3	5
9:45 AM	0	0	0	0	0	9:45 AM	1	0	0	0	1	9:45 AM	0	4	1	1	6
Count Total	6	9	2	6	23	Count Total	3	4	1	1	9	Count Total	0	18	26	31	75
Peak Hour	2	4	1	4	11	Peak Hour	1	2	1	0	4	Peak Hour	0	2	7	13	22



(303) 216-2439
www.alltrafficdata.net

Location: 11 1ST AVE & HALCYON RD AM

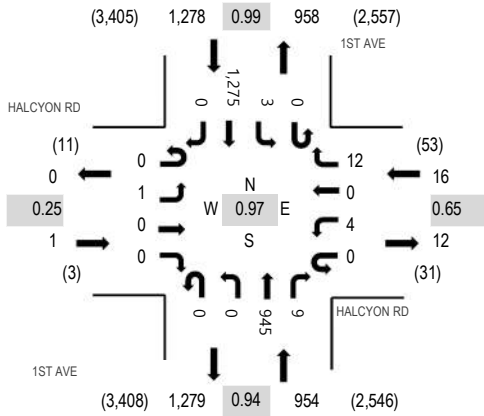
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

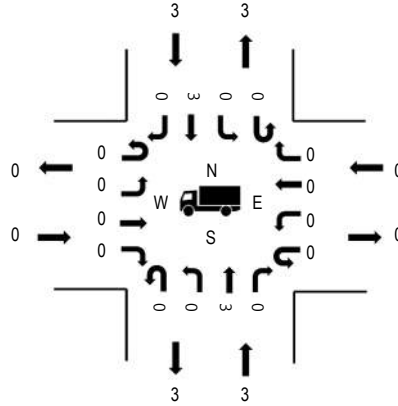
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

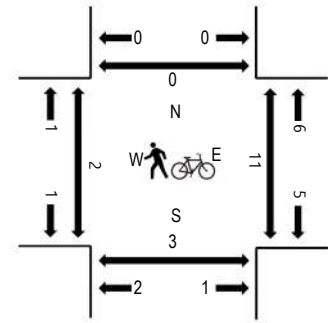
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.25
WB	0.0%	0.65
NB	0.3%	0.94
SB	0.2%	0.99
All	0.3%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	HALCYON RD Eastbound				HALCYON RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	2	0	3	0	0	158	0	0	0	199	0	362	1,940
7:15 AM	0	0	0	0	0	4	0	6	0	0	191	3	0	1	247	0	452	2,139
7:30 AM	0	0	0	0	0	2	0	3	0	0	217	1	0	1	323	0	547	2,231
7:45 AM	0	0	0	0	0	0	0	6	0	0	249	4	0	1	319	0	579	2,249
8:00 AM	0	0	0	0	0	1	0	3	0	0	238	3	0	1	315	0	561	2,189
8:15 AM	0	0	0	0	0	0	0	3	0	0	221	2	0	0	318	0	544	2,101
8:30 AM	0	1	0	0	0	3	0	0	0	0	237	0	0	1	323	0	565	2,021
8:45 AM	0	0	0	0	0	3	0	2	0	2	209	0	0	2	301	0	519	1,922
9:00 AM	0	0	0	0	0	1	0	1	0	2	170	0	0	0	298	1	473	1,878
9:15 AM	0	0	0	0	0	1	0	2	0	1	214	4	0	2	239	1	464	
9:30 AM	0	1	0	1	0	2	0	3	0	0	195	0	0	2	262	0	466	
9:45 AM	0	0	0	0	0	0	0	2	0	1	222	2	0	1	244	3	475	
Count Total	0	2	0	1	0	19	0	34	0	6	2,521	19	0	12	3,388	5	6,007	
Peak Hour	0	1	0	0	0	4	0	12	0	0	945	9	0	3	1,275	0	2,249	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1	7:00 AM	0	1	1	0	2
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	1	1	1	0	3
7:30 AM	0	2	0	1	3	7:30 AM	0	0	0	0	0	7:30 AM	2	1	6	0	9
7:45 AM	0	2	0	1	3	7:45 AM	0	0	0	0	0	7:45 AM	1	0	3	0	4
8:00 AM	0	0	0	0	0	8:00 AM	0	1	0	0	1	8:00 AM	1	1	3	0	5
8:15 AM	0	1	0	2	3	8:15 AM	0	0	0	0	0	8:15 AM	0	1	4	0	5
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	1	1	0	2
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	2	0	1	0	3
9:00 AM	0	0	0	1	1	9:00 AM	0	0	0	0	0	9:00 AM	1	0	2	0	3

9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0
9:30 AM	0	1	0	1	2	9:30 AM	0	0	0	1	1	9:30 AM	0	0	1	0	1
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	1	1	9:45 AM	1	0	6	0	7
Count Total	0	6	0	6	12	Count Total	0	2	0	2	4	Count Total	9	6	29	0	44
Peak Hour	0	3	0	3	6	Peak Hour	0	1	0	0	1	Peak Hour	2	3	11	0	16



(303) 216-2439
www.alltrafficdata.net

Location: 12 1ST AVE & ROGER RD AM

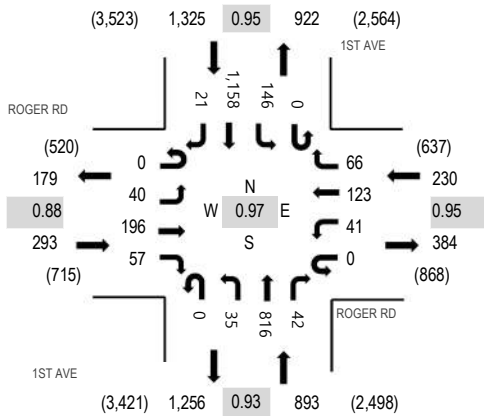
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

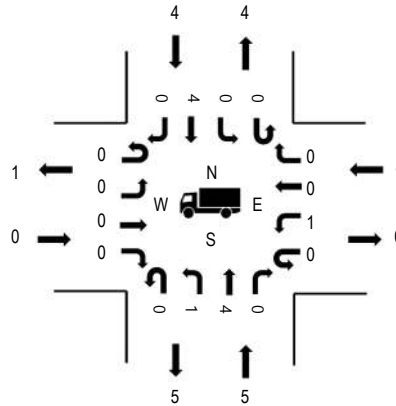
Motorized Vehicles



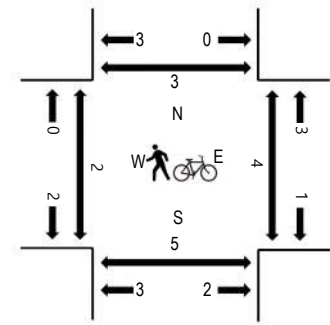
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.88
WB	0.4%	0.95
NB	0.6%	0.93
SB	0.3%	0.95
All	0.4%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	ROGER RD Eastbound				ROGER RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	7	29	12	0	7	16	9	0	7	136	4	0	14	186	1	428	2,355
7:15 AM	0	7	38	12	0	9	35	17	0	6	177	10	0	20	211	5	547	2,626
7:30 AM	0	9	40	18	0	11	28	24	0	10	223	7	0	39	291	3	703	2,741
7:45 AM	0	10	45	11	0	6	41	15	0	8	196	16	0	39	285	5	677	2,719
8:00 AM	0	12	57	14	0	9	27	17	0	7	191	8	0	28	319	10	699	2,710
8:15 AM	0	9	54	14	0	15	27	10	0	10	206	11	0	40	263	3	662	2,578
8:30 AM	0	7	39	13	0	8	29	14	0	11	198	12	0	26	322	2	681	2,465
8:45 AM	0	10	38	10	0	14	28	12	0	17	199	3	0	33	295	9	668	2,372
9:00 AM	0	15	34	10	0	11	19	13	0	8	149	7	0	24	269	8	567	2,308
9:15 AM	0	7	27	9	0	11	22	9	0	10	182	7	0	14	245	6	549	
9:30 AM	0	6	36	16	0	10	28	15	0	11	190	19	0	13	233	11	588	
9:45 AM	0	10	22	8	0	15	32	24	0	8	229	5	0	10	229	12	604	
Count Total	0	109	459	147	0	126	332	179	0	113	2,276	109	0	300	3,148	75	7,373	
Peak Hour	0	40	196	57	0	41	123	66	0	35	816	42	0	146	1,158	21	2,741	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	2	2	2	6
7:15 AM	0	0	1	0	1	7:15 AM	0	0	0	0	0	7:15 AM	0	3	1	0	4
7:30 AM	0	2	0	1	3	7:30 AM	1	1	0	0	2	7:30 AM	0	0	2	1	3
7:45 AM	0	2	0	3	5	7:45 AM	0	0	0	0	0	7:45 AM	1	1	1	2	5
8:00 AM	0	0	1	0	1	8:00 AM	0	0	0	0	0	8:00 AM	1	2	0	0	3
8:15 AM	0	1	0	0	1	8:15 AM	0	1	0	0	1	8:15 AM	0	2	1	0	3
8:30 AM	0	0	0	0	0	8:30 AM	0	2	0	0	2	8:30 AM	0	1	0	0	1
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	1	1	0	0	2
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	1	1	9:00 AM	1	0	0	3	4

9:15 AM	0	0	1	0	1	9:15 AM	0	0	0	0	0	9:15 AM	1	2	2	0	5
9:30 AM	0	1	0	1	2	9:30 AM	0	0	0	0	0	9:30 AM	1	2	1	3	7
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	1	0	1	2	4
Count Total	0	6	3	5	14	Count Total	1	4	0	1	6	Count Total	7	16	11	13	47
Peak Hour	0	5	1	4	10	Peak Hour	1	2	0	0	3	Peak Hour	2	5	4	3	14



(303) 216-2439
www.alltrafficdata.net

Location: 13 1ST AVE & LIMBERLOST DR AM

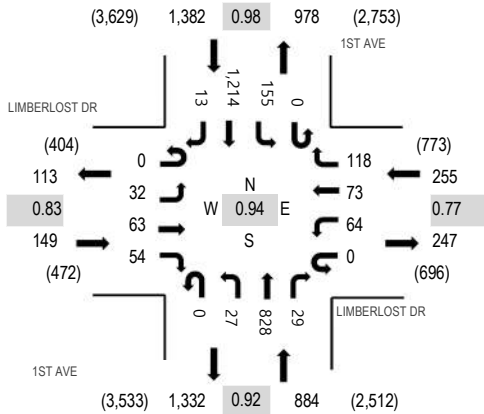
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

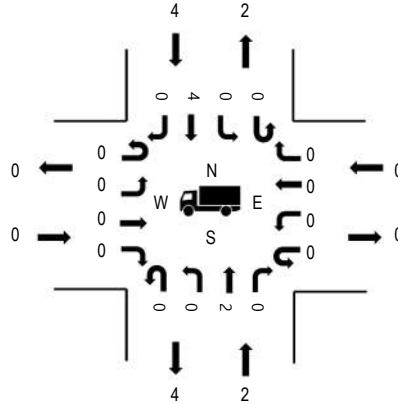
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

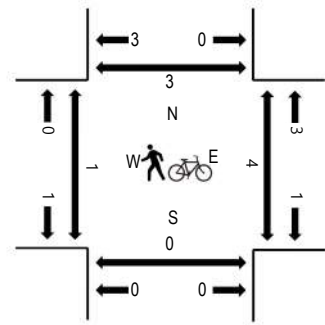
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.83
WB	0.0%	0.77
NB	0.2%	0.92
SB	0.3%	0.98
All	0.2%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	LIMBERLOST DR Eastbound				LIMBERLOST DR Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	3	16	14	0	13	15	22	0	6	132	12	0	27	182	3	445	2,394
7:15 AM	0	4	27	9	0	25	30	33	0	7	175	9	0	38	201	2	560	2,594
7:30 AM	0	9	21	9	0	25	31	43	0	7	226	7	0	39	292	3	712	2,670
7:45 AM	0	8	12	13	0	17	22	28	0	4	221	4	0	35	308	5	677	2,665
8:00 AM	0	9	15	16	0	10	11	25	0	6	186	8	0	36	320	3	645	2,657
8:15 AM	0	6	15	16	0	12	9	22	0	10	195	10	0	45	294	2	636	2,594
8:30 AM	0	9	23	21	0	12	26	31	0	14	210	6	0	32	315	8	707	2,525
8:45 AM	0	9	26	10	0	17	15	28	0	13	207	7	0	28	303	6	669	2,414
9:00 AM	0	6	16	14	0	13	20	30	0	7	148	3	0	40	280	5	582	2,335
9:15 AM	0	8	23	10	0	11	18	24	1	11	184	4	0	36	236	1	567	
9:30 AM	0	9	11	15	0	14	26	28	0	14	201	4	0	24	245	5	596	
9:45 AM	0	11	14	15	0	18	24	25	0	11	238	4	0	19	207	4	590	
Count Total	0	91	219	162	0	187	247	339	1	110	2,323	78	0	399	3,183	47	7,386	
Peak Hour	0	32	63	54	0	64	73	118	0	27	828	29	0	155	1,214	13	2,670	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	1	2	7	4	14
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	1	2	1	2	6
7:30 AM	0	1	0	1	2	7:30 AM	1	0	0	0	1	7:30 AM	0	0	2	2	4
7:45 AM	0	0	0	3	3	7:45 AM	0	0	1	0	1	7:45 AM	1	0	2	1	4
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1	8:15 AM	0	2	0	0	2	8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	1	0	0	0	1	8:30 AM	1	3	1	2	7
8:45 AM	0	0	0	0	0	8:45 AM	0	1	0	1	2	8:45 AM	1	0	0	1	2
9:00 AM	1	0	0	0	1	9:00 AM	0	0	0	0	0	9:00 AM	1	3	1	1	6

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	1	2	1	1	5
9:30 AM	0	1	0	1	2	9:30 AM	0	0	0	0	0	9:30 AM	2	3	3	1	9
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	0	0	1	2	3
Count Total	1	4	0	5	10	Count Total	2	3	1	1	7	Count Total	9	15	19	17	60
Peak Hour	0	2	0	4	6	Peak Hour	1	2	1	0	4	Peak Hour	1	0	4	3	8



(303) 216-2439
www.alltrafficdata.net

Location: 14 1ST AVE & FRY'S DWY AM

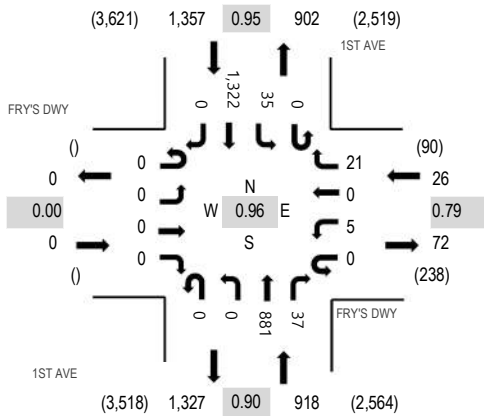
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

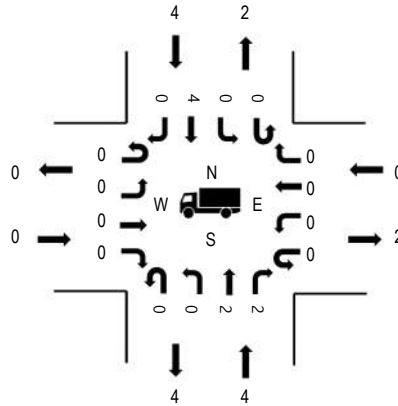
Motorized Vehicles



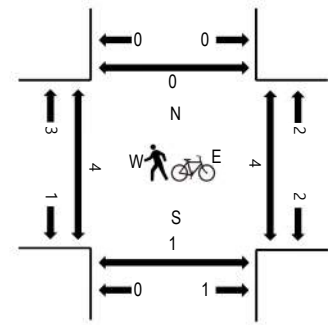
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.79
NB	0.4%	0.90
SB	0.3%	0.95
All	0.3%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FRY'S DWY Eastbound				FRY'S DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	1	0	4	0	0	143	5	0	12	208	0	373	1,986
7:15 AM	0	0	0	0	0	1	0	4	0	0	197	8	0	9	231	0	450	2,201
7:30 AM	0	0	0	0	0	3	0	5	0	0	247	7	0	12	324	0	598	2,301
7:45 AM	0	0	0	0	0	0	0	2	0	0	217	5	0	11	330	0	565	2,295
8:00 AM	0	0	0	0	0	0	0	7	0	0	204	15	0	5	357	0	588	2,296
8:15 AM	0	0	0	0	0	2	0	7	0	0	213	10	0	7	311	0	550	2,212
8:30 AM	0	0	0	0	0	2	0	6	0	0	215	6	0	13	350	0	592	2,132
8:45 AM	0	0	0	0	0	0	0	8	0	0	214	6	0	9	329	0	566	2,034
9:00 AM	0	0	0	0	0	4	0	4	0	0	163	13	0	18	302	0	504	1,993
9:15 AM	0	0	0	0	0	4	0	7	0	0	186	9	0	10	254	0	470	
9:30 AM	0	0	0	0	0	3	0	4	0	0	203	14	0	7	263	0	494	
9:45 AM	0	0	0	0	0	3	0	9	0	0	250	14	0	13	236	0	525	
Count Total	0	0	0	0	0	23	0	67	0	0	2,452	112	0	126	3,495	0	6,275	
Peak Hour	0	0	0	0	0	5	0	21	0	0	881	37	0	35	1,322	0	2,301	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	2	0	2
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	2	0	1	3	7:30 AM	0	1	0	0	1	7:30 AM	4	0	1	0	5
7:45 AM	0	1	0	3	4	7:45 AM	0	0	0	0	0	7:45 AM	0	0	2	0	2
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1	8:15 AM	0	1	0	0	1	8:15 AM	0	1	1	0	2
8:30 AM	0	0	0	0	0	8:30 AM	0	1	0	0	1	8:30 AM	0	0	1	0	1
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	1	0	0	0	1
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	1	1	9:00 AM	0	0	0	0	0

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	0	0	2	0	2
9:30 AM	0	1	0	1	2	9:30 AM	0	0	0	0	0	9:30 AM	1	0	0	0	1
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	2	0	0	0	2
Count Total	0	6	0	5	11	Count Total	0	3	0	1	4	Count Total	8	1	9	0	18
Peak Hour	0	4	0	4	8	Peak Hour	0	2	0	0	2	Peak Hour	4	1	4	0	9



(303) 216-2439
www.alltrafficdata.net

Location: 15 1ST AVE & WETMORE RD AM

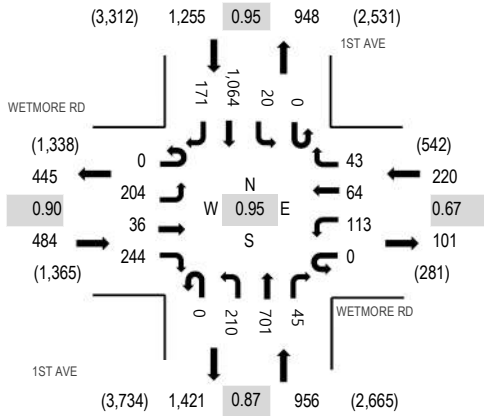
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

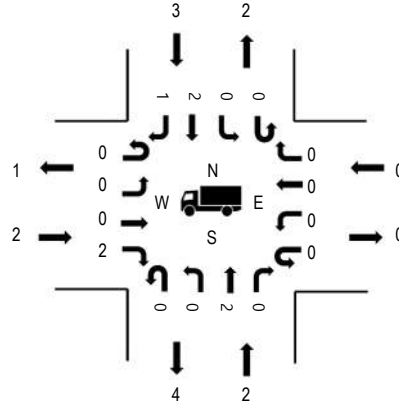
Motorized Vehicles



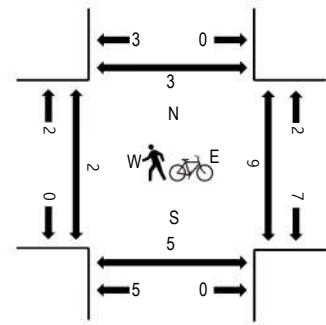
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.4%	0.90
WB	0.0%	0.67
NB	0.2%	0.87
SB	0.2%	0.95
All	0.2%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	WETMORE RD Eastbound				WETMORE RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	36	9	51	0	25	9	5	0	40	121	7	0	3	143	37	486	2,530
7:15 AM	0	43	7	45	0	24	13	9	0	50	136	10	0	2	174	37	550	2,796
7:30 AM	0	47	6	51	0	32	7	9	0	63	197	14	0	4	252	48	730	2,915
7:45 AM	0	65	15	54	0	40	29	15	0	56	175	9	0	2	266	38	764	2,914
8:00 AM	0	53	6	66	0	23	14	11	0	48	172	12	0	9	286	52	752	2,871
8:15 AM	0	39	9	73	0	18	14	8	0	43	157	10	0	5	260	33	669	2,731
8:30 AM	0	32	12	59	0	22	18	5	0	50	177	8	0	6	301	39	729	2,680
8:45 AM	0	50	10	67	0	19	8	8	0	56	165	11	0	7	262	58	721	2,582
9:00 AM	0	38	9	68	0	27	8	4	0	51	122	5	0	7	225	48	612	2,483
9:15 AM	0	51	9	60	0	24	16	3	0	47	145	7	0	10	202	44	618	
9:30 AM	0	39	8	61	0	25	11	7	0	67	167	8	0	3	188	47	631	
9:45 AM	0	46	9	62	0	20	9	3	0	82	171	6	0	7	159	48	622	
Count Total	0	539	109	717	0	299	156	87	0	653	1,905	107	0	65	2,718	529	7,884	
Peak Hour	0	204	36	244	0	113	64	43	0	210	701	45	0	20	1,064	171	2,915	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	1	3	0	4
7:15 AM	0	0	0	0	0	7:15 AM	1	0	0	0	1	7:15 AM	1	4	2	0	7
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0	7:30 AM	0	1	3	1	5
7:45 AM	2	0	0	2	4	7:45 AM	0	0	0	0	0	7:45 AM	1	0	1	2	4
8:00 AM	0	0	0	0	0	8:00 AM	2	0	0	0	2	8:00 AM	1	2	1	0	4
8:15 AM	0	1	0	0	1	8:15 AM	2	1	1	0	4	8:15 AM	0	2	4	0	6
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	1	1	1	3
8:45 AM	0	0	0	1	1	8:45 AM	0	0	0	0	0	8:45 AM	1	1	0	3	5
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0	9:00 AM	3	5	0	4	12

9:15 AM	0	1	0	1	2	9:15 AM	0	0	0	0	0	9:15 AM	0	1	2	0	3
9:30 AM	0	1	0	0	1	9:30 AM	0	0	1	0	1	9:30 AM	0	0	1	2	3
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	2	3	0	1	6
Count Total	2	4	0	5	11	Count Total	5	1	2	0	8	Count Total	9	21	18	14	62
Peak Hour	2	2	0	3	7	Peak Hour	4	1	1	0	6	Peak Hour	2	5	9	3	19



(303) 216-2439
www.alltrafficdata.net

Location: 16 1ST AVE & BROMLEY ST AM

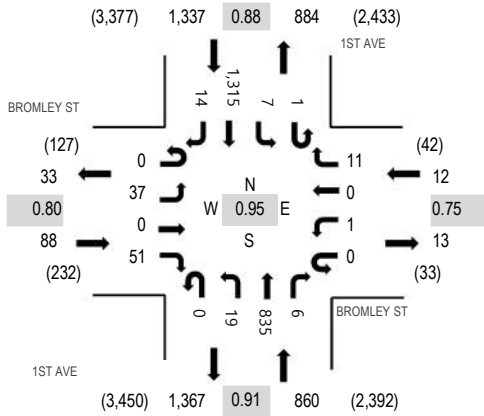
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour

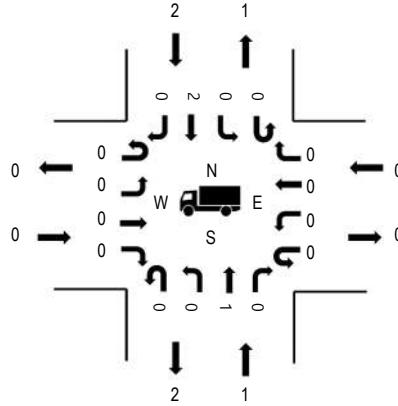
Motorized Vehicles



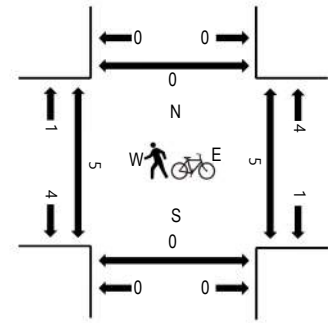
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.80
WB	0.0%	0.75
NB	0.1%	0.91
SB	0.1%	0.88
All	0.1%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BROMLEY ST Eastbound				BROMLEY ST Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	14	0	9	0	1	0	2	0	9	139	0	0	1	175	2	352	1,964
7:15 AM	0	5	0	15	0	0	0	3	1	2	170	1	0	3	216	4	420	2,175
7:30 AM	0	9	0	19	0	3	0	3	0	5	246	0	0	2	308	6	601	2,291
7:45 AM	0	7	0	9	0	0	0	6	0	5	229	2	0	1	329	3	591	2,297
8:00 AM	0	9	0	11	0	0	0	0	0	4	215	0	0	2	319	3	563	2,256
8:15 AM	0	13	0	13	0	0	0	2	0	4	202	2	1	0	296	3	536	2,172
8:30 AM	0	8	0	18	0	1	0	3	0	6	189	2	0	4	371	5	607	2,096
8:45 AM	0	2	0	11	0	2	0	4	0	9	191	1	0	3	316	11	550	1,929
9:00 AM	0	4	0	8	0	0	0	3	0	6	159	1	0	1	289	8	479	1,823
9:15 AM	0	6	0	13	0	1	0	4	0	7	173	1	0	1	251	3	460	
9:30 AM	0	6	0	12	0	2	0	1	0	7	193	2	0	1	208	8	440	
9:45 AM	0	6	0	5	0	0	0	1	0	3	205	1	0	1	218	4	444	
Count Total	0	89	0	143	0	10	0	32	1	67	2,311	13	1	20	3,296	60	6,043	
Peak Hour	0	37	0	51	0	1	0	11	0	19	835	6	1	7	1,315	14	2,297	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	2	0	2
7:15 AM	0	0	0	0	0	7:15 AM	0	2	1	0	3	7:15 AM	0	0	0	0	0
7:30 AM	0	2	0	1	3	7:30 AM	0	0	0	2	2	7:30 AM	0	0	2	0	2
7:45 AM	0	0	0	2	2	7:45 AM	0	0	0	0	0	7:45 AM	0	0	1	0	1
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	3	0	1	0	4
8:15 AM	0	1	0	0	1	8:15 AM	0	1	0	0	1	8:15 AM	0	0	2	0	2
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	2	0	1	0	3
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	2	2	9:00 AM	0	0	1	0	1

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	2	0	0	0	2
9:30 AM	0	1	0	0	1	9:30 AM	0	0	0	0	0	9:30 AM	1	0	0	0	1
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	1	0	2	0	3
Count Total	0	5	0	3	8	Count Total	0	3	1	4	8	Count Total	9	0	12	0	21
Peak Hour	0	1	0	2	3	Peak Hour	0	1	0	0	1	Peak Hour	5	0	5	0	10



(303) 216-2439
www.alltrafficdata.net

Location: 17 1ST AVE & RIVER RD AM

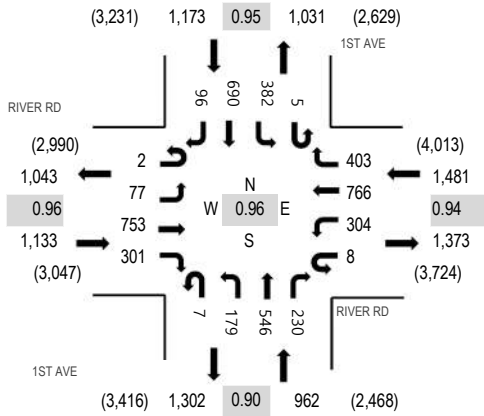
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

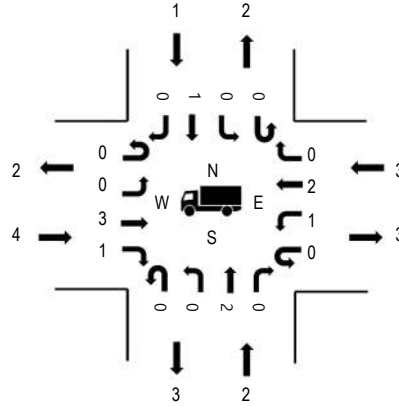
Motorized Vehicles



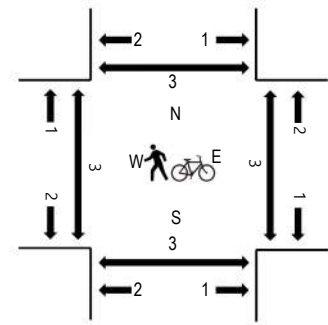
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.4%	0.96
WB	0.2%	0.94
NB	0.2%	0.90
SB	0.1%	0.95
All	0.2%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	RIVER RD Eastbound				RIVER RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	15	143	28	0	27	165	50	1	32	75	42	2	85	116	19	800	4,235
7:15 AM	0	15	225	44	1	43	167	71	0	38	96	31	1	99	138	13	982	4,603
7:30 AM	0	14	198	81	5	80	181	110	0	52	145	71	2	91	181	23	1,234	4,749
7:45 AM	0	17	180	73	1	70	215	106	1	48	143	53	0	114	175	23	1,219	4,658
8:00 AM	1	20	185	70	0	78	208	80	4	37	134	58	1	82	180	30	1,168	4,610
8:15 AM	1	26	190	77	2	76	162	107	2	42	124	48	2	95	154	20	1,128	4,432
8:30 AM	0	14	187	64	0	95	183	91	0	54	108	35	3	71	217	21	1,143	4,291
8:45 AM	1	26	178	77	1	82	206	101	2	54	110	45	1	95	172	20	1,171	4,118
9:00 AM	0	11	154	72	1	73	165	90	2	37	94	45	3	68	156	19	990	3,914
9:15 AM	1	12	157	50	1	56	170	78	2	49	103	39	2	86	142	39	987	
9:30 AM	2	22	170	52	1	42	185	77	1	45	111	37	3	76	124	22	970	
9:45 AM	1	11	140	42	2	54	178	76	3	33	124	58	2	78	137	28	967	
Count Total	7	203	2,107	730	15	776	2,185	1,037	18	521	1,367	562	22	1,040	1,892	277	12,759	
Peak Hour	2	77	753	301	8	304	766	403	7	179	546	230	5	382	690	96	4,749	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	1	0	0	0	1	7:15 AM	0	1	0	0	1	7:15 AM	0	0	0	0	0
7:30 AM	1	1	0	0	2	7:30 AM	0	0	0	2	2	7:30 AM	0	0	0	0	0
7:45 AM	0	0	2	1	3	7:45 AM	0	0	0	0	0	7:45 AM	1	3	1	0	5
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	2	0	0	1	3
8:15 AM	3	1	1	0	5	8:15 AM	0	0	0	0	0	8:15 AM	0	0	2	2	4
8:30 AM	0	0	3	0	3	8:30 AM	0	0	0	0	0	8:30 AM	0	2	0	0	2
8:45 AM	1	0	0	0	1	8:45 AM	0	0	0	0	0	8:45 AM	0	1	0	0	1
9:00 AM	0	0	1	0	1	9:00 AM	1	0	0	2	3	9:00 AM	2	0	0	1	3

9:15 AM	0	1	1	0	2	9:15 AM	0	0	0	0	0	9:15 AM	3	0	1	0	4
9:30 AM	0	1	1	0	2	9:30 AM	0	0	0	0	0	9:30 AM	0	1	1	2	4
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	2	2	9:45 AM	0	0	2	0	2
Count Total	6	4	9	1	20	Count Total	1	1	0	6	8	Count Total	8	7	7	6	28
Peak Hour	4	2	3	1	10	Peak Hour	0	0	0	2	2	Peak Hour	3	3	3	3	12



(303) 216-2439
www.alltrafficdata.net

Location: 18 1ST AVE & LA FITNESS DWY AM

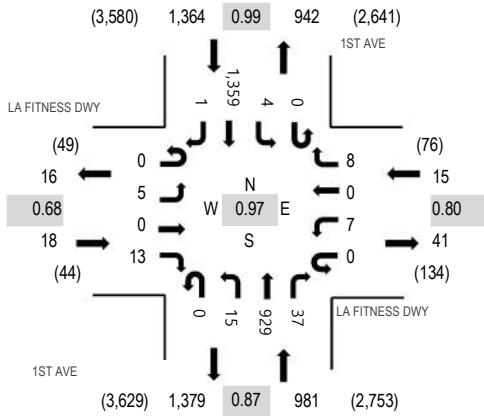
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

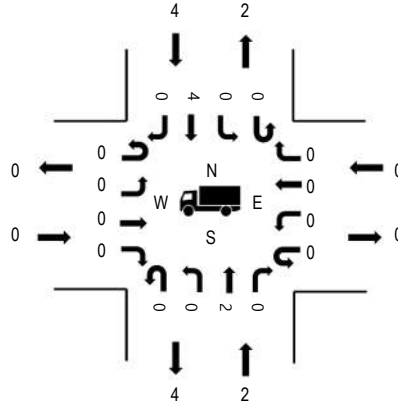
Motorized Vehicles



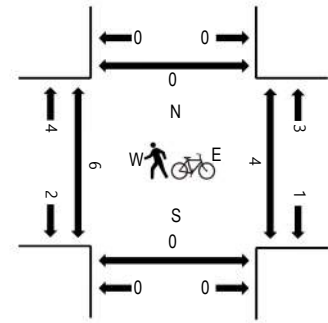
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.68
WB	0.0%	0.80
NB	0.2%	0.87
SB	0.3%	0.99
All	0.3%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	LA FITNESS DWY Eastbound				LA FITNESS DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	2	0	1	0	8	0	3	0	0	146	5	0	0	202	1	368	2,055
7:15 AM	0	0	0	2	0	4	0	4	0	2	207	6	0	1	244	1	471	2,272
7:30 AM	0	2	0	5	0	0	0	2	0	5	269	7	0	0	324	0	614	2,378
7:45 AM	0	0	0	4	0	0	0	0	0	4	239	8	0	3	344	0	602	2,369
8:00 AM	0	3	0	3	0	4	0	3	0	3	208	12	0	0	349	0	585	2,362
8:15 AM	0	0	0	1	0	3	0	3	0	3	213	10	0	1	342	1	577	2,296
8:30 AM	0	0	0	6	0	0	0	5	0	4	231	9	0	1	345	4	605	2,206
8:45 AM	0	2	0	2	0	2	0	3	0	2	232	15	0	1	334	2	595	2,123
9:00 AM	0	1	0	1	0	8	0	0	0	3	168	12	0	0	326	0	519	2,036
9:15 AM	0	0	0	2	0	3	0	2	0	4	198	9	0	3	266	0	487	
9:30 AM	0	1	0	3	0	3	0	6	0	2	231	10	0	3	260	3	522	
9:45 AM	0	0	0	3	0	6	0	4	1	4	253	18	0	0	218	1	508	
Count Total	0	11	0	33	0	41	0	35	1	36	2,595	121	0	13	3,554	13	6,453	
Peak Hour	0	5	0	13	0	7	0	8	0	15	929	37	0	4	1,359	1	2,378	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	3	0	3
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	3	1	0	0	4
7:30 AM	0	1	0	1	2	7:30 AM	1	0	0	0	1	7:30 AM	4	0	2	0	6
7:45 AM	0	0	0	3	3	7:45 AM	0	0	0	0	0	7:45 AM	1	0	1	0	2
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	0	0	1	0	1
8:15 AM	0	1	0	0	1	8:15 AM	0	2	0	0	2	8:15 AM	1	0	0	0	1
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	0	0	8:45 AM	0	1	0	1	2	8:45 AM	2	0	0	0	2
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0	9:00 AM	1	0	1	0	2

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	1	0	0	0	1
9:30 AM	0	1	0	1	2	9:30 AM	0	0	1	0	1	9:30 AM	2	1	0	0	3
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	0	1	0	0	1
Count Total	0	4	0	5	9	Count Total	1	3	1	1	6	Count Total	16	3	8	0	27
Peak Hour	0	2	0	4	6	Peak Hour	1	2	0	0	3	Peak Hour	6	0	4	0	10



(303) 216-2439
www.alltrafficdata.net

Location: 19 1ST AVE & WALMART DWY AM

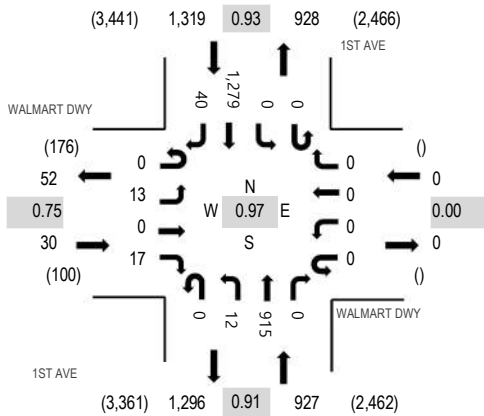
Date: Tuesday, March 26, 2024

Peak Hour: 07:30 AM - 08:30 AM

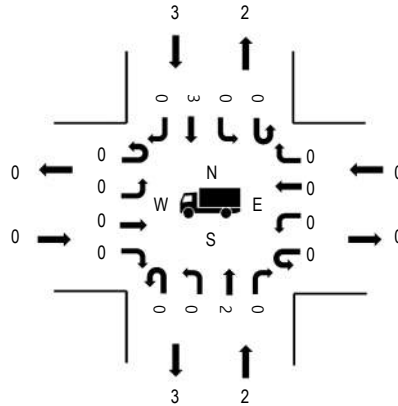
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour

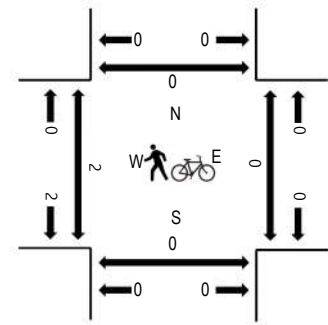
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.75
WB	0.0%	0.00
NB	0.2%	0.91
SB	0.2%	0.93
All	0.2%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	WALMART DWY Eastbound				WALMART DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	0	0	0	0	0	0	0	1	153	0	0	0	185	4	344	1,912
7:15 AM	0	0	0	1	0	0	0	0	0	1	183	0	0	0	219	1	405	2,150
7:30 AM	0	1	0	3	0	0	0	0	0	4	252	0	0	0	318	6	584	2,276
7:45 AM	0	3	0	3	0	0	0	0	0	3	237	0	0	0	322	11	579	2,265
8:00 AM	0	3	0	5	0	0	0	0	0	1	230	0	0	0	336	7	582	2,248
8:15 AM	0	6	0	6	0	0	0	0	0	4	196	0	0	0	303	16	531	2,129
8:30 AM	0	2	0	5	0	0	0	0	0	0	201	0	0	0	349	16	573	2,061
8:45 AM	0	3	0	7	0	0	0	0	0	5	215	0	0	0	313	19	562	1,951
9:00 AM	0	4	0	6	0	0	0	0	0	1	160	0	0	0	280	12	463	1,843
9:15 AM	0	4	0	8	0	0	0	0	0	5	181	0	0	0	247	18	463	
9:30 AM	0	10	0	7	0	0	0	0	0	4	200	0	0	0	228	14	463	
9:45 AM	0	4	0	8	0	0	0	0	0	8	217	0	0	0	202	15	454	
Count Total	0	41	0	59	0	0	0	0	0	37	2,425	0	0	0	3,302	139	6,003	
Peak Hour	0	13	0	17	0	0	0	0	0	12	915	0	0	0	1,279	40	2,276	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	1	0	0	1	7:15 AM	1	0	0	0	1
7:30 AM	0	1	0	1	2	7:30 AM	0	9	0	0	9	7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	2	2	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM	0	2	0	0	2	8:00 AM	2	0	0	0	2
8:15 AM	0	1	0	0	1	8:15 AM	0	2	0	0	2	8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	1	1	8:45 AM	0	0	0	0	0	8:45 AM	3	0	0	0	3
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0	9:00 AM	1	0	0	0	1

9:15 AM	1	1	0	0	2	9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0
9:30 AM	0	1	0	0	1	9:30 AM	0	0	0	0	0	9:30 AM	1	0	0	0	1
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	1	0	0	0	1
Count Total	1	4	0	4	9	Count Total	0	14	0	0	14	Count Total	10	0	0	0	10
Peak Hour	0	2	0	3	5	Peak Hour	0	13	0	0	13	Peak Hour	2	0	0	0	2

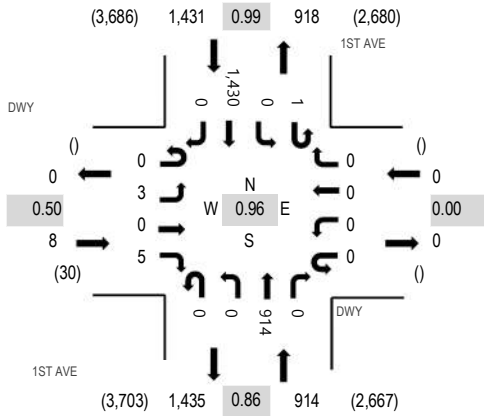


(303) 216-2439
www.alltrafficdata.net

Location: 20 1ST AVE & DWY AM
Date: Tuesday, March 26, 2024
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

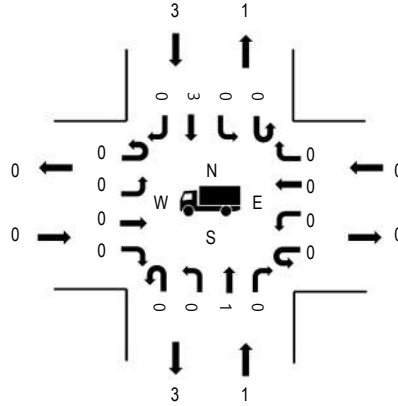
Peak Hour

Motorized Vehicles

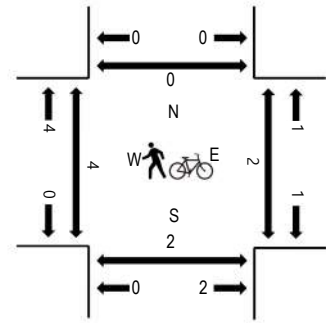


	HV%	PHF
EB	0.0%	0.50
WB	0.0%	0.00
NB	0.1%	0.86
SB	0.2%	0.99
All	0.2%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	DWY Eastbound				DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	2	0	0	0	0	0	0	0	0	161	0	0	0	210	0	373	2,052
7:15 AM	0	2	0	1	0	0	0	0	0	0	212	0	0	0	255	0	470	2,254
7:30 AM	0	0	0	3	0	0	0	0	0	0	275	0	0	0	321	0	599	2,345
7:45 AM	0	0	0	3	0	0	0	0	0	0	244	0	0	0	363	0	610	2,353
8:00 AM	0	1	0	1	0	0	0	0	0	0	219	0	1	0	353	0	575	2,332
8:15 AM	0	1	0	0	0	0	0	0	0	0	208	0	0	0	352	0	561	2,266
8:30 AM	0	1	0	1	0	0	0	0	0	0	243	0	0	0	362	0	607	2,182
8:45 AM	0	0	0	2	0	0	0	0	0	0	232	0	0	0	355	0	589	2,093
9:00 AM	0	2	0	5	0	0	0	0	0	0	175	0	1	0	326	0	509	1,999
9:15 AM	0	2	0	1	0	0	0	0	0	0	199	0	0	0	275	0	477	
9:30 AM	0	0	0	2	0	0	0	0	0	0	241	0	0	0	275	0	518	
9:45 AM	0	0	0	0	0	0	0	0	0	0	258	0	0	0	237	0	495	
Count Total	0	11	0	19	0	0	0	0	0	0	2,667	0	2	0	3,684	0	6,383	
Peak Hour	0	3	0	5	0	0	0	0	0	0	914	0	1	0	1,430	0	2,353	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	1	0	2	0	3
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	2	2	0	4
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0	7:30 AM	3	0	2	0	5
7:45 AM	0	0	0	3	3	7:45 AM	0	0	0	0	0	7:45 AM	2	0	2	0	4
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	1	0	0	0	1
8:15 AM	0	1	0	0	1	8:15 AM	0	2	0	0	2	8:15 AM	1	2	0	0	3
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	1	1	8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0
9:30 AM	0	1	0	1	2	9:30 AM	0	1	0	0	1	9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0
Count Total	0	4	0	5	9	Count Total	0	3	0	1	4	Count Total	8	4	8	0	20
Peak Hour	0	1	0	3	4	Peak Hour	0	2	0	0	2	Peak Hour	4	2	2	0	8



(303) 216-2439
www.alltrafficdata.net

Location: 21 1ST AVE & SPROUTS DWY AM

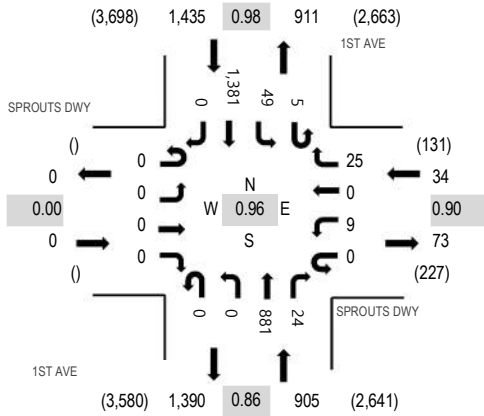
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

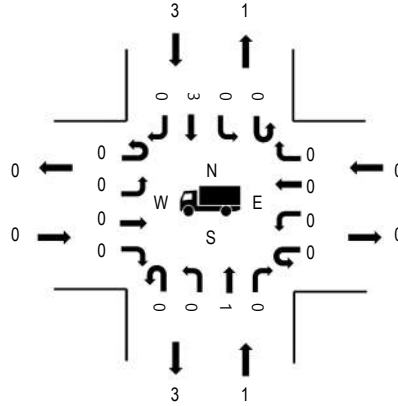
Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour

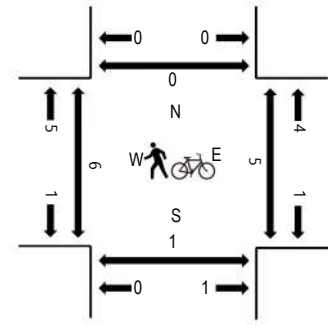
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.90
NB	0.1%	0.86
SB	0.2%	0.98
All	0.2%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	SPROUTS DWY Eastbound				SPROUTS DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	1	0	10	0	0	148	1	0	3	202	0	365	2,057
7:15 AM	0	0	0	0	0	1	0	3	0	0	211	2	0	12	247	0	476	2,273
7:30 AM	0	0	0	0	0	6	0	4	0	0	272	1	0	10	316	0	609	2,366
7:45 AM	0	0	0	0	0	2	0	8	0	0	233	4	4	11	345	0	607	2,374
8:00 AM	0	0	0	0	0	1	0	4	0	0	211	5	0	10	350	0	581	2,362
8:15 AM	0	0	0	0	0	4	0	4	0	0	204	9	0	10	338	0	569	2,296
8:30 AM	0	0	0	0	0	2	0	9	0	0	233	6	1	18	348	0	617	2,217
8:45 AM	0	0	0	0	0	3	0	4	0	0	229	8	0	14	337	0	595	2,133
9:00 AM	0	0	0	0	0	6	0	6	0	0	168	1	0	16	318	0	515	2,051
9:15 AM	0	0	0	0	0	10	0	7	0	0	191	8	0	16	258	0	490	
9:30 AM	0	0	0	0	0	6	0	12	0	0	229	10	0	16	260	0	533	
9:45 AM	0	0	0	0	0	5	0	13	0	0	243	14	2	22	214	0	513	
Count Total	0	0	0	0	0	47	0	84	0	0	2,572	69	7	158	3,533	0	6,470	
Peak Hour	0	0	0	0	0	9	0	25	0	0	881	24	5	49	1,381	0	2,374	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	6	0	6
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	1	0	0	0	1
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0	7:30 AM	5	0	2	0	7
7:45 AM	0	0	0	3	3	7:45 AM	0	0	0	0	0	7:45 AM	4	0	2	0	6
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	0	0	1	0	1
8:15 AM	0	1	0	0	1	8:15 AM	0	2	0	0	2	8:15 AM	2	1	2	0	5
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	1	1	8:45 AM	4	0	0	0	4
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0	9:00 AM	0	0	1	0	1

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	1	0	0	0	1
9:30 AM	0	1	0	1	2	9:30 AM	0	1	0	0	1	9:30 AM	2	0	0	0	2
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0
Count Total	0	4	0	5	9	Count Total	0	3	0	1	4	Count Total	19	1	14	0	34
Peak Hour	0	1	0	3	4	Peak Hour	0	2	0	0	2	Peak Hour	6	1	5	0	12



(303) 216-2439
www.alltrafficdata.net

Location: 22 1ST AVE & FRY'S DWY 2 AM

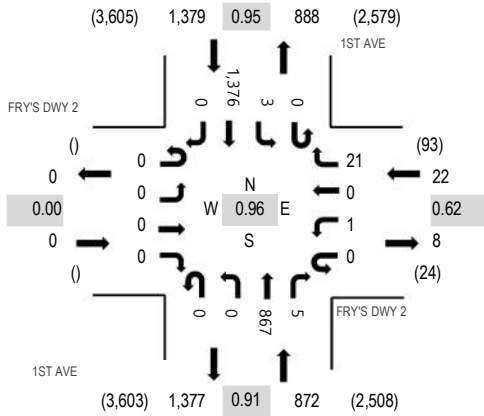
Date: Tuesday, March 26, 2024

Peak Hour: 07:45 AM - 08:45 AM

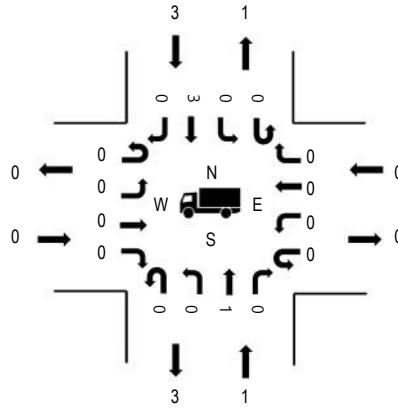
Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour

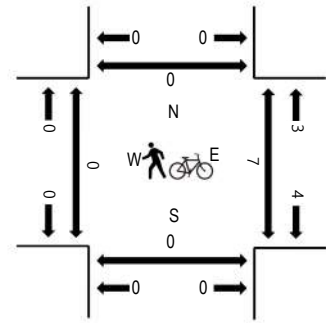
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.62
NB	0.1%	0.91
SB	0.2%	0.95
All	0.2%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	FRY'S DWY 2 Eastbound				FRY'S DWY 2 Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	3	0	7	0	0	144	1	0	3	215	0	373	1,974
7:15 AM	0	0	0	0	0	1	0	7	0	0	201	2	0	0	242	0	453	2,174
7:30 AM	0	0	0	0	0	1	0	4	0	0	245	1	0	0	334	0	585	2,269
7:45 AM	0	0	0	0	0	1	0	3	0	0	222	1	0	1	335	0	563	2,273
8:00 AM	0	0	0	0	0	0	0	3	0	0	207	0	0	1	362	0	573	2,267
8:15 AM	0	0	0	0	0	0	0	7	0	0	215	2	0	1	323	0	548	2,187
8:30 AM	0	0	0	0	0	0	0	8	0	0	223	2	0	0	356	0	589	2,106
8:45 AM	0	0	0	0	0	0	0	6	0	0	215	3	0	2	331	0	557	2,015
9:00 AM	0	0	0	0	0	0	0	6	0	0	168	0	0	0	319	0	493	1,965
9:15 AM	0	0	0	0	0	0	0	11	0	0	193	2	0	0	261	0	467	
9:30 AM	0	0	0	0	0	1	0	16	0	0	204	1	0	1	275	0	498	
9:45 AM	0	0	0	0	0	0	0	8	0	0	256	0	0	0	243	0	507	
Count Total	0	0	0	0	0	7	0	86	0	0	2,493	15	0	9	3,596	0	6,206	
Peak Hour	0	0	0	0	0	1	0	21	0	0	867	5	0	3	1,376	0	2,273	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	5	0	5
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	1	0	1
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0	7:30 AM	1	0	1	0	2
7:45 AM	0	0	0	3	3	7:45 AM	0	0	0	0	0	7:45 AM	0	0	4	0	4
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1	8:15 AM	0	1	0	0	1	8:15 AM	0	0	2	0	2
8:30 AM	0	0	0	0	0	8:30 AM	0	1	0	0	1	8:30 AM	0	0	1	0	1
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	3	0	3
9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	1	1	9:00 AM	1	0	1	0	2

9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0	9:15 AM	0	0	1	0	1
9:30 AM	0	1	0	1	2	9:30 AM	0	0	0	0	0	9:30 AM	1	0	5	0	6
9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0	9:45 AM	0	0	3	0	3
Count Total	0	4	0	5	9	Count Total	0	2	0	1	3	Count Total	3	0	27	0	30
Peak Hour	0	1	0	3	4	Peak Hour	0	2	0	0	2	Peak Hour	0	0	7	0	7



(303) 216-2439
www.alltrafficdata.net

Location: 1 N FLORES DR & GRANT RD PM

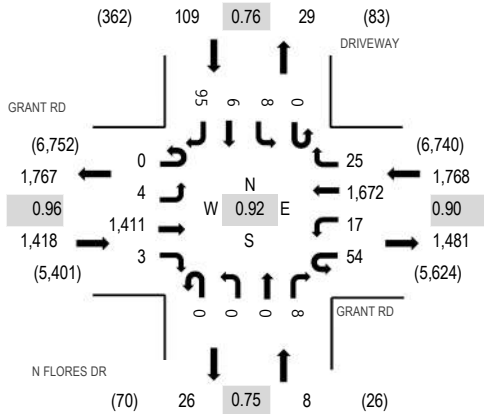
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

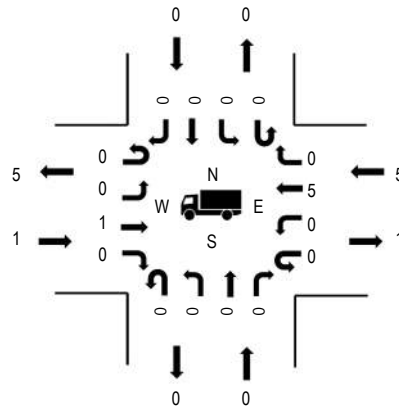
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

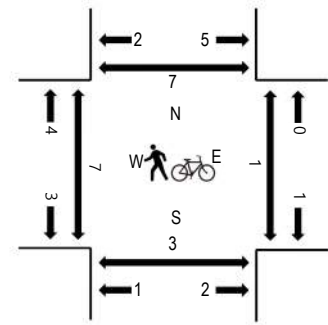
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.1%	0.96
WB	0.3%	0.90
NB	0.0%	0.75
SB	0.0%	0.76
All	0.2%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				N FLORES DR Northbound				DRIVEWAY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	311	2	7	0	374	2	0	0	0	0	0	2	1	23	722	2,907
2:15 PM	0	0	318	2	13	2	388	1	0	0	0	3	0	4	0	12	743	2,993
2:30 PM	0	0	327	1	11	4	362	1	0	0	0	2	0	1	0	14	723	2,987
2:45 PM	0	0	298	1	16	1	384	3	0	0	0	0	0	0	0	16	719	3,072
3:00 PM	0	0	377	0	15	1	389	6	0	0	0	2	0	1	0	17	808	3,183
3:15 PM	0	0	306	0	10	3	393	5	0	0	0	2	0	0	0	18	737	3,134
3:30 PM	0	1	363	0	12	3	398	7	0	0	0	1	0	5	0	18	808	3,272
3:45 PM	0	0	358	1	17	4	421	3	0	0	0	2	0	1	0	23	830	3,284
4:00 PM	0	2	328	0	8	3	393	2	0	0	0	1	0	2	2	18	759	3,238
4:15 PM	0	3	370	0	7	4	464	7	0	0	0	3	0	0	0	17	875	3,276
4:30 PM	0	2	355	0	16	3	409	4	0	0	0	3	0	0	2	26	820	3,303
4:45 PM	0	2	344	1	19	4	384	3	0	0	0	1	0	3	1	22	784	3,272
5:00 PM	0	0	350	1	8	2	408	8	0	0	0	2	0	3	2	13	797	3,201
5:15 PM	0	0	362	1	11	8	471	10	0	0	0	2	0	2	1	34	902	
5:30 PM	0	0	295	1	10	2	443	5	0	0	0	1	0	3	0	29	789	
5:45 PM	0	0	316	2	9	1	352	6	0	0	0	1	0	4	3	19	713	
Count Total	0	10	5,378	13	189	45	6,433	73	0	0	0	26	0	31	12	319	12,529	
Peak Hour	0	4	1,411	3	54	17	1,672	25	0	0	0	8	0	8	6	95	3,303	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	1	0	0	0	1	2:00 PM	0	0	0	0	0	2:00 PM	3	0	0	1	4
2:15 PM	1	0	3	0	4	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	0	0
2:30 PM	0	0	1	0	1	2:30 PM	0	0	0	0	0	2:30 PM	3	1	0	3	7
2:45 PM	0	0	2	0	2	2:45 PM	0	0	0	1	1	2:45 PM	1	0	0	0	1
3:00 PM	2	0	0	0	2	3:00 PM	0	0	0	0	0	3:00 PM	2	1	0	0	3

3:15 PM	0	0	2	0	2	3:15 PM	0	0	0	0	0	3:15 PM	4	0	0	0	4
3:30 PM	2	0	2	0	4	3:30 PM	0	0	0	0	0	3:30 PM	10	0	0	12	22
3:45 PM	1	0	0	0	1	3:45 PM	1	0	0	0	1	3:45 PM	9	0	0	6	15
4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	0	0	4:00 PM	3	1	0	0	4
4:15 PM	1	0	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	7	4	0	1	12
4:30 PM	0	0	1	0	1	4:30 PM	1	0	0	0	1	4:30 PM	2	1	0	4	7
4:45 PM	1	0	1	0	2	4:45 PM	0	0	0	0	0	4:45 PM	2	0	1	1	4
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	1	2	0	0	3
5:15 PM	0	0	2	0	2	5:15 PM	0	0	0	0	0	5:15 PM	2	0	0	2	4
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	5	2	0	2	9
5:45 PM	1	0	1	0	2	5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	1	2
Count Total	11	0	16	0	27	Count Total	2	0	0	1	3	Count Total	55	12	1	33	101
Peak Hour	1	0	5	0	6	Peak Hour	1	0	0	0	1	Peak Hour	7	3	1	7	18



(303) 216-2439
www.alltrafficdata.net

Location: 2 1ST AVE & GRANT RD PM

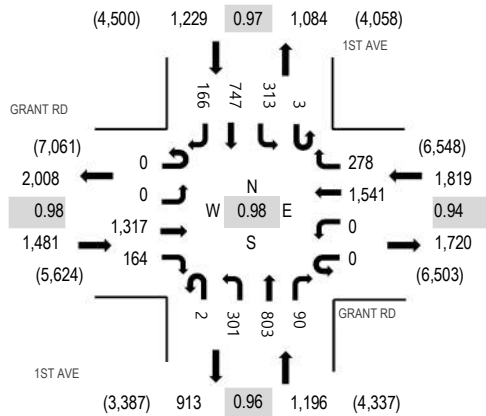
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

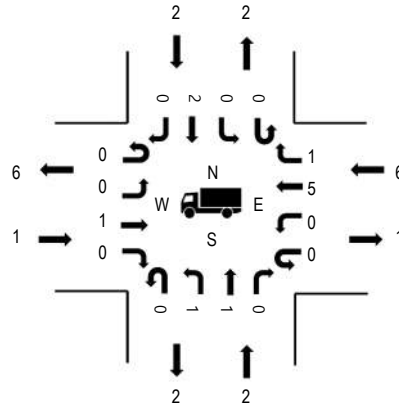
Peak Hour

Motorized Vehicles

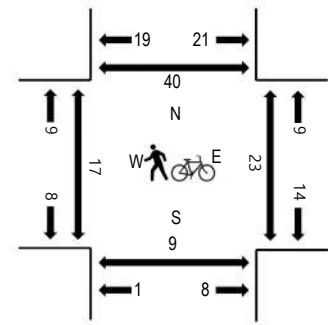


	HV%	PHF
EB	0.1%	0.98
WB	0.3%	0.94
NB	0.2%	0.96
SB	0.2%	0.97
All	0.2%	0.98

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	1	0	291	28	0	0	320	79	1	67	156	23	2	53	118	33	1,172	4,865
2:15 PM	0	0	316	22	0	0	306	62	0	54	157	16	0	66	154	46	1,199	4,964
2:30 PM	0	0	306	35	0	0	304	62	0	50	193	26	5	64	176	41	1,262	5,017
2:45 PM	0	0	276	38	0	0	319	62	0	49	159	22	0	79	198	30	1,232	5,100
3:00 PM	0	0	342	53	0	0	314	64	1	53	159	13	1	72	166	33	1,271	5,241
3:15 PM	0	0	275	43	0	0	327	72	0	63	165	28	0	67	179	33	1,252	5,306
3:30 PM	0	0	344	37	0	0	333	86	0	73	201	23	2	67	151	28	1,345	5,436
3:45 PM	0	0	345	33	0	0	379	76	0	52	176	23	2	74	162	51	1,373	5,516
4:00 PM	0	0	300	39	0	0	312	71	2	66	229	26	0	71	174	46	1,336	5,539
4:15 PM	0	0	321	59	0	0	372	80	2	57	174	25	2	77	184	29	1,382	5,647
4:30 PM	0	0	329	45	0	0	396	60	0	76	213	23	0	71	180	32	1,425	5,725
4:45 PM	0	0	330	37	0	0	357	61	1	47	217	26	2	85	189	44	1,396	5,578
5:00 PM	0	0	321	42	0	0	382	80	0	94	184	21	1	77	194	48	1,444	5,364
5:15 PM	0	0	337	40	0	0	406	77	1	84	189	20	0	80	184	42	1,460	
5:30 PM	0	0	276	33	0	0	325	50	0	84	192	23	1	74	191	29	1,278	
5:45 PM	0	0	294	36	0	0	297	57	1	59	175	23	2	62	158	18	1,182	
Count Total	1	0	5,003	620	0	0	5,449	1,099	9	1,028	2,939	361	20	1,139	2,758	583	21,009	
Peak Hour	0	0	1,317	164	0	0	1,541	278	2	301	803	90	3	313	747	166	5,725	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	1	0	0	1	2	2:00 PM	1	0	0	0	1	2:00 PM	1	3	3	2	9
2:15 PM	1	1	3	0	5	2:15 PM	0	1	0	0	1	2:15 PM	1	1	7	20	29
2:30 PM	0	2	1	0	3	2:30 PM	0	0	0	0	0	2:30 PM	4	4	5	8	21
2:45 PM	0	0	2	0	2	2:45 PM	0	0	0	0	0	2:45 PM	3	5	6	4	18
3:00 PM	2	0	0	0	2	3:00 PM	0	0	0	0	0	3:00 PM	4	2	3	6	15

3:15 PM	0	0	2	0	2	3:15 PM	0	0	0	0	0	3:15 PM	11	3	1	6	21
3:30 PM	2	0	2	0	4	3:30 PM	0	0	0	0	0	3:30 PM	6	5	7	10	28
3:45 PM	1	0	0	0	1	3:45 PM	1	1	0	0	2	3:45 PM	7	3	1	4	15
4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	0	0	4:00 PM	28	4	3	10	45
4:15 PM	1	0	0	0	1	4:15 PM	0	1	0	0	1	4:15 PM	4	6	3	9	22
4:30 PM	0	0	1	1	2	4:30 PM	0	1	1	0	2	4:30 PM	5	1	3	13	22
4:45 PM	1	0	2	0	3	4:45 PM	0	0	0	1	1	4:45 PM	6	3	8	9	26
5:00 PM	0	2	1	0	3	5:00 PM	0	0	0	1	1	5:00 PM	6	3	4	8	21
5:15 PM	0	0	2	1	3	5:15 PM	0	0	1	1	2	5:15 PM	0	2	8	10	20
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	3	4	9	16
5:45 PM	1	0	1	0	2	5:45 PM	0	0	0	1	1	5:45 PM	0	6	4	9	19
Count Total	11	5	17	3	36	Count Total	2	4	2	4	12	Count Total	86	54	70	137	347
Peak Hour	1	2	6	2	11	Peak Hour	0	1	2	3	6	Peak Hour	17	9	23	40	89



(303) 216-2439
www.alltrafficdata.net

Location: 3 PED CROSS 2 & GRANT RD PM

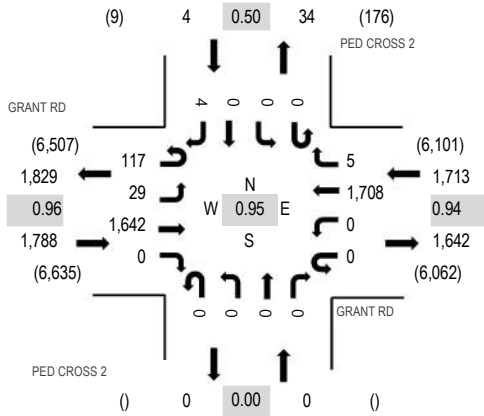
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

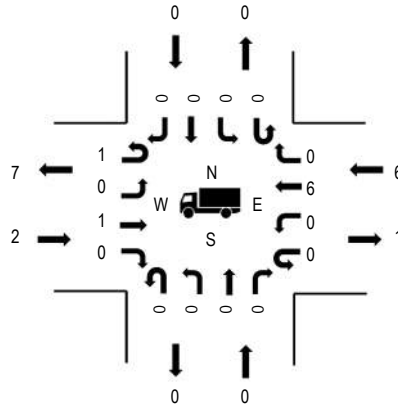
Motorized Vehicles



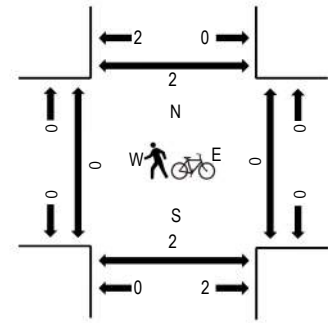
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.1%	0.96
WB	0.4%	0.94
NB	0.0%	0.00
SB	0.0%	0.50
All	0.2%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				PED CROSS 2 Northbound				PED CROSS 2 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	27	11	324	0	0	0	359	3	0	0	0	0	0	0	0	1	725	2,964
2:15 PM	22	12	381	0	0	0	335	1	0	0	0	0	0	0	0	2	753	3,029
2:30 PM	19	12	376	0	0	0	338	1	0	0	0	0	0	0	0	0	746	3,017
2:45 PM	19	9	355	0	0	0	357	0	0	0	0	0	0	0	0	0	740	3,113
3:00 PM	22	8	407	0	0	0	350	2	0	0	0	0	0	0	0	1	790	3,243
3:15 PM	29	12	340	0	0	0	359	1	0	0	0	0	0	0	0	0	741	3,206
3:30 PM	28	12	401	0	0	0	401	0	0	0	0	0	0	0	0	0	842	3,302
3:45 PM	33	11	416	0	0	0	409	1	0	0	0	0	0	0	0	0	870	3,325
4:00 PM	23	17	347	0	0	0	365	1	0	0	0	0	0	0	0	0	753	3,317
4:15 PM	28	8	375	0	0	0	424	1	0	0	0	0	0	0	0	1	837	3,420
4:30 PM	25	11	415	0	0	0	411	1	0	0	0	0	0	0	0	2	865	3,505
4:45 PM	25	8	427	0	0	0	402	0	0	0	0	0	0	0	0	0	862	3,373
5:00 PM	36	4	370	0	0	0	444	1	0	0	0	0	0	0	0	1	856	3,221
5:15 PM	31	6	430	0	0	0	451	3	0	0	0	0	0	0	0	1	922	
5:30 PM	24	7	359	0	0	0	342	1	0	0	0	0	0	0	0	0	733	
5:45 PM	23	11	339	0	0	0	337	0	0	0	0	0	0	0	0	0	710	
Count Total	414	159	6,062	0	0	0	6,084	17	0	0	0	0	0	0	0	9	12,745	
Peak Hour	117	29	1,642	0	0	0	1,708	5	0	0	0	0	0	0	0	4	3,505	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	1	0	0	0	1	2:00 PM	1	0	0	0	1	2:00 PM	0	0	0	1	1
2:15 PM	1	0	3	0	4	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	4	4
2:30 PM	0	0	1	0	1	2:30 PM	0	0	0	0	0	2:30 PM	0	0	0	2	2
2:45 PM	0	0	2	0	2	2:45 PM	0	0	0	0	0	2:45 PM	0	1	0	0	1
3:00 PM	2	0	0	0	2	3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	0	0

3:15 PM	0	0	2	0	2	3:15 PM	1	0	0	0	1	3:15 PM	0	0	0	0	0
3:30 PM	2	0	2	0	4	3:30 PM	1	0	0	0	1	3:30 PM	0	3	0	0	3
3:45 PM	1	0	0	0	1	3:45 PM	1	0	0	0	1	3:45 PM	0	0	0	0	0
4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	0	0	4:00 PM	2	0	0	0	2
4:15 PM	0	0	0	0	0	4:15 PM	1	0	1	0	2	4:15 PM	0	1	0	0	1
4:30 PM	1	0	1	0	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	1	0	2	0	3	4:45 PM	2	0	0	0	2	4:45 PM	0	1	0	1	2
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	1	0	1	2
5:15 PM	0	0	3	0	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	1	2
5:45 PM	1	0	1	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	1	0	0	1
Count Total	11	0	18	0	29	Count Total	7	0	1	0	8	Count Total	2	9	0	10	21
Peak Hour	2	0	6	0	8	Peak Hour	2	0	0	0	2	Peak Hour	0	2	0	2	4



(303) 216-2439
www.alltrafficdata.net

Location: 4 PARK AVE & GRANT RD PM

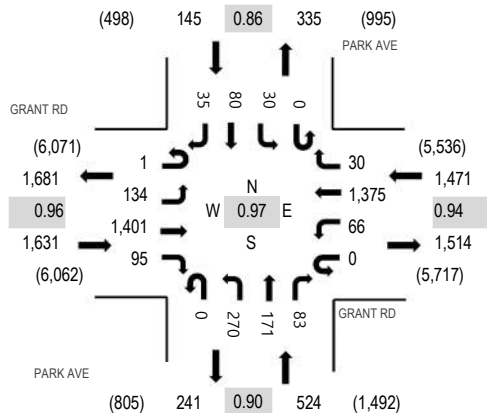
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

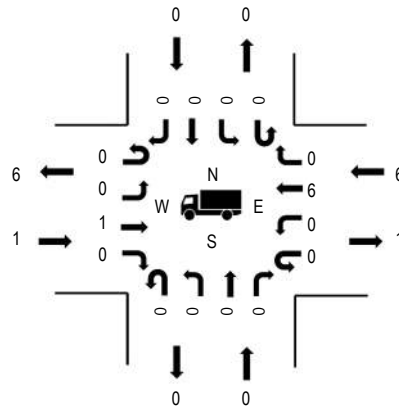
Motorized Vehicles



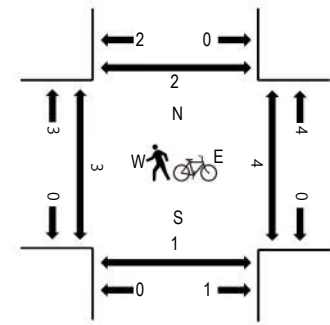
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.1%	0.96
WB	0.4%	0.94
NB	0.0%	0.90
SB	0.0%	0.86
All	0.2%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	GRANT RD Eastbound				GRANT RD Westbound				PARK AVE Northbound				PARK AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	1	11	293	16	1	11	313	5	0	36	22	11	0	9	12	6	747	3,090
2:15 PM	1	22	342	10	0	15	298	7	0	29	19	8	0	6	16	10	783	3,168
2:30 PM	0	25	333	19	0	10	318	4	0	22	15	4	0	11	17	8	786	3,175
2:45 PM	1	24	315	24	0	7	306	7	0	28	13	21	0	6	11	11	774	3,310
3:00 PM	0	30	342	18	1	19	299	9	0	42	19	13	0	11	16	6	825	3,432
3:15 PM	0	20	302	21	0	20	307	8	0	38	26	18	0	9	12	9	790	3,427
3:30 PM	0	31	345	23	0	11	346	11	0	65	35	23	0	13	13	5	921	3,517
3:45 PM	0	21	366	24	1	24	344	7	0	38	22	19	0	8	11	11	896	3,498
4:00 PM	0	35	302	13	0	18	306	8	0	53	34	19	0	6	17	9	820	3,550
4:15 PM	0	23	348	6	2	10	381	2	0	52	22	13	0	8	8	5	880	3,704
4:30 PM	0	37	345	25	0	15	338	2	0	39	38	24	0	5	26	8	902	3,771
4:45 PM	0	28	365	30	0	15	321	10	0	77	46	24	0	6	18	8	948	3,680
5:00 PM	1	34	327	20	0	19	369	12	0	76	56	18	0	10	23	9	974	3,516
5:15 PM	0	35	364	20	0	17	347	6	0	78	31	17	0	9	13	10	947	
5:30 PM	2	20	318	31	0	14	284	5	0	58	36	20	0	6	14	3	811	
5:45 PM	0	25	308	20	1	19	299	7	0	32	30	13	0	8	14	8	784	
Count Total	6	421	5,315	320	6	244	5,176	110	0	763	464	265	0	131	241	126	13,588	
Peak Hour	1	134	1,401	95	0	66	1,375	30	0	270	171	83	0	30	80	35	3,771	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	1	0	0	0	1	2:00 PM	1	0	0	0	1	2:00 PM	2	0	0	1	3
2:15 PM	1	0	3	0	4	2:15 PM	0	0	0	0	0	2:15 PM	0	1	0	3	4
2:30 PM	0	0	1	0	1	2:30 PM	0	0	0	0	0	2:30 PM	0	1	2	4	7
2:45 PM	0	0	1	1	2	2:45 PM	0	1	0	0	1	2:45 PM	2	1	1	0	4
3:00 PM	2	0	0	0	2	3:00 PM	0	0	0	1	1	3:00 PM	1	0	1	0	2

3:15 PM	0	0	2	0	2	3:15 PM	1	0	0	0	1	3:15 PM	1	0	0	0	1
3:30 PM	2	0	2	0	4	3:30 PM	1	0	1	0	2	3:30 PM	0	1	2	0	3
3:45 PM	1	0	0	0	1	3:45 PM	1	0	0	0	1	3:45 PM	0	0	0	0	0
4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	1	1	0	0	2	4:15 PM	0	1	1	0	2
4:30 PM	1	0	1	0	2	4:30 PM	0	0	1	0	1	4:30 PM	0	0	1	0	1
4:45 PM	0	0	2	0	2	4:45 PM	2	0	1	0	3	4:45 PM	1	1	3	1	6
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1
5:15 PM	0	0	3	0	3	5:15 PM	0	0	0	0	0	5:15 PM	2	0	0	0	2
5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	0	0	5:30 PM	2	0	0	1	3
5:45 PM	1	0	1	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	1	0	1
Count Total	10	0	17	1	28	Count Total	7	2	3	1	13	Count Total	11	6	12	11	40
Peak Hour	1	0	6	0	7	Peak Hour	2	0	2	0	4	Peak Hour	3	1	4	2	10



(303) 216-2439
www.alltrafficdata.net

Location: 5 1ST AVE & JACINTO ST PM

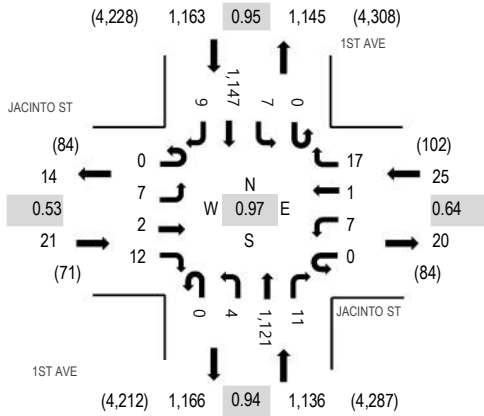
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

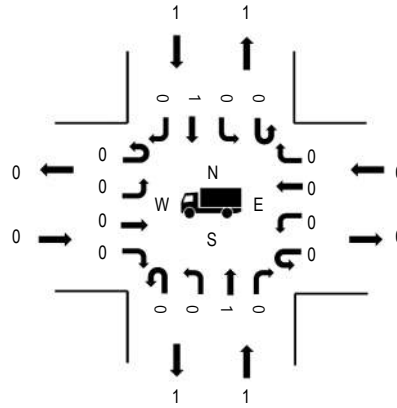
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

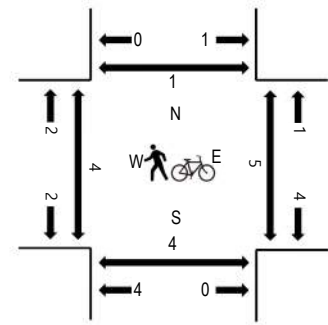
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.53
WB	0.0%	0.64
NB	0.1%	0.94
SB	0.1%	0.95
All	0.1%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	JACINTO ST Eastbound				JACINTO ST Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	0	2	0	3	0	7	0	2	261	3	0	4	194	2	478	2,060
2:15 PM	0	1	0	1	0	1	0	6	0	2	233	4	0	4	263	1	516	2,091
2:30 PM	0	1	0	3	0	2	0	5	0	2	276	3	0	4	248	3	547	2,071
2:45 PM	0	1	0	2	0	1	0	0	0	4	216	4	0	1	288	2	519	2,082
3:00 PM	0	3	0	2	0	1	0	7	0	4	221	2	0	4	261	4	509	2,122
3:15 PM	0	0	0	5	0	1	0	2	0	2	247	1	0	1	230	7	496	2,190
3:30 PM	0	1	0	7	0	2	2	5	0	1	295	1	0	6	235	3	558	2,259
3:45 PM	0	0	0	3	0	2	0	3	0	5	265	0	0	2	277	2	559	2,254
4:00 PM	0	1	0	4	0	1	0	7	0	1	303	3	0	4	248	5	577	2,293
4:15 PM	0	1	0	3	0	2	0	4	0	0	275	2	0	4	273	1	565	2,321
4:30 PM	0	0	0	2	0	1	0	3	0	2	272	1	0	4	268	0	553	2,345
4:45 PM	0	3	2	5	0	2	1	4	0	1	291	3	0	2	282	2	598	2,334
5:00 PM	0	2	0	3	0	2	0	1	0	1	283	6	0	1	303	3	605	2,213
5:15 PM	0	2	0	2	0	2	0	9	0	0	275	1	0	0	294	4	589	
5:30 PM	0	1	0	1	0	3	0	4	0	3	261	1	0	1	261	6	542	
5:45 PM	0	2	0	5	0	2	0	4	0	2	244	2	0	3	209	4	477	
Count Total	0	19	2	50	0	28	3	71	0	32	4,218	37	0	45	4,134	49	8,688	
Peak Hour	0	7	2	12	0	7	1	17	0	4	1,121	11	0	7	1,147	9	2,345	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	0	1	1	2:00 PM	0	1	1	0	2	2:00 PM	0	0	2	0	2
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	1	1	1	0	3
2:30 PM	0	0	0	1	1	2:30 PM	0	0	0	0	0	2:30 PM	1	2	3	0	6
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	1	1	2:45 PM	1	0	0	0	1
3:00 PM	0	0	0	0	0	3:00 PM	0	1	0	0	1	3:00 PM	2	3	0	0	5

3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	0	0	3:15 PM	2	1	0	1	4
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	1	1	4	0	6
3:45 PM	0	0	0	0	0	3:45 PM	0	2	0	0	2	3:45 PM	2	0	1	0	3
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	4	2	1	0	7
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	3	2	0	5
4:30 PM	0	0	0	0	0	4:30 PM	0	2	0	0	2	4:30 PM	0	1	1	0	2
4:45 PM	0	0	0	0	0	4:45 PM	0	0	2	0	2	4:45 PM	2	1	0	0	3
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	2	1	4	1	8
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	1	2	5:30 PM	2	1	0	0	3
5:45 PM	0	0	0	0	0	5:45 PM	0	1	0	0	1	5:45 PM	0	1	1	0	2
Count Total	0	2	0	3	5	Count Total	0	7	4	2	13	Count Total	20	19	20	2	61
Peak Hour	0	1	0	1	2	Peak Hour	0	2	2	0	4	Peak Hour	4	4	5	1	14



(303) 216-2439
www.alltrafficdata.net

Location: 6 1ST AVE & GLENN ST PM

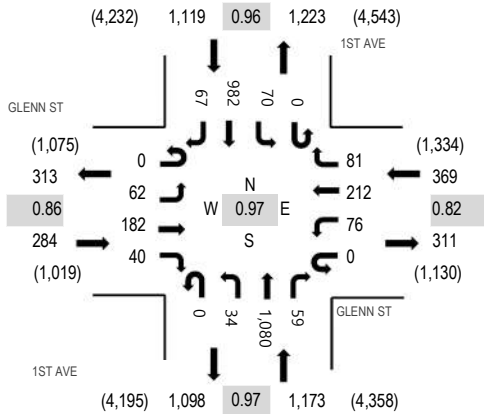
Date: Tuesday, March 26, 2024

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

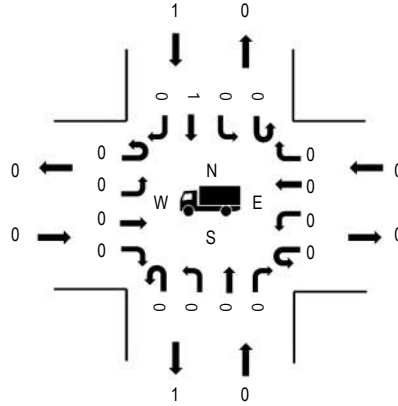
Peak Hour

Motorized Vehicles

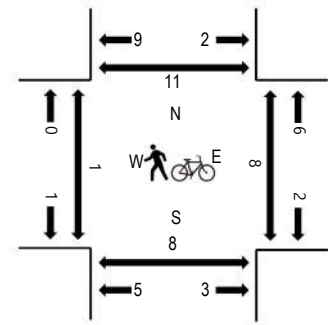


	HV%	PHF
EB	0.0%	0.86
WB	0.0%	0.82
NB	0.0%	0.97
SB	0.1%	0.96
All	0.0%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	GLENN ST Eastbound				GLENN ST Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	13	31	12	0	16	35	14	0	11	248	11	0	14	206	13	624	2,563
2:15 PM	0	13	34	8	0	23	45	23	0	6	242	11	0	15	198	13	631	2,589
2:30 PM	0	18	34	15	0	18	45	21	0	2	225	7	0	21	221	8	635	2,685
2:45 PM	0	9	36	9	0	27	36	19	0	6	233	13	0	13	258	14	673	2,734
3:00 PM	0	18	31	10	0	20	37	11	0	9	248	8	0	17	233	8	650	2,749
3:15 PM	0	20	52	14	0	18	44	21	0	8	254	17	0	18	252	9	727	2,857
3:30 PM	0	10	42	10	0	14	36	15	0	9	266	20	0	18	231	13	684	2,864
3:45 PM	0	14	42	12	0	17	52	17	0	5	247	15	0	10	233	24	688	2,885
4:00 PM	0	21	53	7	0	22	67	24	0	9	251	14	0	13	252	25	758	2,945
4:15 PM	0	12	42	16	0	20	44	20	0	2	276	11	0	20	260	11	734	2,905
4:30 PM	0	16	42	8	0	15	50	18	0	14	275	15	0	19	220	13	705	2,864
4:45 PM	0	13	45	9	0	19	51	19	0	9	278	19	0	18	250	18	748	2,836
5:00 PM	0	14	47	7	0	15	45	23	0	10	270	11	0	23	246	7	718	2,686
5:15 PM	0	8	45	12	0	18	52	19	0	10	243	16	0	19	237	14	693	
5:30 PM	0	14	29	7	0	22	52	22	0	9	233	12	0	27	239	11	677	
5:45 PM	0	11	30	4	0	18	35	20	0	13	224	13	0	17	197	16	598	
Count Total	0	224	635	160	0	302	726	306	0	132	4,013	213	0	282	3,733	217	10,943	
Peak Hour	0	62	182	40	0	76	212	81	0	34	1,080	59	0	70	982	67	2,945	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	2	3	2:00 PM	1	1	0	0	2	2:00 PM	3	6	7	5	21
2:15 PM	0	0	0	0	0	2:15 PM	1	2	0	0	3	2:15 PM	4	4	0	6	14
2:30 PM	0	0	0	0	0	2:30 PM	0	0	1	1	2	2:30 PM	4	2	0	4	10
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	0	1	2	1	4
3:00 PM	0	1	0	0	1	3:00 PM	1	0	1	1	3	3:00 PM	4	2	0	3	9

3:15 PM	0	0	0	0	0	3:15 PM	1	0	0	1	2	3:15 PM	0	1	2	5	8
3:30 PM	0	0	0	0	0	3:30 PM	1	2	1	0	4	3:30 PM	3	2	2	1	8
3:45 PM	0	0	0	0	0	3:45 PM	0	0	1	0	1	3:45 PM	0	1	1	2	4
4:00 PM	0	0	0	1	1	4:00 PM	0	0	2	0	2	4:00 PM	1	3	4	3	11
4:15 PM	0	0	0	0	0	4:15 PM	2	1	0	1	4	4:15 PM	0	2	1	2	5
4:30 PM	0	0	0	0	0	4:30 PM	1	0	2	0	3	4:30 PM	0	3	0	1	4
4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	0	1	4:45 PM	0	0	3	5	8
5:00 PM	0	1	0	1	2	5:00 PM	1	2	0	1	4	5:00 PM	4	0	1	5	10
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	1	1	5:15 PM	0	5	1	4	10
5:30 PM	0	0	0	1	1	5:30 PM	0	0	1	1	2	5:30 PM	0	1	4	6	11
5:45 PM	0	0	0	0	0	5:45 PM	1	1	1	1	4	5:45 PM	2	0	3	6	11
Count Total	0	3	0	5	8	Count Total	10	9	11	8	38	Count Total	25	33	31	59	148
Peak Hour	0	0	0	1	1	Peak Hour	3	1	5	1	10	Peak Hour	1	8	8	11	28



(303) 216-2439
www.alltrafficdata.net

Location: 7 1ST AVE & BLACKLIDGE DR PM

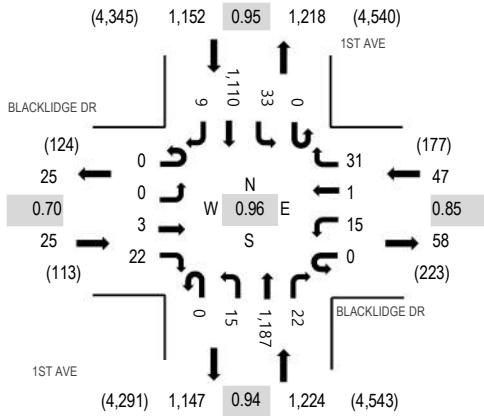
Date: Tuesday, March 26, 2024

Peak Hour: 04:00 PM - 05:00 PM

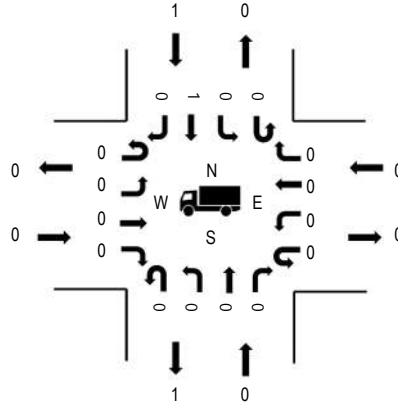
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour

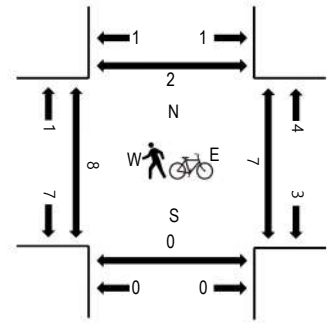
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.70
WB	0.0%	0.85
NB	0.0%	0.94
SB	0.1%	0.95
All	0.0%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	BLACKLIDGE DR Eastbound				BLACKLIDGE DR Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	2	8	0	3	0	9	0	2	259	3	0	4	224	4	518	2,162
2:15 PM	0	0	0	4	0	7	2	7	0	5	275	4	0	7	208	5	524	2,206
2:30 PM	0	3	0	6	0	4	0	11	0	2	270	6	0	6	269	2	579	2,289
2:45 PM	1	1	0	3	0	0	0	5	0	5	244	2	0	7	272	1	541	2,288
3:00 PM	0	1	0	4	0	1	0	6	0	4	278	2	0	12	251	3	562	2,330
3:15 PM	0	1	0	5	0	3	1	5	0	3	279	8	0	9	289	4	607	2,374
3:30 PM	0	3	0	6	0	1	1	11	0	2	283	3	0	4	260	4	578	2,370
3:45 PM	0	3	2	4	0	5	1	7	0	4	279	5	0	12	255	6	583	2,392
4:00 PM	0	0	2	4	0	2	1	5	0	4	286	3	0	8	289	2	606	2,448
4:15 PM	0	0	0	7	0	2	0	7	0	5	278	8	0	10	283	3	603	2,422
4:30 PM	0	0	0	5	0	4	0	11	0	5	316	6	0	8	245	0	600	2,385
4:45 PM	0	0	1	6	0	7	0	8	0	1	307	5	0	7	293	4	639	2,383
5:00 PM	0	2	1	5	0	3	2	5	0	4	278	8	0	14	252	6	580	2,238
5:15 PM	0	0	1	3	0	4	1	6	0	0	276	7	0	7	259	2	566	
5:30 PM	0	2	0	9	0	3	0	10	0	9	255	4	0	9	290	7	598	
5:45 PM	0	1	0	7	0	2	1	3	0	3	244	4	0	12	215	2	494	
Count Total	1	17	9	86	0	51	10	116	0	58	4,407	78	0	136	4,154	55	9,178	
Peak Hour	0	0	3	22	0	15	1	31	0	15	1,187	22	0	33	1,110	9	2,448	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	1	2	4	2:00 PM	0	2	0	0	2	2:00 PM	0	0	3	0	3
2:15 PM	0	0	0	0	0	2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0	2:30 PM	0	1	1	2	4	2:30 PM	2	0	3	1	6
2:45 PM	0	0	0	0	0	2:45 PM	0	1	1	0	2	2:45 PM	3	0	2	0	5
3:00 PM	0	1	0	0	1	3:00 PM	0	0	1	1	2	3:00 PM	1	0	1	0	2

3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	1	1	3:15 PM	1	1	0	0	2
3:30 PM	0	0	0	0	0	3:30 PM	0	1	1	0	2	3:30 PM	1	0	0	0	1
3:45 PM	0	0	0	0	0	3:45 PM	0	2	1	0	3	3:45 PM	2	0	3	2	7
4:00 PM	0	0	0	1	1	4:00 PM	0	2	1	0	3	4:00 PM	1	0	1	1	3
4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	2	3	4:15 PM	2	0	0	0	2
4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1	4:30 PM	2	0	0	0	2
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	1	1	4:45 PM	3	0	6	1	10
5:00 PM	0	1	1	0	2	5:00 PM	0	3	1	1	5	5:00 PM	1	0	4	0	5
5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1	5:15 PM	3	0	0	0	3
5:30 PM	0	0	0	1	1	5:30 PM	1	1	0	1	3	5:30 PM	4	0	2	0	6
5:45 PM	0	0	0	0	0	5:45 PM	0	1	0	0	1	5:45 PM	1	0	3	0	4
Count Total	0	3	2	4	9	Count Total	2	16	8	9	35	Count Total	27	1	28	5	61
Peak Hour	0	0	0	1	1	Peak Hour	1	3	1	3	8	Peak Hour	8	0	7	2	17



(303) 216-2439
www.alltrafficdata.net

Location: 8 1ST AVE & FORT LOWELL RD PM

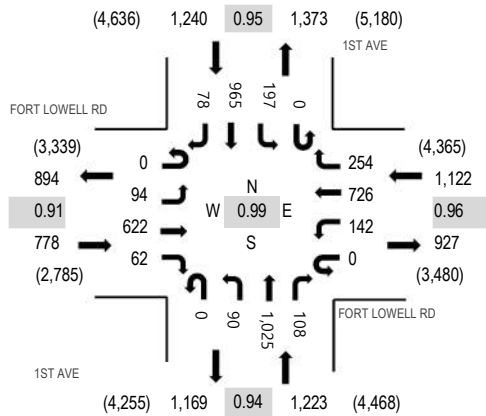
Date: Tuesday, March 26, 2024

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

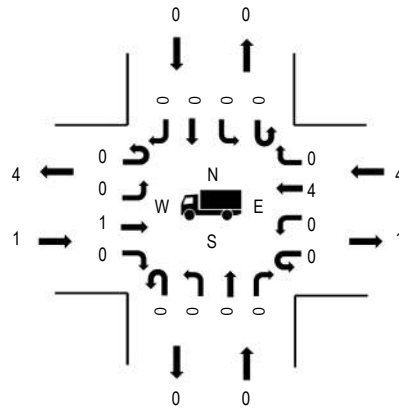
Motorized Vehicles



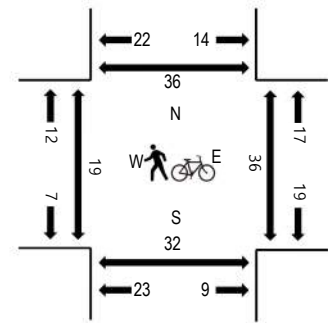
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.1%	0.91
WB	0.4%	0.96
NB	0.0%	0.94
SB	0.0%	0.95
All	0.1%	0.99

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FORT LOWELL RD Eastbound				FORT LOWELL RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	14	134	13	0	15	138	64	0	21	230	20	0	55	176	20	900	3,873
2:15 PM	0	13	116	18	0	37	162	66	0	10	219	22	0	55	207	20	945	3,910
2:30 PM	0	23	139	10	0	34	149	91	0	27	248	23	0	49	231	9	1,033	3,950
2:45 PM	0	18	141	16	0	43	174	57	0	21	194	30	0	67	224	10	995	3,941
3:00 PM	0	25	153	10	0	40	141	58	0	21	199	22	0	50	207	11	937	4,013
3:15 PM	0	29	108	15	0	35	168	49	0	12	244	24	0	60	219	22	985	4,180
3:30 PM	0	22	154	10	0	37	184	70	0	21	225	25	0	49	207	20	1,024	4,278
3:45 PM	0	21	138	15	0	43	179	74	0	14	255	26	0	45	238	19	1,067	4,327
4:00 PM	0	24	136	17	0	33	182	73	0	33	250	33	0	48	249	26	1,104	4,363
4:15 PM	0	25	170	19	0	28	209	73	0	19	240	28	0	53	207	12	1,083	4,321
4:30 PM	0	22	145	14	0	51	174	54	0	22	246	25	0	48	250	22	1,073	4,252
4:45 PM	0	23	171	12	0	30	161	54	0	16	289	22	0	48	259	18	1,103	4,207
5:00 PM	0	17	146	12	0	35	209	82	0	14	224	27	0	60	218	18	1,062	4,005
5:15 PM	0	23	131	11	0	16	183	75	0	15	262	23	0	64	195	16	1,014	
5:30 PM	0	18	115	14	0	31	182	61	0	23	237	20	0	62	254	11	1,028	
5:45 PM	0	28	124	13	0	27	168	66	0	16	206	25	0	51	160	17	901	
Count Total	0	345	2,221	219	0	535	2,763	1,067	0	305	3,768	395	0	864	3,501	271	16,254	
Peak Hour	0	94	622	62	0	142	726	254	0	90	1,025	108	0	197	965	78	4,363	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	0	1	1	2:00 PM	1	0	0	1	2	2:00 PM	3	10	18	3	34
2:15 PM	1	1	0	1	3	2:15 PM	0	0	0	1	1	2:15 PM	1	13	7	3	24
2:30 PM	1	0	2	0	3	2:30 PM	0	0	0	0	0	2:30 PM	1	17	4	1	23
2:45 PM	1	0	1	0	2	2:45 PM	0	0	0	1	1	2:45 PM	6	12	6	9	33
3:00 PM	1	0	1	0	2	3:00 PM	0	0	2	1	3	3:00 PM	9	11	12	11	43

3:15 PM	0	0	1	0	1	3:15 PM	1	0	0	1	2	3:15 PM	11	12	13	10	46
3:30 PM	1	0	0	0	1	3:30 PM	0	0	1	0	1	3:30 PM	8	15	19	6	48
3:45 PM	1	0	0	0	1	3:45 PM	0	0	2	0	2	3:45 PM	9	21	18	6	54
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	1	1	4:00 PM	8	12	8	12	40
4:15 PM	0	0	2	0	2	4:15 PM	0	0	1	0	1	4:15 PM	6	14	8	9	37
4:30 PM	1	0	1	0	2	4:30 PM	0	0	0	1	1	4:30 PM	4	4	6	6	20
4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	1	2	4:45 PM	1	2	14	9	26
5:00 PM	0	1	0	0	1	5:00 PM	0	0	1	0	1	5:00 PM	2	4	12	3	21
5:15 PM	0	0	1	1	2	5:15 PM	1	0	0	0	1	5:15 PM	10	4	3	3	20
5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1	5:30 PM	1	11	14	4	30
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	1	7	10	1	19
Count Total	7	2	10	3	22	Count Total	3	0	9	8	20	Count Total	81	169	172	96	518
Peak Hour	1	0	4	0	5	Peak Hour	0	0	2	3	5	Peak Hour	19	32	36	36	123



(303) 216-2439
www.alltrafficdata.net

Location: 9 1ST AVE & GRAYBILL DR PM

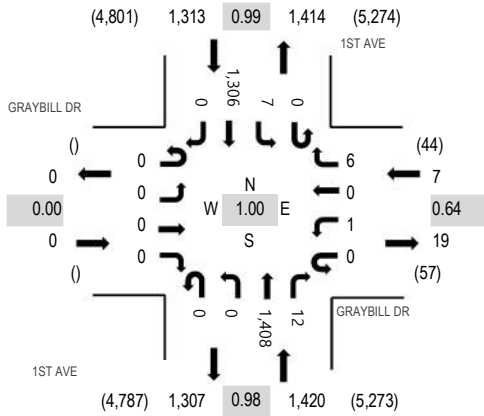
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

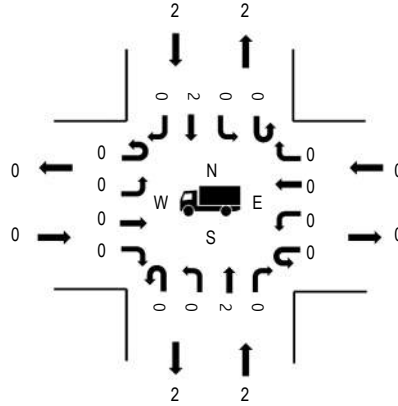
Motorized Vehicles



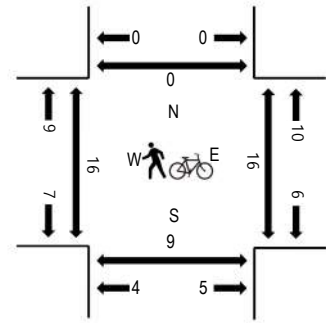
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.64
NB	0.1%	0.98
SB	0.2%	0.99
All	0.1%	1.00

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	GRAYBILL DR Eastbound				GRAYBILL DR Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	0	0	0	0	0	2	0	0	319	1	0	1	274	0	597	2,385
2:15 PM	0	0	0	0	0	1	0	0	0	0	307	2	1	2	275	0	588	2,385
2:30 PM	0	0	0	0	0	1	0	1	0	0	322	3	1	0	285	0	613	2,429
2:45 PM	0	0	0	0	0	2	0	0	0	0	266	1	0	0	318	0	587	2,462
3:00 PM	0	0	0	0	0	1	0	6	0	0	297	1	0	1	291	0	597	2,529
3:15 PM	0	0	0	0	0	0	0	6	0	0	329	0	1	5	291	0	632	2,583
3:30 PM	0	0	0	0	0	2	0	1	0	0	349	2	0	2	290	0	646	2,583
3:45 PM	0	0	0	0	0	1	0	0	0	0	344	2	0	1	306	0	654	2,623
4:00 PM	0	0	0	0	0	1	0	1	0	0	342	3	0	3	301	0	651	2,649
4:15 PM	0	0	0	0	0	0	0	4	0	0	335	4	0	2	287	0	632	2,686
4:30 PM	0	0	0	0	0	0	0	3	0	0	347	5	0	3	328	0	686	2,740
4:45 PM	0	0	0	0	0	0	0	2	0	0	344	3	0	2	329	0	680	2,670
5:00 PM	0	0	0	0	0	1	0	0	0	0	356	1	0	2	328	0	688	2,555
5:15 PM	0	0	0	0	0	0	0	1	0	0	361	3	0	0	321	0	686	
5:30 PM	0	0	0	0	0	1	0	1	0	0	304	1	0	0	309	0	616	
5:45 PM	0	0	0	0	0	2	0	3	0	0	318	1	0	0	241	0	565	
Count Total	0	0	0	0	0	13	0	31	0	0	5,240	33	3	24	4,774	0	10,118	
Peak Hour	0	0	0	0	0	1	0	6	0	0	1,408	12	0	7	1,306	0	2,740	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	0	1	1	2:00 PM	0	0	0	1	1	2:00 PM	3	1	2	0	6
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	1	1	2:15 PM	2	2	3	0	7
2:30 PM	0	0	0	0	0	2:30 PM	0	0	0	0	0	2:30 PM	1	5	2	0	8
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	1	1	2:45 PM	4	9	10	0	23
3:00 PM	0	1	0	0	1	3:00 PM	0	1	0	1	2	3:00 PM	3	3	4	0	10

3:15 PM	0	0	0	0	0	3:15 PM	0	1	0	1	2	3:15 PM	5	3	2	0	10
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	2	2	1	0	5
3:45 PM	0	0	0	0	0	3:45 PM	0	1	0	1	2	3:45 PM	9	5	5	1	20
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	1	1	4:00 PM	3	0	3	1	7
4:15 PM	0	0	0	1	1	4:15 PM	0	1	0	0	1	4:15 PM	5	4	3	0	12
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	1	1	4:30 PM	6	2	1	0	9
4:45 PM	0	0	0	1	1	4:45 PM	0	3	0	0	3	4:45 PM	2	2	4	0	8
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	1	1	5:00 PM	1	0	6	0	7
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	7	5	5	0	17
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	1	1	2	0	4
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	4	4	12	0	20
Count Total	0	4	0	5	9	Count Total	0	7	0	9	16	Count Total	58	48	65	2	173
Peak Hour	0	2	0	2	4	Peak Hour	0	3	0	2	5	Peak Hour	16	9	16	0	41

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	0	2	2	2:00 PM	0	0	0	2	2	2:00 PM	0	1	1	2	4
2:15 PM	0	1	1	0	2	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	3	3
2:30 PM	0	0	0	0	0	2:30 PM	0	1	0	0	1	2:30 PM	0	0	0	2	2
2:45 PM	0	0	0	1	1	2:45 PM	1	0	0	1	2	2:45 PM	0	1	4	0	5
3:00 PM	0	1	1	0	2	3:00 PM	0	1	0	2	3	3:00 PM	0	6	4	2	12

3:15 PM	1	0	0	0	1	3:15 PM	0	0	0	1	1	3:15 PM	0	7	2	8	17
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	0	0	1	2	3
3:45 PM	0	0	1	0	1	3:45 PM	0	0	1	2	3	3:45 PM	0	4	1	3	8
4:00 PM	0	0	0	0	0	4:00 PM	3	0	0	1	4	4:00 PM	0	2	5	5	12
4:15 PM	1	0	0	1	2	4:15 PM	0	1	0	0	1	4:15 PM	0	2	4	2	8
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	1	1	4:30 PM	0	3	4	3	10
4:45 PM	0	0	0	1	1	4:45 PM	0	1	1	0	2	4:45 PM	0	2	2	2	6
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	1	4	9	1	15
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	0	2	12	2	16
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	1	3	3	7
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	4	10	7	21
Count Total	2	4	3	7	16	Count Total	4	4	2	10	20	Count Total	1	39	62	47	149
Peak Hour	0	2	0	2	4	Peak Hour	0	1	1	1	3	Peak Hour	1	11	27	8	47



(303) 216-2439
www.alltrafficdata.net

Location: 11 1ST AVE & HALCYON RD PM

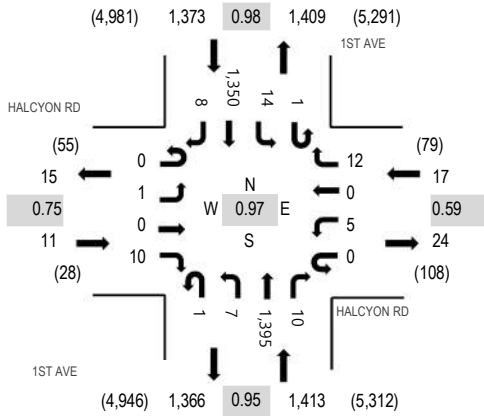
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

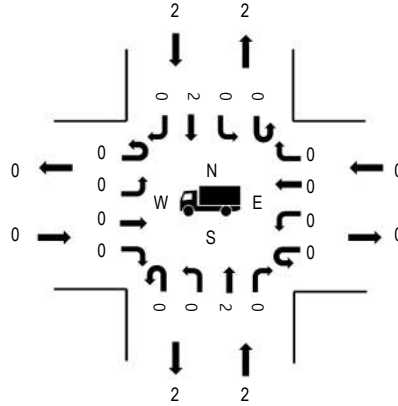
Motorized Vehicles



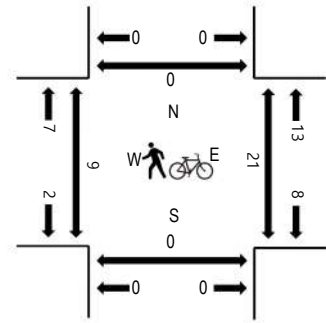
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.75
WB	0.0%	0.59
NB	0.1%	0.95
SB	0.1%	0.98
All	0.1%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	HALCYON RD Eastbound				HALCYON RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	0	1	0	1	1	2	0	1	310	5	0	2	268	2	593	2,463
2:15 PM	0	0	0	2	0	0	0	1	0	0	302	4	0	1	282	1	593	2,451
2:30 PM	0	1	0	2	0	0	0	4	0	1	349	4	0	3	302	2	668	2,515
2:45 PM	0	0	0	0	0	1	0	4	0	2	281	7	0	4	309	1	609	2,486
3:00 PM	0	1	0	0	0	1	0	3	0	3	282	1	0	4	284	2	581	2,575
3:15 PM	0	1	0	1	0	0	0	6	0	0	330	3	0	2	313	1	657	2,676
3:30 PM	0	0	0	1	0	5	1	5	0	3	331	1	0	5	285	2	639	2,666
3:45 PM	0	0	0	2	0	1	0	3	0	3	353	1	0	5	328	2	698	2,703
4:00 PM	0	0	0	2	0	1	0	3	0	3	347	6	0	2	318	0	682	2,717
4:15 PM	0	0	0	0	0	0	0	4	0	1	327	5	0	4	305	1	647	2,739
4:30 PM	0	0	0	0	0	1	0	5	0	0	328	1	0	1	339	1	676	2,814
4:45 PM	0	0	0	3	0	1	0	1	0	1	350	4	0	3	347	2	712	2,787
5:00 PM	0	0	0	4	0	2	0	2	1	3	352	0	1	3	334	2	704	2,645
5:15 PM	0	1	0	3	0	1	0	4	0	3	365	5	0	7	330	3	722	
5:30 PM	0	0	0	1	0	2	0	6	0	1	312	4	0	7	314	2	649	
5:45 PM	0	1	0	1	0	4	0	3	0	3	310	3	0	1	243	1	570	
Count Total	0	5	0	23	0	21	2	56	1	28	5,229	54	1	54	4,901	25	10,400	
Peak Hour	0	1	0	10	0	5	0	12	1	7	1,395	10	1	14	1,350	8	2,814	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	0	1	1	2:00 PM	0	0	0	1	1	2:00 PM	1	0	3	0	4
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	1	1	2:15 PM	0	1	3	1	5
2:30 PM	0	0	0	0	0	2:30 PM	0	0	0	0	0	2:30 PM	0	0	1	0	1
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	2	2	2:45 PM	2	0	10	1	13
3:00 PM	0	1	0	0	1	3:00 PM	0	0	0	1	1	3:00 PM	1	0	3	0	4

3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	2	2	3:15 PM	2	0	6	0	8
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	2	0	3	0	5
3:45 PM	0	0	0	0	0	3:45 PM	0	0	0	1	1	3:45 PM	7	0	4	0	11
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	1	1	4:00 PM	4	1	2	0	7
4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	1	1	4:15 PM	0	0	4	0	4
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	1	1	4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	1	1	4:45 PM	0	2	0	1	3	4:45 PM	2	0	8	0	10
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	1	1	5:00 PM	2	0	6	0	8
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	4	0	7	0	11
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	3	0	8	0	11
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	10	0	10
Count Total	0	4	0	5	9	Count Total	0	2	0	13	15	Count Total	31	2	78	2	113
Peak Hour	0	2	0	2	4	Peak Hour	0	2	0	3	5	Peak Hour	9	0	21	0	30



(303) 216-2439
www.alltrafficdata.net

Location: 12 1ST AVE & ROGER RD PM

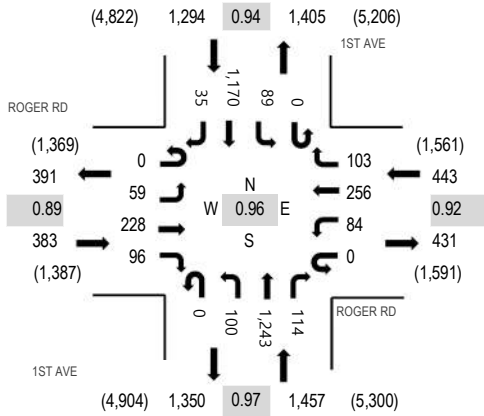
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

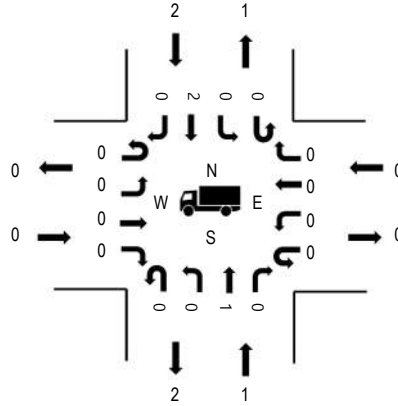
Motorized Vehicles



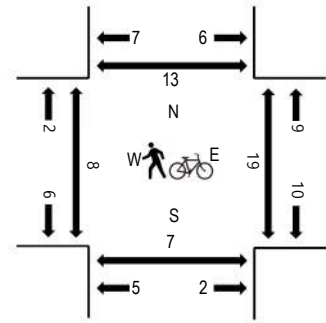
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.89
WB	0.0%	0.92
NB	0.1%	0.97
SB	0.2%	0.94
All	0.1%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	ROGER RD Eastbound				ROGER RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	14	50	11	0	24	56	28	0	17	275	18	0	18	243	17	771	3,047
2:15 PM	0	16	49	17	0	21	54	22	0	24	277	12	0	25	236	13	766	3,058
2:30 PM	0	11	32	15	0	28	44	19	0	21	276	17	0	12	281	4	760	3,064
2:45 PM	0	20	58	18	0	24	41	31	0	23	251	10	0	15	249	10	750	3,141
3:00 PM	0	10	52	21	0	17	42	18	0	23	262	11	0	27	287	12	782	3,242
3:15 PM	0	18	58	22	0	17	40	24	0	25	265	16	0	30	240	17	772	3,283
3:30 PM	0	10	48	16	0	19	50	17	0	21	323	19	0	34	268	12	837	3,339
3:45 PM	0	10	60	19	0	17	45	22	0	24	301	29	0	35	280	9	851	3,362
4:00 PM	0	15	58	17	0	23	54	27	0	19	312	17	0	19	252	10	823	3,413
4:15 PM	0	12	58	21	0	22	67	19	0	20	273	19	0	38	269	10	828	3,474
4:30 PM	0	11	54	22	0	23	63	24	0	29	319	26	0	17	265	7	860	3,577
4:45 PM	0	20	65	25	0	20	75	26	0	17	310	22	0	33	276	13	902	3,566
5:00 PM	0	13	49	19	0	23	56	24	0	26	308	33	0	15	310	8	884	3,368
5:15 PM	0	15	60	30	0	18	62	29	0	28	306	33	0	24	319	7	931	
5:30 PM	0	13	66	17	0	20	51	29	0	19	282	39	0	20	279	14	849	
5:45 PM	0	18	43	11	0	19	47	20	0	11	261	31	0	17	214	12	704	
Count Total	0	226	860	301	0	335	847	379	0	347	4,601	352	0	379	4,268	175	13,070	
Peak Hour	0	59	228	96	0	84	256	103	0	100	1,243	114	0	89	1,170	35	3,577	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	1	1	3	2:00 PM	0	1	0	0	1	2:00 PM	0	1	2	3	6
2:15 PM	0	1	0	0	1	2:15 PM	1	0	0	0	1	2:15 PM	3	7	3	1	14
2:30 PM	0	0	0	0	0	2:30 PM	0	0	0	0	0	2:30 PM	1	1	4	0	6
2:45 PM	0	0	0	1	1	2:45 PM	0	0	0	0	0	2:45 PM	0	4	8	3	15
3:00 PM	0	0	0	0	0	3:00 PM	0	2	0	2	4	3:00 PM	0	1	5	6	12

3:15 PM	0	1	0	1	2	3:15 PM	0	0	0	0	0	3:15 PM	0	2	5	6	13
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	3	1	4	4	12
3:45 PM	0	0	0	1	1	3:45 PM	0	0	0	1	1	3:45 PM	0	0	1	8	9
4:00 PM	0	0	0	0	0	4:00 PM	0	0	2	0	2	4:00 PM	0	3	2	5	10
4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	0	1	4:15 PM	2	2	4	7	15
4:30 PM	0	0	0	0	0	4:30 PM	1	1	0	0	2	4:30 PM	3	2	4	3	12
4:45 PM	0	0	0	1	1	4:45 PM	0	0	1	0	1	4:45 PM	2	1	4	1	8
5:00 PM	0	1	0	0	1	5:00 PM	0	0	1	0	1	5:00 PM	1	3	6	3	13
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	2	1	5	6	14
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	2	12	5	19
5:45 PM	0	0	0	0	0	5:45 PM	0	1	0	0	1	5:45 PM	4	1	2	4	11
Count Total	0	4	1	7	12	Count Total	2	6	4	3	15	Count Total	21	32	71	65	189
Peak Hour	0	1	0	2	3	Peak Hour	1	1	2	0	4	Peak Hour	8	7	19	13	47



(303) 216-2439
www.alltrafficdata.net

Location: 13 1ST AVE & LIMBERLOST DR PM

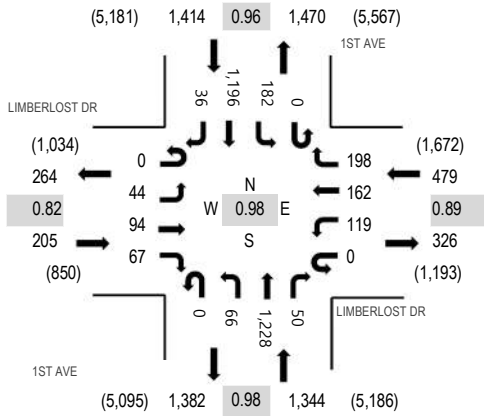
Date: Tuesday, March 26, 2024

Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

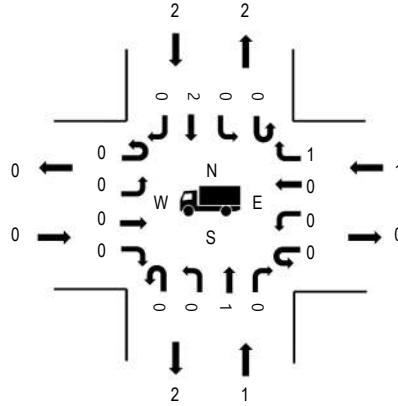
Motorized Vehicles



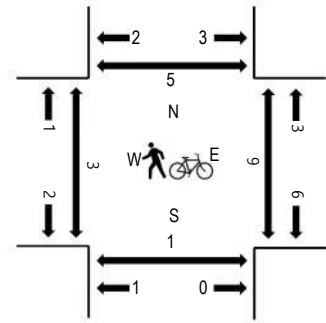
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.82
WB	0.2%	0.89
NB	0.1%	0.98
SB	0.1%	0.96
All	0.1%	0.98

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	LIMBERLOST DR Eastbound				LIMBERLOST DR Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	14	25	11	0	27	41	55	0	17	281	13	0	40	252	8	784	3,046
2:15 PM	0	9	16	13	0	24	39	37	0	20	274	9	0	35	259	3	738	2,978
2:30 PM	0	12	24	20	0	27	31	34	0	22	265	12	0	32	267	9	755	3,046
2:45 PM	0	8	29	17	0	17	36	31	0	22	290	6	0	39	266	8	769	3,114
3:00 PM	0	7	28	18	0	20	22	34	0	17	231	5	0	29	296	9	716	3,185
3:15 PM	0	10	25	23	0	21	32	38	0	17	305	13	0	34	280	8	806	3,275
3:30 PM	0	8	23	15	0	26	39	46	0	27	319	10	0	31	273	6	823	3,326
3:45 PM	0	12	24	16	0	25	36	48	0	15	303	8	0	56	288	9	840	3,317
4:00 PM	0	13	41	21	0	24	33	38	0	21	302	12	0	36	258	7	806	3,335
4:15 PM	0	12	31	19	0	21	39	34	0	23	303	11	0	32	325	7	857	3,393
4:30 PM	0	11	23	22	0	24	38	54	0	18	325	8	0	34	244	13	814	3,416
4:45 PM	0	9	16	13	0	24	38	52	0	14	313	11	0	51	306	11	858	3,442
5:00 PM	0	11	25	19	0	33	36	38	0	12	327	14	0	44	297	8	864	3,323
5:15 PM	0	15	28	16	0	19	41	63	0	17	298	14	0	45	316	8	880	
5:30 PM	0	9	25	19	0	43	47	45	0	23	290	11	0	42	277	9	840	
5:45 PM	0	13	18	14	0	21	45	36	0	22	285	11	0	44	219	11	739	
Count Total	0	173	401	276	0	396	593	683	0	307	4,711	168	0	624	4,423	134	12,889	
Peak Hour	0	44	94	67	0	119	162	198	0	66	1,228	50	0	182	1,196	36	3,442	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	1	2	2:00 PM	0	1	0	0	1	2:00 PM	0	0	2	1	3
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	2	0	0	1	3
2:30 PM	0	0	0	1	1	2:30 PM	0	0	1	0	1	2:30 PM	2	2	3	0	7
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	1	1	0	1	3
3:00 PM	0	0	0	0	0	3:00 PM	0	1	0	0	1	3:00 PM	3	0	3	2	8

3:15 PM	1	1	0	0	2	3:15 PM	0	0	0	0	0	3:15 PM	2	1	8	2	13
3:30 PM	0	0	0	0	0	3:30 PM	0	0	1	0	1	3:30 PM	2	2	4	4	12
3:45 PM	0	0	0	1	1	3:45 PM	1	1	0	0	2	3:45 PM	0	1	2	1	4
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	1	0	2	3	6
4:15 PM	0	0	0	0	0	4:15 PM	0	3	1	0	4	4:15 PM	0	0	8	6	14
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	3	2	5
4:45 PM	0	0	1	0	1	4:45 PM	0	1	0	0	1	4:45 PM	1	0	1	0	2
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	2	0	3	1	6
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	0	1	2	2	5
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	3	2	5
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	1	2	3	4	10
Count Total	1	4	1	6	12	Count Total	1	7	3	0	11	Count Total	17	10	47	32	106
Peak Hour	0	1	1	2	4	Peak Hour	0	1	0	0	1	Peak Hour	3	1	9	5	18



(303) 216-2439
www.alltrafficdata.net

Location: 14 1ST AVE & FRY'S DWY PM

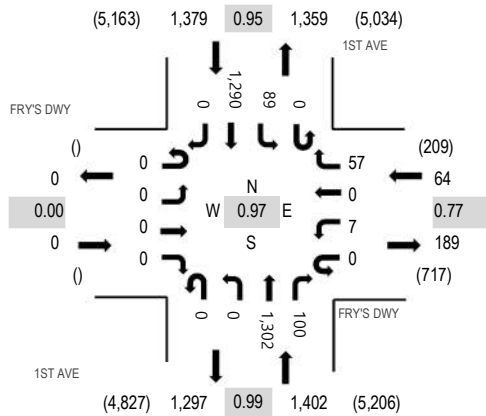
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

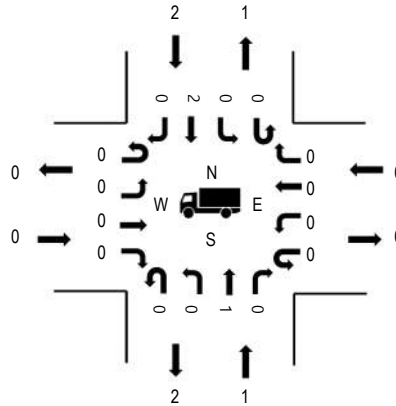
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

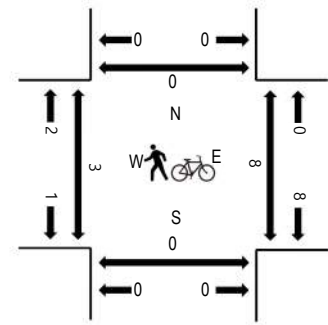
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.77
NB	0.1%	0.99
SB	0.1%	0.95
All	0.1%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	FRY'S DWY Eastbound				FRY'S DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	0	0	0	3	0	9	0	0	296	19	0	14	277	0	618	2,491
2:15 PM	0	0	0	0	0	1	0	5	0	0	291	26	0	24	280	0	627	2,519
2:30 PM	0	0	0	0	0	0	0	7	0	0	290	14	0	25	291	0	627	2,526
2:45 PM	0	0	0	0	0	3	0	11	0	0	283	21	0	22	279	0	619	2,585
3:00 PM	0	0	0	0	0	1	0	16	0	0	269	21	0	26	313	0	646	2,656
3:15 PM	0	0	0	0	0	2	0	9	0	0	281	25	0	26	291	0	634	2,673
3:30 PM	0	0	0	0	0	0	0	13	0	0	327	24	0	16	306	0	686	2,698
3:45 PM	0	0	0	0	0	1	0	7	0	0	313	17	1	25	326	0	690	2,694
4:00 PM	0	0	0	0	1	2	0	10	0	0	328	28	0	19	275	0	663	2,708
4:15 PM	0	0	0	0	0	2	0	13	0	0	289	16	0	27	312	0	659	2,771
4:30 PM	0	0	0	0	0	1	0	20	0	0	328	26	0	21	286	0	682	2,845
4:45 PM	0	0	0	0	0	2	0	11	0	0	324	28	0	21	318	0	704	2,843
5:00 PM	0	0	0	0	0	2	0	14	0	0	323	26	0	24	337	0	726	2,723
5:15 PM	0	0	0	0	0	2	0	12	0	0	327	20	0	23	349	0	733	
5:30 PM	0	0	0	0	0	2	0	13	0	0	305	22	0	24	314	0	680	
5:45 PM	0	0	0	0	0	4	0	10	0	0	278	21	1	25	245	0	584	
Count Total	0	0	0	0	1	28	0	180	0	0	4,852	354	2	362	4,799	0	10,578	
Peak Hour	0	0	0	0	0	7	0	57	0	0	1,302	100	0	89	1,290	0	2,845	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	1	2	2:00 PM	0	1	0	0	1	2:00 PM	0	0	2	0	2
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	1	1	2:30 PM	0	0	0	0	0	2:30 PM	0	0	1	0	1
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	2	2	0	0	4
3:00 PM	0	0	0	0	0	3:00 PM	0	2	1	2	5	3:00 PM	1	0	2	0	3

3:15 PM	0	1	0	1	2	3:15 PM	0	0	0	0	0	3:15 PM	1	0	7	0	8
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	0	0	1	0	1
3:45 PM	0	0	0	1	1	3:45 PM	0	0	0	0	0	3:45 PM	2	0	1	0	3
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	1	0	3	0	4
4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	0	1	4:15 PM	0	0	7	0	7
4:30 PM	0	0	0	1	1	4:30 PM	0	1	0	0	1	4:30 PM	0	0	4	0	4
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	1	0	0	0	1
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	2	0	3	0	5
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	1	0	0	1	5:45 PM	0	0	2	1	3
Count Total	0	4	0	7	11	Count Total	0	6	1	2	9	Count Total	10	2	35	1	48
Peak Hour	0	1	0	2	3	Peak Hour	0	1	0	0	1	Peak Hour	3	0	8	0	11



(303) 216-2439
www.alltrafficdata.net

Location: 15 1ST AVE & WETMORE RD PM

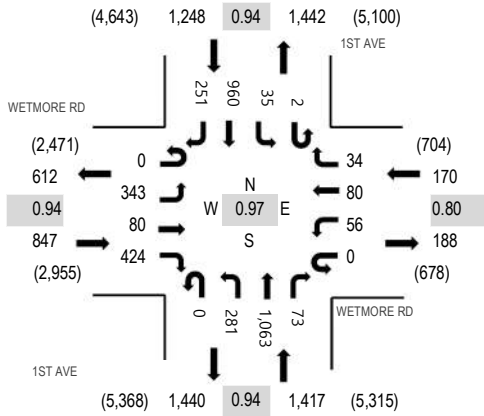
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

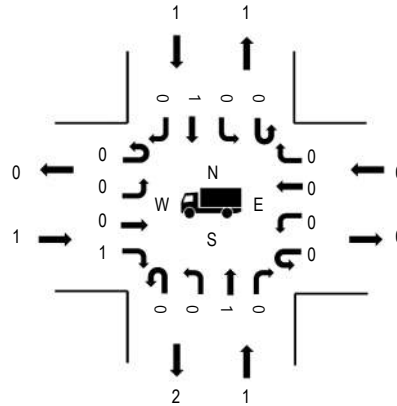
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

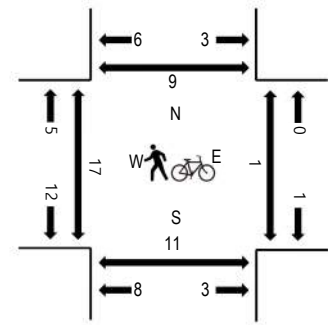
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.1%	0.94
WB	0.0%	0.80
NB	0.1%	0.94
SB	0.1%	0.94
All	0.1%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	WETMORE RD Eastbound				WETMORE RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	53	13	94	0	22	16	4	0	72	240	23	0	7	208	63	815	3,225
2:15 PM	0	57	20	102	0	12	19	6	0	103	206	16	0	10	182	63	796	3,234
2:30 PM	0	78	17	102	0	20	17	6	0	83	200	11	0	8	197	68	807	3,242
2:45 PM	0	60	13	81	0	19	8	9	0	80	240	9	0	12	220	56	807	3,321
3:00 PM	0	47	19	109	0	30	27	6	0	74	196	15	0	8	226	67	824	3,387
3:15 PM	0	79	19	95	0	24	9	9	0	73	230	9	0	9	192	56	804	3,428
3:30 PM	0	65	12	99	0	23	15	12	0	73	264	25	0	9	220	69	886	3,485
3:45 PM	0	56	19	88	0	19	20	7	0	75	264	8	0	8	247	62	873	3,470
4:00 PM	0	74	17	110	0	25	25	7	0	79	241	19	0	4	189	75	865	3,523
4:15 PM	0	55	24	80	0	20	16	4	0	64	265	12	0	9	264	48	861	3,592
4:30 PM	0	81	27	107	0	12	26	8	0	75	247	15	0	15	197	61	871	3,682
4:45 PM	0	94	17	109	0	17	22	10	0	66	270	14	2	6	235	64	926	3,675
5:00 PM	0	75	16	96	0	12	13	10	0	73	283	22	0	8	261	65	934	3,482
5:15 PM	0	93	20	112	0	15	19	6	0	67	263	22	0	6	267	61	951	
5:30 PM	0	75	19	103	0	25	12	9	0	72	253	14	0	9	210	63	864	
5:45 PM	0	67	18	69	0	15	9	8	0	70	206	14	0	12	187	58	733	
Count Total	0	1,109	290	1,556	0	310	273	121	0	1,199	3,868	248	2	140	3,502	999	13,617	
Peak Hour	0	343	80	424	0	56	80	34	0	281	1,063	73	2	35	960	251	3,682	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	1	2	2:00 PM	0	0	1	0	1	2:00 PM	8	1	3	5	17
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	2	0	0	0	2
2:30 PM	0	0	0	2	2	2:30 PM	0	1	0	0	1	2:30 PM	1	3	2	0	6
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	2	4	3	2	11
3:00 PM	0	0	0	0	0	3:00 PM	1	1	0	0	2	3:00 PM	4	1	3	2	10

3:15 PM	0	1	0	0	1	3:15 PM	0	0	1	1	2	3:15 PM	2	0	1	3	6
3:30 PM	0	0	0	0	0	3:30 PM	0	1	0	0	1	3:30 PM	2	0	6	2	10
3:45 PM	0	0	0	1	1	3:45 PM	0	2	0	1	3	3:45 PM	3	4	1	0	8
4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1	4:00 PM	3	2	6	7	18
4:15 PM	1	0	0	0	1	4:15 PM	0	0	2	0	2	4:15 PM	6	3	2	2	13
4:30 PM	1	0	0	0	1	4:30 PM	0	1	1	1	3	4:30 PM	7	6	0	6	19
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	5	1	0	1	7
5:00 PM	0	1	0	1	2	5:00 PM	0	0	0	0	0	5:00 PM	3	4	1	2	10
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	2	0	0	0	2
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	1	1	5:30 PM	1	1	0	0	2
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	5	0	1	5	11
Count Total	2	4	0	6	12	Count Total	1	6	6	4	17	Count Total	56	30	29	37	152
Peak Hour	1	1	0	1	3	Peak Hour	0	1	1	1	3	Peak Hour	17	11	1	9	38



(303) 216-2439
www.alltrafficdata.net

Location: 16 1ST AVE & BROMLEY ST PM

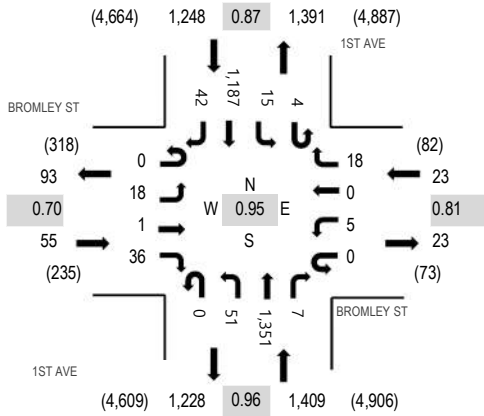
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

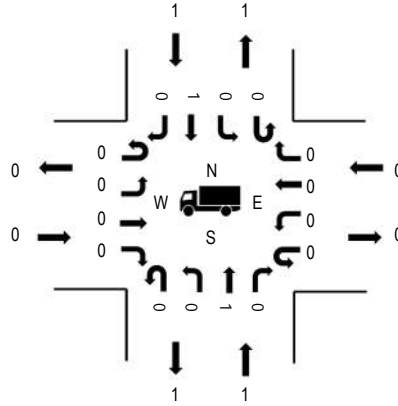
Motorized Vehicles



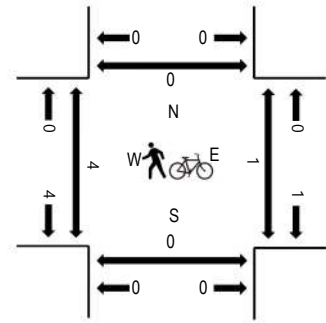
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.70
WB	0.0%	0.81
NB	0.1%	0.96
SB	0.1%	0.87
All	0.1%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BROMLEY ST Eastbound				BROMLEY ST Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	7	0	14	0	0	0	4	1	8	255	1	0	4	264	8	566	2,301
2:15 PM	0	8	0	9	0	1	0	5	0	11	261	1	2	1	262	8	569	2,312
2:30 PM	0	10	0	18	0	0	0	3	0	13	272	2	0	4	269	9	600	2,336
2:45 PM	0	3	0	9	0	1	0	2	0	10	267	1	1	2	255	15	566	2,400
3:00 PM	0	7	0	7	0	3	0	5	0	3	254	1	0	2	287	8	577	2,476
3:15 PM	0	1	0	6	0	1	0	5	0	6	290	2	1	1	272	8	593	2,509
3:30 PM	0	4	0	7	0	0	0	4	0	11	309	2	3	1	307	16	664	2,518
3:45 PM	0	4	0	8	0	0	0	2	0	7	302	2	2	2	306	7	642	2,515
4:00 PM	0	5	0	11	0	0	0	7	0	12	313	1	1	6	249	5	610	2,560
4:15 PM	0	3	0	12	0	1	0	5	0	8	280	3	3	2	273	12	602	2,618
4:30 PM	0	4	0	12	0	2	0	6	0	9	345	4	1	5	261	12	661	2,735
4:45 PM	0	2	0	6	0	2	0	3	0	13	352	1	0	3	294	11	687	2,692
5:00 PM	0	7	1	7	0	0	0	6	0	16	328	0	2	6	284	11	668	2,550
5:15 PM	0	5	0	11	0	1	0	3	0	13	326	2	1	1	348	8	719	
5:30 PM	0	4	0	6	0	0	0	7	0	6	317	4	2	0	262	10	618	
5:45 PM	0	7	0	10	0	1	0	2	0	13	246	2	1	3	249	11	545	
Count Total	0	81	1	153	0	13	0	69	1	159	4,717	29	20	43	4,442	159	9,887	
Peak Hour	0	18	1	36	0	5	0	18	0	51	1,351	7	4	15	1,187	42	2,735	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	0	1	1	2:00 PM	0	0	0	0	0	2:00 PM	1	0	4	0	5
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	1	1	2:30 PM	0	0	0	1	1	2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	2	0	0	0	2
3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	0	0	3:00 PM	1	0	4	0	5

3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	1	1	3:15 PM	0	0	1	0	1
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	1	0	0	0	1
3:45 PM	0	0	0	1	1	3:45 PM	0	0	0	0	0	3:45 PM	4	0	1	2	7
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	4	0	1	0	5
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	3	0	0	0	3
4:30 PM	0	0	0	0	0	4:30 PM	0	1	0	0	1	4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	3	0	1	0	4
5:00 PM	0	1	0	1	2	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	1	2	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	3	0	2	0	5
Count Total	0	2	0	4	6	Count Total	0	2	0	4	6	Count Total	23	0	14	2	39
Peak Hour	0	1	0	1	2	Peak Hour	0	1	0	1	2	Peak Hour	4	0	1	0	5



(303) 216-2439
www.alltrafficdata.net

Location: 17 1ST AVE & RIVER RD PM

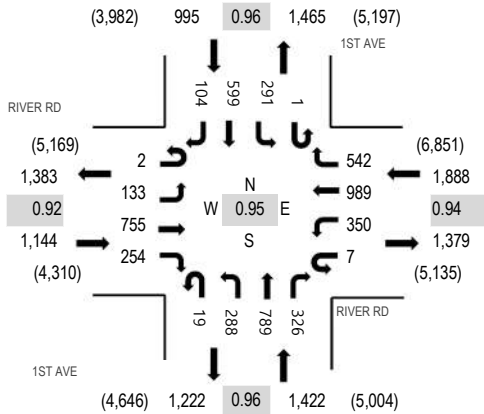
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

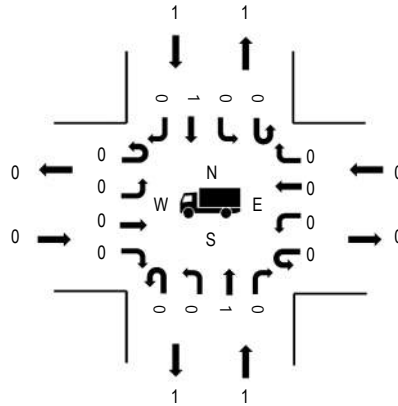
Motorized Vehicles



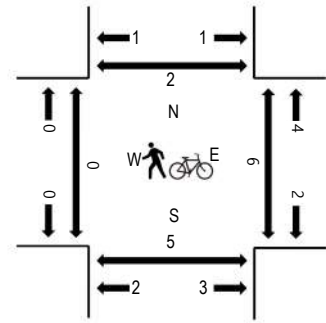
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.92
WB	0.0%	0.94
NB	0.1%	0.96
SB	0.1%	0.96
All	0.0%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	RIVER RD Eastbound				RIVER RD Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	27	166	52	0	89	226	106	6	55	143	54	2	54	144	23	1,147	4,756
2:15 PM	0	21	176	55	1	72	198	106	4	56	163	63	2	77	148	29	1,171	4,768
2:30 PM	0	28	193	51	2	62	206	102	3	53	180	67	3	79	150	36	1,215	4,880
2:45 PM	1	25	215	58	1	69	253	98	3	57	145	55	1	63	147	32	1,223	4,945
3:00 PM	0	30	168	53	2	67	196	111	1	58	135	58	2	75	175	28	1,159	5,018
3:15 PM	0	31	193	54	3	84	222	112	2	75	161	76	8	75	152	35	1,283	5,102
3:30 PM	1	27	189	52	8	102	198	102	6	63	191	71	5	73	164	28	1,280	5,067
3:45 PM	1	36	171	66	3	92	215	133	7	73	184	62	3	72	150	28	1,296	5,042
4:00 PM	0	29	191	68	1	67	245	112	5	67	182	68	4	62	115	27	1,243	5,122
4:15 PM	1	27	177	67	1	59	238	116	2	72	167	55	2	68	162	34	1,248	5,256
4:30 PM	0	29	180	50	0	60	221	104	4	61	215	85	1	62	159	24	1,255	5,449
4:45 PM	0	31	203	64	2	93	233	143	5	78	205	83	0	76	133	27	1,376	5,447
5:00 PM	0	30	185	62	3	77	276	159	1	76	191	77	0	66	155	19	1,377	5,251
5:15 PM	2	43	187	78	2	120	259	136	9	73	178	81	0	87	152	34	1,441	
5:30 PM	0	23	161	43	5	84	227	133	5	67	204	73	0	57	145	26	1,253	
5:45 PM	0	29	155	55	5	64	236	129	7	69	152	57	0	55	136	31	1,180	
Count Total	6	466	2,910	928	39	1,261	3,649	1,902	70	1,053	2,796	1,085	33	1,101	2,387	461	20,147	
Peak Hour	2	133	755	254	7	350	989	542	19	288	789	326	1	291	599	104	5,449	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	1	1	2	2:00 PM	0	0	0	0	0	2:00 PM	0	0	2	0	2
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	0	0	1	0	1
2:30 PM	0	0	0	1	1	2:30 PM	0	0	0	1	1	2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0
3:00 PM	0	0	1	0	1	3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	0	0

3:15 PM	1	0	0	0	1	3:15 PM	0	0	0	1	1	3:15 PM	0	0	2	0	2
3:30 PM	0	0	1	0	1	3:30 PM	0	1	0	0	1	3:30 PM	0	0	2	0	2
3:45 PM	0	0	0	1	1	3:45 PM	0	0	0	0	0	3:45 PM	0	1	0	0	1
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	2	0	0	2
4:15 PM	0	1	0	0	1	4:15 PM	0	0	1	0	1	4:15 PM	0	0	2	0	2
4:30 PM	0	0	0	0	0	4:30 PM	0	1	0	0	1	4:30 PM	0	3	3	2	8
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	1	1	0	2
5:00 PM	0	1	0	1	2	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	1	2	0	3
5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	0	1	5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0
Count Total	2	3	3	4	12	Count Total	0	4	1	3	8	Count Total	0	8	15	2	25
Peak Hour	0	1	0	1	2	Peak Hour	0	1	0	1	2	Peak Hour	0	5	6	2	13



(303) 216-2439
www.alltrafficdata.net

Location: 18 1ST AVE & LA FITNESS DWY PM

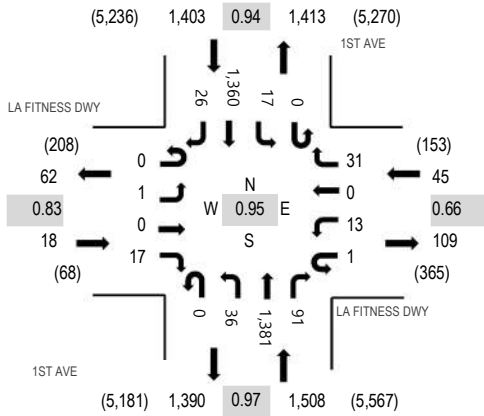
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

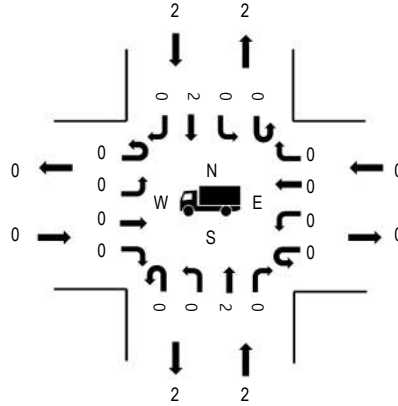
Motorized Vehicles



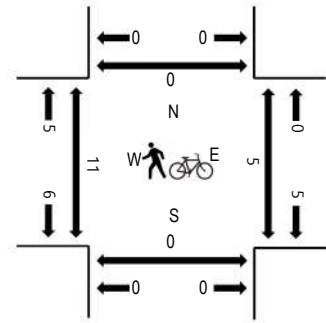
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.83
WB	0.0%	0.66
NB	0.1%	0.97
SB	0.1%	0.94
All	0.1%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	LA FITNESS DWY Eastbound				LA FITNESS DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	2	0	1	0	1	0	5	0	5	326	19	0	3	300	3	665	2,588
2:15 PM	0	1	0	6	0	5	0	6	0	4	299	15	0	4	290	8	638	2,556
2:30 PM	0	0	0	2	0	3	0	8	0	5	285	12	0	4	296	6	621	2,595
2:45 PM	0	1	0	5	0	5	0	6	0	5	317	14	0	6	305	0	664	2,678
3:00 PM	0	0	0	0	0	2	0	4	0	2	262	11	0	3	342	7	633	2,745
3:15 PM	0	0	0	2	0	5	0	12	0	6	322	20	1	3	299	7	677	2,792
3:30 PM	0	1	0	5	0	0	0	7	0	7	350	18	0	1	310	5	704	2,848
3:45 PM	0	0	0	4	0	4	0	5	0	9	339	21	0	3	340	6	731	2,843
4:00 PM	0	1	0	5	0	0	0	9	1	6	312	30	0	9	299	8	680	2,870
4:15 PM	0	2	0	2	0	4	0	5	0	6	337	13	0	4	355	5	733	2,922
4:30 PM	0	0	0	3	0	2	0	11	0	4	341	27	0	4	301	6	699	2,974
4:45 PM	0	0	0	6	0	4	0	10	0	12	348	24	0	5	343	6	758	2,958
5:00 PM	0	0	0	4	0	4	0	0	0	7	339	17	0	3	346	12	732	2,821
5:15 PM	0	1	0	4	1	3	0	10	0	13	353	23	0	5	370	2	785	
5:30 PM	0	0	0	5	0	3	0	5	0	9	319	15	0	6	313	8	683	
5:45 PM	0	0	0	5	0	1	0	3	0	14	305	19	0	3	266	5	621	
Count Total	0	9	0	59	1	46	0	106	1	114	5,154	298	1	66	5,075	94	11,024	
Peak Hour	0	1	0	17	1	13	0	31	0	36	1,381	91	0	17	1,360	26	2,974	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	1	2	2:00 PM	0	1	0	0	1	2:00 PM	2	1	2	0	5
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	1	1	2:30 PM	0	0	1	0	1	2:30 PM	2	0	2	0	4
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	1	0	2	0	3
3:00 PM	0	0	0	0	0	3:00 PM	0	2	0	0	2	3:00 PM	2	0	3	0	5

3:15 PM	0	1	0	0	1	3:15 PM	0	0	0	0	0	3:15 PM	4	1	5	0	10
3:30 PM	0	0	0	0	0	3:30 PM	0	0	1	0	1	3:30 PM	2	0	1	1	4
3:45 PM	0	0	0	1	1	3:45 PM	0	1	0	0	1	3:45 PM	2	0	1	0	3
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	2	0	1	0	3
4:15 PM	0	0	0	0	0	4:15 PM	0	3	0	0	3	4:15 PM	2	0	3	0	5
4:30 PM	0	0	0	1	1	4:30 PM	0	0	1	0	1	4:30 PM	3	0	1	0	4
4:45 PM	0	1	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	3	0	0	0	3
5:00 PM	0	1	0	1	2	5:00 PM	0	0	0	0	0	5:00 PM	3	0	4	0	7
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	2	0	0	0	2
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	4	0	0	0	4
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	5	0	2	0	7
Count Total	0	5	0	6	11	Count Total	0	7	3	0	10	Count Total	39	2	27	1	69
Peak Hour	0	2	0	2	4	Peak Hour	0	0	1	0	1	Peak Hour	11	0	5	0	16



(303) 216-2439
www.alltrafficdata.net

Location: 19 1ST AVE & WALMART DWY PM

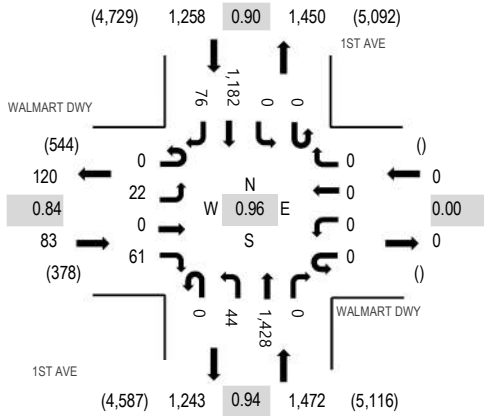
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

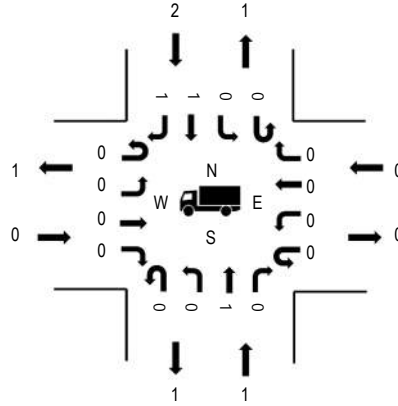
Motorized Vehicles



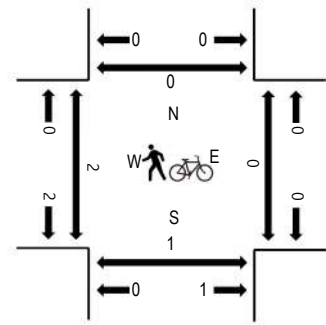
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.84
WB	0.0%	0.00
NB	0.1%	0.94
SB	0.2%	0.90
All	0.1%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	WALMART DWY Eastbound				WALMART DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	9	0	15	0	0	0	0	0	11	279	0	0	0	269	30	613	2,390
2:15 PM	0	10	0	13	0	0	0	0	0	9	260	0	0	0	234	36	562	2,359
2:30 PM	0	10	0	22	0	0	0	0	0	3	285	0	0	0	258	23	601	2,416
2:45 PM	0	11	0	14	0	0	0	0	0	12	283	0	0	0	259	35	614	2,496
3:00 PM	0	21	0	6	0	0	0	0	0	6	243	0	0	0	282	24	582	2,568
3:15 PM	0	7	0	17	0	0	0	0	0	17	305	0	0	0	238	35	619	2,609
3:30 PM	0	8	0	14	0	0	0	0	0	8	337	0	0	0	288	26	681	2,636
3:45 PM	0	4	0	16	0	0	0	0	0	11	329	0	0	0	303	23	686	2,611
4:00 PM	0	9	0	23	0	0	0	0	0	7	309	0	0	0	253	22	623	2,645
4:15 PM	0	6	0	13	0	0	0	0	0	11	308	0	0	0	287	21	646	2,729
4:30 PM	0	5	0	13	0	0	0	0	0	12	333	0	0	0	270	23	656	2,813
4:45 PM	0	4	0	17	0	0	0	0	0	14	376	0	0	0	289	20	720	2,769
5:00 PM	0	6	0	20	0	0	0	0	0	6	368	0	0	0	291	16	707	2,620
5:15 PM	0	7	0	11	0	0	0	0	0	12	351	0	0	0	332	17	730	
5:30 PM	0	5	0	18	0	0	0	0	0	6	319	0	0	0	254	10	612	
5:45 PM	0	7	0	17	0	0	0	0	0	8	278	0	0	0	231	30	571	
Count Total	0	129	0	249	0	0	0	0	0	153	4,963	0	0	0	4,338	391	10,223	
Peak Hour	0	22	0	61	0	0	0	0	0	44	1,428	0	0	0	1,182	76	2,813	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	0	0	1	1	2:00 PM	0	0	0	0	0	2:00 PM	1	0	0	0	1
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	0	0
2:30 PM	1	0	0	1	2	2:30 PM	0	0	0	0	0	2:30 PM	4	0	0	0	4
2:45 PM	0	0	0	0	0	2:45 PM	1	0	0	0	1	2:45 PM	4	0	0	0	4
3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	0	0	3:00 PM	1	0	0	0	1

3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	1	1	3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	1	1	3:45 PM	0	0	0	1	1	3:45 PM	2	0	0	0	2
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	2	1	0	0	3	4:30 PM	1	1	0	0	2
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	1	0	1	2	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	0	1
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	1	1	5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	1	3	0	6	10	Count Total	3	1	0	3	7	Count Total	15	1	0	0	16
Peak Hour	0	1	0	2	3	Peak Hour	2	1	0	0	3	Peak Hour	2	1	0	0	3

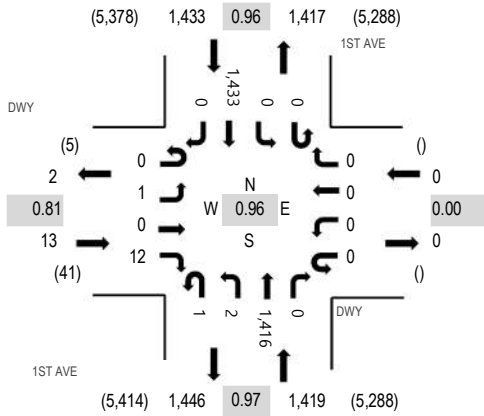


(303) 216-2439
www.alltrafficdata.net

Location: 20 1ST AVE & DWY PM
Date: Tuesday, March 26, 2024
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

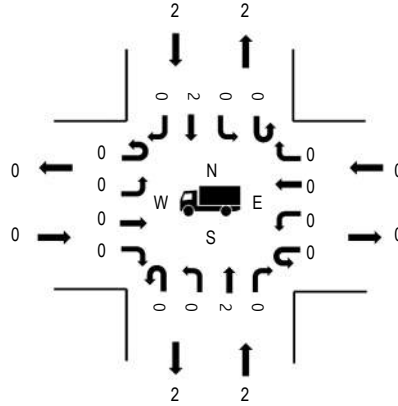
Motorized Vehicles



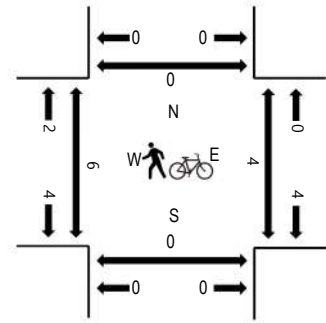
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.81
WB	0.0%	0.00
NB	0.1%	0.97
SB	0.1%	0.96
All	0.1%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	DWY Eastbound				DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	2	0	1	0	0	0	0	1	1	333	0	0	0	313	0	651	2,544
2:15 PM	0	0	0	1	0	0	0	0	0	0	307	0	0	0	315	0	623	2,537
2:30 PM	0	2	0	3	0	0	0	0	1	0	292	0	0	0	323	0	621	2,570
2:45 PM	0	1	0	0	0	0	0	0	0	0	326	0	0	0	322	0	649	2,634
3:00 PM	0	0	0	3	0	0	0	0	0	0	277	0	0	0	364	0	644	2,701
3:15 PM	0	0	0	0	0	0	0	0	1	0	334	0	0	0	321	0	656	2,710
3:30 PM	0	0	0	2	0	0	0	0	0	0	361	0	0	0	322	0	685	2,772
3:45 PM	0	0	0	4	0	0	0	0	0	0	352	0	0	0	360	0	716	2,764
4:00 PM	0	1	0	0	0	0	0	0	1	0	324	0	0	0	327	0	653	2,774
4:15 PM	0	1	0	1	0	0	0	0	0	1	339	0	0	0	376	0	718	2,838
4:30 PM	0	1	0	2	0	0	0	0	0	1	357	0	0	0	316	0	677	2,865
4:45 PM	0	0	0	4	0	0	0	0	1	0	353	0	0	0	368	0	726	2,844
5:00 PM	0	0	0	3	0	0	0	0	0	1	342	0	0	0	371	0	717	2,688
5:15 PM	0	0	0	3	0	0	0	0	0	0	364	0	0	0	378	0	745	
5:30 PM	0	0	0	0	0	0	0	0	0	0	320	0	0	0	336	0	656	
5:45 PM	0	2	0	4	0	0	0	0	0	1	297	0	0	0	266	0	570	
Count Total	0	10	0	31	0	0	0	0	5	5	5,278	0	0	0	5,378	0	10,707	
Peak Hour	0	1	0	12	0	0	0	0	1	2	1,416	0	0	0	1,433	0	2,865	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	1	2	2:00 PM	0	1	0	0	1	2:00 PM	2	0	2	0	4
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	1	1	2:30 PM	0	1	0	0	1	2:30 PM	0	0	2	0	2
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	0	0	2	0	2
3:00 PM	0	0	0	0	0	3:00 PM	0	1	0	0	1	3:00 PM	1	0	3	0	4

3:15 PM	0	1	0	0	1	3:15 PM	0	0	0	0	0	3:15 PM	7	0	2	0	9
3:30 PM	0	0	0	0	0	3:30 PM	0	1	0	0	1	3:30 PM	2	0	1	0	3
3:45 PM	0	0	0	1	1	3:45 PM	0	1	0	0	1	3:45 PM	2	0	2	0	4
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	3	0	2	0	5
4:15 PM	0	0	0	0	0	4:15 PM	0	3	0	0	3	4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	1	1	4:30 PM	0	1	0	0	1	4:30 PM	4	0	1	0	5
4:45 PM	0	1	0	0	1	4:45 PM	0	1	0	0	1	4:45 PM	0	0	1	0	1
5:00 PM	0	1	0	1	2	5:00 PM	0	0	0	0	0	5:00 PM	2	0	2	0	4
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	2	0	0	0	2
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	3	0	0	0	3
Count Total	0	5	0	6	11	Count Total	0	10	0	0	10	Count Total	28	0	21	0	49
Peak Hour	0	2	0	2	4	Peak Hour	0	2	0	0	2	Peak Hour	6	0	4	0	10



(303) 216-2439
www.alltrafficdata.net

Location: 21 1ST AVE & SPROUTS DWY PM

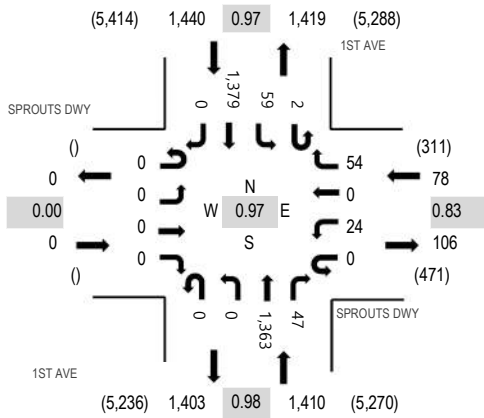
Date: Tuesday, March 26, 2024

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

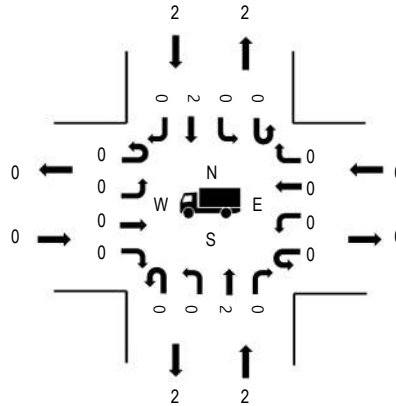
Peak Hour

Motorized Vehicles

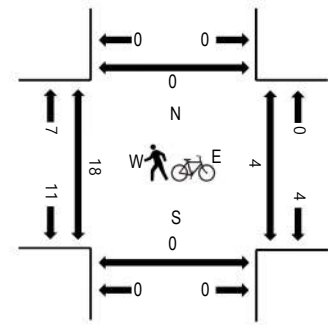


	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.83
NB	0.1%	0.98
SB	0.1%	0.97
All	0.1%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	SPROUTS DWY Eastbound				SPROUTS DWY Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	0	0	0	7	0	13	0	0	322	11	0	16	299	0	668	2,603
2:15 PM	0	0	0	0	0	6	0	13	0	0	296	10	0	20	296	0	641	2,600
2:30 PM	0	0	0	0	0	1	0	14	0	0	277	13	0	18	308	0	631	2,634
2:45 PM	0	0	0	0	0	4	0	13	0	0	315	12	0	15	304	0	663	2,708
3:00 PM	0	0	0	0	0	8	0	20	0	0	255	11	0	27	344	0	665	2,778
3:15 PM	0	0	0	0	0	8	0	15	0	0	321	12	0	15	304	0	675	2,782
3:30 PM	0	0	0	0	0	6	0	12	0	0	346	14	2	17	308	0	705	2,840
3:45 PM	0	0	0	0	0	8	0	22	0	0	333	11	0	18	341	0	733	2,835
4:00 PM	0	0	0	0	0	4	0	10	0	0	312	10	0	19	314	0	669	2,845
4:15 PM	0	0	0	0	0	5	0	11	0	0	329	15	0	16	357	0	733	2,904
4:30 PM	0	0	0	0	0	8	0	23	0	0	335	14	0	17	303	0	700	2,928
4:45 PM	0	0	0	0	0	5	0	9	0	0	349	12	2	17	349	0	743	2,914
5:00 PM	0	0	0	0	0	3	0	11	0	0	326	13	0	14	361	0	728	2,769
5:15 PM	0	0	0	0	0	8	0	11	0	0	353	8	0	11	366	0	757	
5:30 PM	0	0	0	0	0	8	0	11	0	0	315	12	0	21	319	0	686	
5:45 PM	0	0	0	0	0	10	0	4	0	0	288	20	0	12	264	0	598	
Count Total	0	0	0	0	0	99	0	212	0	0	5,072	198	4	273	5,137	0	10,995	
Peak Hour	0	0	0	0	0	24	0	54	0	0	1,363	47	2	59	1,379	0	2,928	

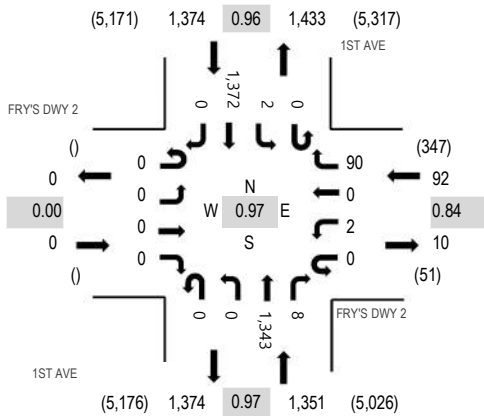
Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	1	2	2:00 PM	0	1	0	0	1	2:00 PM	5	0	2	0	7
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	1	0	0	0	1
2:30 PM	0	0	0	1	1	2:30 PM	0	1	0	0	1	2:30 PM	2	0	2	0	4
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	2	0	2	0	4
3:00 PM	0	0	0	0	0	3:00 PM	0	1	0	0	1	3:00 PM	2	0	4	0	6

3:15 PM	0	1	0	0	1	3:15 PM	0	0	0	0	0	3:15 PM	7	0	5	0	12
3:30 PM	0	0	0	0	0	3:30 PM	0	1	0	0	1	3:30 PM	4	0	1	0	5
3:45 PM	0	0	0	1	1	3:45 PM	0	1	0	0	1	3:45 PM	4	0	1	0	5
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	3	0	2	0	5
4:15 PM	0	0	0	0	0	4:15 PM	0	3	0	0	3	4:15 PM	1	0	2	0	3
4:30 PM	0	0	0	1	1	4:30 PM	0	1	0	0	1	4:30 PM	7	0	0	0	7
4:45 PM	0	1	0	0	1	4:45 PM	0	1	0	0	1	4:45 PM	2	0	2	0	4
5:00 PM	0	1	0	1	2	5:00 PM	0	0	0	0	0	5:00 PM	5	0	2	0	7
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	4	0	0	0	4
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	2	0	0	0	2
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	5	0	1	0	6
Count Total	0	5	0	6	11	Count Total	0	10	0	0	10	Count Total	56	0	26	0	82
Peak Hour	0	2	0	2	4	Peak Hour	0	2	0	0	2	Peak Hour	18	0	4	0	22

Peak Hour

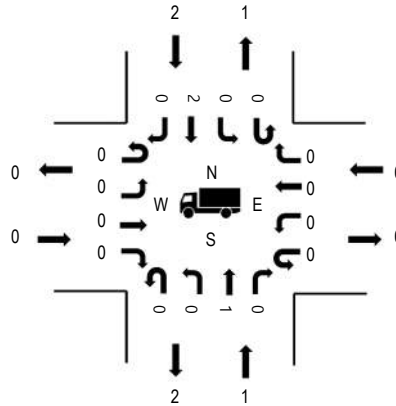
Motorized Vehicles



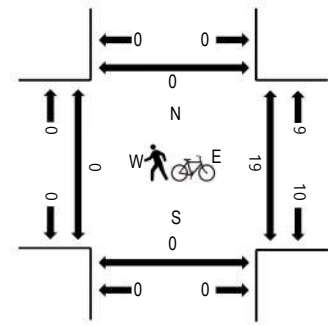
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.84
NB	0.1%	0.97
SB	0.1%	0.96
All	0.1%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FRY'S DWY 2 Eastbound				FRY'S DWY 2 Westbound				1ST AVE Northbound				1ST AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	0	0	0	0	1	0	15	0	0	294	2	0	1	293	0	606	2,469
2:15 PM	0	0	0	0	0	1	0	10	0	0	300	1	0	0	307	0	619	2,496
2:30 PM	0	0	0	0	0	0	0	24	0	0	296	0	0	1	315	0	636	2,521
2:45 PM	0	0	0	0	0	0	0	13	0	0	288	6	0	0	301	0	608	2,567
3:00 PM	0	0	0	0	0	4	0	12	0	0	268	4	0	2	343	0	633	2,657
3:15 PM	0	0	0	0	0	3	0	22	0	0	298	1	0	2	318	0	644	2,677
3:30 PM	0	0	0	0	0	0	0	24	0	0	336	1	0	2	319	0	682	2,713
3:45 PM	0	0	0	0	0	2	0	28	0	0	323	1	0	0	344	0	698	2,718
4:00 PM	0	0	0	0	0	1	0	17	0	0	333	3	0	2	297	0	653	2,703
4:15 PM	0	0	0	0	0	1	0	31	0	0	301	3	0	1	343	0	680	2,778
4:30 PM	0	0	0	0	0	2	0	25	0	0	346	2	0	0	312	0	687	2,817
4:45 PM	0	0	0	0	0	0	0	18	0	0	321	3	0	1	340	0	683	2,807
5:00 PM	0	0	0	0	0	0	0	25	0	0	344	3	0	1	355	0	728	2,715
5:15 PM	0	0	0	0	0	0	0	22	0	0	332	0	0	0	365	0	719	
5:30 PM	0	0	0	0	0	0	0	18	0	0	316	3	0	0	340	0	677	
5:45 PM	0	0	0	0	0	3	0	25	0	0	292	5	0	0	266	0	591	
Count Total	0	0	0	0	0	18	0	329	0	0	4,988	38	0	13	5,158	0	10,544	
Peak Hour	0	0	0	0	0	2	0	90	0	0	1,343	8	0	2	1,372	0	2,817	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Heavy Vehicles						Bicycles on Roadway						Pedestrians/Bicycles on Crosswalk					
Interval Start Time	EB	NB	WB	SB	Total	Interval Start Time	EB	NB	WB	SB	Total	Interval Start Time	EB	NB	WB	SB	Total
2:00 PM	0	1	0	1	2	2:00 PM	0	1	0	0	1	2:00 PM	0	0	3	0	3
2:15 PM	0	1	0	0	1	2:15 PM	0	0	0	0	0	2:15 PM	1	1	3	0	5
2:30 PM	0	0	0	1	1	2:30 PM	0	0	0	0	0	2:30 PM	0	0	3	0	3
2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0	2:45 PM	0	0	1	0	1
3:00 PM	0	0	0	0	0	3:00 PM	0	2	0	2	4	3:00 PM	1	0	8	0	9

3:15 PM	0	1	0	1	2	3:15 PM	0	0	0	0	0	3:15 PM	0	0	6	0	6
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0	3:30 PM	0	0	4	0	4
3:45 PM	0	0	0	1	1	3:45 PM	0	0	1	0	1	3:45 PM	1	0	0	0	1
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	2	0	2
4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	0	1	4:15 PM	0	0	15	0	15
4:30 PM	0	0	0	1	1	4:30 PM	0	1	0	0	1	4:30 PM	0	0	7	0	7
4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	0	1	4:45 PM	0	0	2	0	2
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	7	0	7
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	3	0	3
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	5	0	5
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	3	0	3
Count Total	0	4	0	7	11	Count Total	0	5	2	2	9	Count Total	3	1	72	0	76
Peak Hour	0	1	0	2	3	Peak Hour	0	1	1	0	2	Peak Hour	0	0	19	0	19



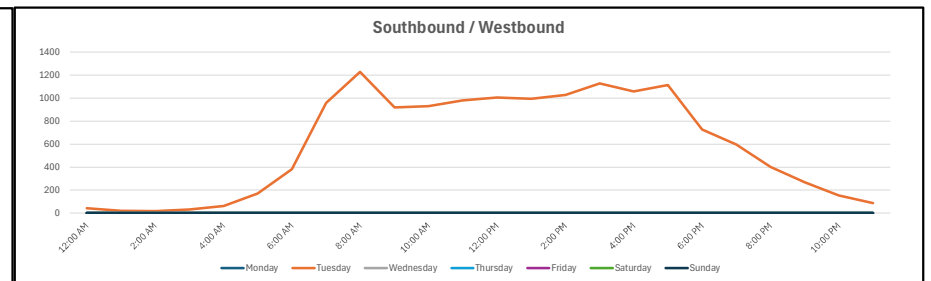
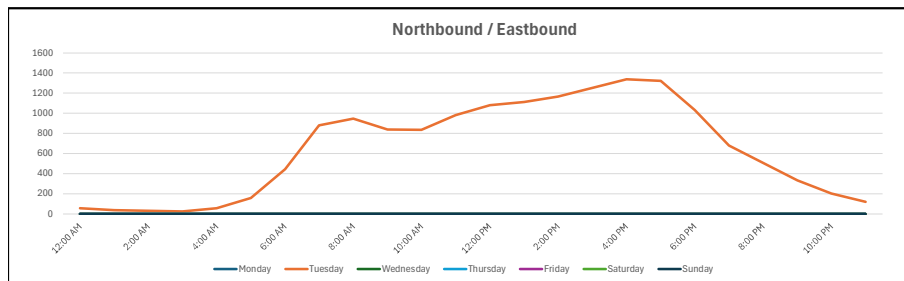
Appendix C-B

24-Hour Counts

Vehicle Volume Report - Hourly

Site Description: 1ST AVE N.O WETMORE RD
 Site Number: 23
 Start Date: 3/26/2024
 End Date: 3/26/2024

Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	58	43	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	37	21	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	32	19	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	25	30	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	58	63	121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	158	171	329	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	446	383	829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	879	958	1837	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	947	1229	2176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	840	920	1760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	837	930	1767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	981	982	1963	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	1081	1005	2086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	1113	993	2106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	1165	1028	2193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1252	1127	2379	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1339	1059	2398	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1323	1114	2437	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	1033	728	1761	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	680	596	1276	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	507	403	910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	332	267	599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	204	154	358	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	120	88	208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	2272	2570	4842	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3914	3300	7214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	13236	12456	25692	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	15447	14311	29758	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	51.9%	48.1%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		5:00 PM	6:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Classification Report - Hourly

Site Description: 1ST AVE N.O WETMORE RD

Site Number: 23

Start Date: 3/26/2024

End Date: 3/26/2024

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

		FHWA Vehicle Classification - Total Study												
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13
Northbound	15447	35	11128	3085	3	1025	28	0	28	26	47	4	1	37
Percent	100.0%	0.2%	72.0%	20.0%	0.0%	6.6%	0.2%	0.0%	0.2%	0.2%	0.3%	0.0%	0.0%	0.2%
Southbound	14311	40	8038	4683	8	1029	308	0	11	60	108	1	0	25
Percent	100.0%	0.3%	56.2%	32.7%	0.1%	7.2%	2.2%	0.0%	0.1%	0.4%	0.8%	0.0%	0.0%	0.2%
Total	29758	75	19166	7768	11	2054	336	0	39	86	155	5	1	62
Percent	100.0%	0.3%	64.4%	26.1%	0.0%	6.9%	1.1%	0.0%	0.1%	0.3%	0.5%	0.0%	0.0%	0.2%

Site Description: 1ST AVE N.O WETMORE RD
 Site Number: 23
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Northbound - 03/26/2024)

Tuesday	Total	Northbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	58 	1	38	12	0	4	0	0	1	2	0	0	0	0
1:00 AM	37 	1	25	6	0	5	0	0	0	0	0	0	0	0
2:00 AM	32 	0	19	12	0	1	0	0	0	0	0	0	0	0
3:00 AM	25 	0	16	7	0	2	0	0	0	0	0	0	0	0
4:00 AM	58 	1	36	13	0	6	0	0	2	0	0	0	0	0
5:00 AM	158 	3	95	43	0	16	0	0	0	1	0	0	0	0
6:00 AM	446 	0	271	112	0	56	0	0	3	2	1	1	0	0
7:00 AM	879 	2	604	165	1	88	4	0	4	2	3	1	0	5
8:00 AM	947 	3	715	158	1	58	3	0	1	2	2	0	0	4
9:00 AM	840 	1	553	189	0	90	1	0	2	1	3	0	0	0
10:00 AM	837 	0	596	169	0	64	1	0	1	0	4	0	0	2
11:00 AM	981 	0	708	195	0	68	1	0	3	1	4	0	0	1
12:00 PM	1081 	3	776	210	1	79	3	0	1	0	6	0	0	2
1:00 PM	1113 	7	785	220	0	84	2	0	4	3	2	1	1	4
2:00 PM	1165 	2	836	225	0	85	4	0	1	2	3	0	0	7
3:00 PM	1252 	3	941	231	0	60	4	0	3	1	4	0	0	5
4:00 PM	1339 	2	1028	227	0	63	5	0	1	3	7	0	0	3
5:00 PM	1323 	2	1014	238	0	60	0	0	0	2	3	0	0	4
6:00 PM	1033 	1	733	249	0	47	0	0	0	1	2	0	0	0
7:00 PM	680 	0	492	150	0	36	0	0	0	0	1	1	0	0
8:00 PM	507 	1	361	117	0	26	0	0	0	1	1	0	0	0
9:00 PM	332 	0	259	61	0	10	0	0	1	0	1	0	0	0
10:00 PM	204 	0	143	48	0	11	0	0	0	2	0	0	0	0
11:00 PM	120 	2	84	28	0	6	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2272	5	1590	435	2	202	7	0	8	6	6	2	0	9
3:00 PM - 6:00 PM	3914	7	2983	696	0	183	9	0	4	6	14	0	0	12
6:00 AM - 7:00 PM	13236	26	9560	2588	3	902	28	0	24	20	44	3	1	37
12:00 AM - 12:00 AM	15447	35	11128	3085	3	1025	28	0	28	26	47	4	1	37
Percent	100%	0.2%	72.0%	20.0%	0.0%	6.6%	0.2%	0.0%	0.2%	0.2%	0.3%	0.0%	0.0%	0.2%

Site Description: 1ST AVE N.O WETMORE RD
 Site Number: 23
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Southbound - 03/26/2024)

Tuesday	Total	Southbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	43	0	19	18	0	3	3	0	0	0	0	0	0	0
1:00 AM	21	1	9	10	0	1	0	0	0	0	0	0	0	0
2:00 AM	19	0	11	7	0	0	1	0	0	0	0	0	0	0
3:00 AM	30	0	15	11	0	4	0	0	0	0	0	0	0	0
4:00 AM	63	0	25	26	0	11	1	0	0	0	0	0	0	0
5:00 AM	171	1	57	82	0	25	5	0	0	1	0	0	0	0
6:00 AM	383	0	186	147	1	40	8	0	0	0	1	0	0	0
7:00 AM	958	6	541	301	0	57	30	0	1	8	10	1	0	3
8:00 AM	1229	3	718	381	0	76	28	0	1	6	12	0	0	4
9:00 AM	920	2	500	310	0	66	25	0	2	5	10	0	0	0
10:00 AM	930	4	450	352	1	91	21	0	0	5	5	0	0	1
11:00 AM	982	0	514	331	2	98	23	0	1	2	9	0	0	2
12:00 PM	1005	3	545	329	1	90	21	0	2	6	8	0	0	0
1:00 PM	993	2	543	330	0	83	22	0	1	4	5	0	0	3
2:00 PM	1028	1	598	315	1	79	19	0	0	4	5	0	0	6
3:00 PM	1127	0	695	326	0	73	15	0	1	5	10	0	0	2
4:00 PM	1059	4	646	314	0	57	18	0	2	3	13	0	0	2
5:00 PM	1114	3	689	334	0	62	18	0	0	3	5	0	0	0
6:00 PM	728	3	426	241	1	38	11	0	0	4	4	0	0	0
7:00 PM	596	3	326	207	1	35	15	0	0	2	5	0	0	2
8:00 PM	403	1	252	119	0	15	9	0	0	2	5	0	0	0
9:00 PM	267	1	144	98	0	14	9	0	0	0	1	0	0	0
10:00 PM	154	1	84	57	0	9	3	0	0	0	0	0	0	0
11:00 PM	88	1	45	37	0	2	3	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2570	9	1445	829	1	173	66	0	2	14	23	1	0	7
3:00 PM - 6:00 PM	3300	7	2030	974	0	192	51	0	3	11	28	0	0	4
6:00 AM - 7:00 PM	12456	31	7051	4011	7	910	259	0	11	55	97	1	0	23
12:00 AM - 12:00 AM	14311	40	8038	4683	8	1029	308	0	11	60	108	1	0	25
Percent	100%	0.3%	56.2%	32.7%	0.1%	7.2%	2.2%	0.0%	0.1%	0.4%	0.8%	0.0%	0.0%	0.2%

Vehicle Speed Report - Hourly

Site Description: 1ST AVE N.O WETMORE RD
 Site Number: 23
 Start Date: 3/26/2024
 End Date: 3/26/2024

Total Study Speed Summary		
	Northbound	Southbound
Average Speed	42.2 mph	41.8 mph
50th Percentile	42.2 mph	42.4 mph
85th Percentile	47.2 mph	48.1 mph
95th Percentile	51.0 mph	51.7 mph

Speed Range (MPH) - Total Study																					
	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
Northbound	15447	11	22	22	41	183	801	3697	6375	3217	854	169	32	18	3	1	1	0	0	0	0
Percent	100.0%	0.1%	0.1%	0.1%	0.3%	1.2%	5.2%	23.9%	41.3%	20.8%	5.5%	1.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Southbound	14311	13	37	69	182	436	1042	3047	5016	3224	1013	189	36	5	1	1	0	0	0	0	0
Percent	100.0%	0.1%	0.3%	0.5%	1.3%	3.0%	7.3%	21.3%	35.0%	22.5%	7.1%	1.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	29758	24	59	91	223	619	1843	6744	11391	6441	1867	358	68	23	4	2	1	0	0	0	0
Percent	100.0%	0.1%	0.2%	0.3%	0.7%	2.1%	6.2%	22.7%	38.3%	21.6%	6.3%	1.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Site Description: 1ST AVE N.O WETMORE RD
 Site Number: 23
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Speed Report (Northbound - 03/26/2024)

Tuesday	Northbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	58	0	0	0	0	1	4	5	22	13	9	3	0	1	0	0	0	0	0	0	0
1:00 AM	37	0	0	0	0	0	1	9	11	9	4	2	0	1	0	0	0	0	0	0	0
2:00 AM	32	0	0	0	0	0	3	5	8	11	3	1	0	1	0	0	0	0	0	0	0
3:00 AM	25	0	0	0	0	1	0	3	3	10	5	3	0	0	0	0	0	0	0	0	0
4:00 AM	58	0	0	0	1	1	1	5	16	12	16	4	0	2	0	0	0	0	0	0	0
5:00 AM	158	0	0	0	0	0	4	16	44	48	36	8	0	1	1	0	0	0	0	0	0
6:00 AM	446	0	0	1	1	5	5	52	154	141	65	15	5	2	0	0	0	0	0	0	0
7:00 AM	879	2	4	5	2	14	14	148	347	248	75	13	4	2	1	0	0	0	0	0	0
8:00 AM	947	2	4	2	7	15	30	163	386	248	75	12	2	1	0	0	0	0	0	0	0
9:00 AM	840	0	0	0	2	13	22	137	359	227	66	10	2	2	0	0	0	0	0	0	0
10:00 AM	837	0	1	0	2	8	44	201	346	173	45	15	1	1	0	0	0	0	0	0	0
11:00 AM	981	0	1	0	4	14	47	230	421	197	52	12	2	1	0	0	0	0	0	0	0
12:00 PM	1081	0	1	2	2	17	83	290	456	189	37	4	0	0	0	0	0	0	0	0	0
1:00 PM	1113	1	2	1	0	13	65	313	470	199	41	7	0	0	0	1	0	0	0	0	0
2:00 PM	1165	2	0	0	4	12	97	345	495	159	37	12	2	0	0	0	0	0	0	0	0
3:00 PM	1252	2	7	4	0	6	75	371	498	242	42	2	2	1	0	0	0	0	0	0	0
4:00 PM	1339	1	2	3	5	15	111	449	534	170	39	7	2	1	0	0	0	0	0	0	0
5:00 PM	1323	1	0	3	5	23	70	335	557	274	48	6	1	0	0	0	0	0	0	0	0
6:00 PM	1033	0	0	0	4	5	43	203	504	211	54	8	1	0	0	0	0	0	0	0	0
7:00 PM	680	0	0	0	1	5	30	147	293	147	44	8	3	1	1	0	0	0	0	0	0
8:00 PM	507	0	0	0	1	9	28	142	213	88	20	5	1	0	0	0	0	0	0	0	0
9:00 PM	332	0	0	1	0	3	10	74	126	98	18	1	1	0	0	0	0	0	0	0	0
10:00 PM	204	0	0	0	0	2	7	32	76	63	15	7	2	0	0	0	0	0	0	0	0
11:00 PM	120	0	0	0	0	1	7	22	36	40	8	4	1	0	0	0	1	0	0	0	0
6:00 AM - 9:00 AM	2272	4	8	8	10	34	49	363	887	637	215	40	11	5	1	0	0	0	0	0	0
3:00 PM - 6:00 PM	3914	4	9	10	10	44	256	1155	1589	686	129	15	5	2	0	0	0	0	0	0	0
6:00 AM - 7:00 PM	13236	11	22	21	38	160	706	3237	5527	2678	676	123	24	11	1	1	0	0	0	0	0
12:00 AM - 12:00 AM	15447	11	22	22	41	183	801	3697	6375	3217	854	169	32	18	3	1	1	0	0	0	0
Percent	100%	0.1%	0.1%	0.1%	0.3%	1.2%	5.2%	23.9%	41.3%	20.8%	5.5%	1.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	42.2 mph																				
85th Percentile	47.2 mph																				
95th Percentile	51.0 mph																				

Site Description: 1ST AVE N.O WETMORE RD
 Site Number: 23
 Start Date: 3/26/2024
 End Date: 3/26/2024

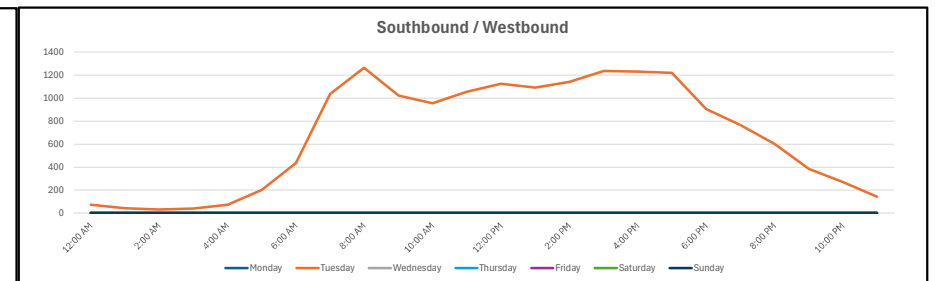
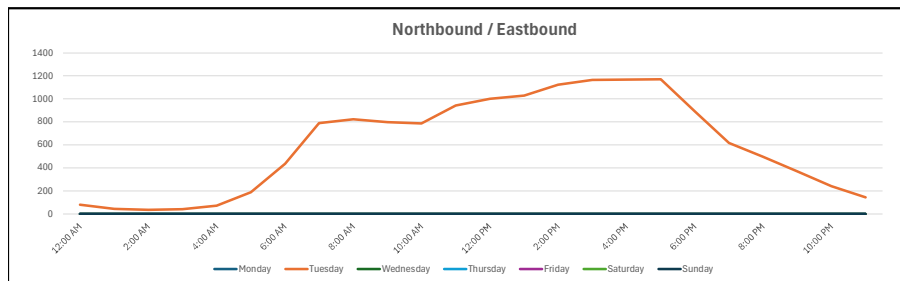
Vehicle Speed Report (Southbound - 03/26/2024)

Tuesday	Southbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	43	0	0	0	1	1	1	5	11	18	5	1	0	0	0	0	0	0	0	0	0
1:00 AM	21	0	0	0	0	0	1	2	11	4	3	0	0	0	0	0	0	0	0	0	0
2:00 AM	19	0	0	0	0	0	0	6	9	3	1	0	0	0	0	0	0	0	0	0	0
3:00 AM	30	0	0	0	0	0	3	2	6	12	6	1	0	0	0	0	0	0	0	0	0
4:00 AM	63	0	0	0	0	0	0	2	14	22	22	3	0	0	0	0	0	0	0	0	0
5:00 AM	171	0	0	0	0	0	4	6	34	70	44	10	2	1	0	0	0	0	0	0	0
6:00 AM	383	0	0	0	0	0	0	19	80	166	98	17	3	0	0	0	0	0	0	0	0
7:00 AM	958	2	7	13	24	49	55	106	278	289	112	19	2	2	0	0	0	0	0	0	0
8:00 AM	1229	1	8	8	30	74	113	217	421	239	101	15	2	0	0	0	0	0	0	0	0
9:00 AM	920	0	0	2	3	17	39	133	325	310	74	15	2	0	0	0	0	0	0	0	0
10:00 AM	930	0	0	1	5	18	56	230	327	207	65	18	2	1	0	0	0	0	0	0	0
11:00 AM	982	0	4	2	11	20	83	272	351	180	47	11	0	0	0	1	0	0	0	0	0
12:00 PM	1005	1	3	4	12	42	109	280	366	145	39	3	1	0	0	0	0	0	0	0	0
1:00 PM	993	1	3	5	14	20	101	273	356	172	40	6	2	0	0	0	0	0	0	0	0
2:00 PM	1028	0	1	2	10	24	93	287	381	182	38	8	2	0	0	0	0	0	0	0	0
3:00 PM	1127	2	4	7	16	38	134	324	385	182	28	6	1	0	0	0	0	0	0	0	0
4:00 PM	1059	4	3	7	20	38	74	286	395	173	43	13	3	0	0	0	0	0	0	0	0
5:00 PM	1114	2	2	17	33	70	102	250	346	218	63	9	2	0	0	0	0	0	0	0	0
6:00 PM	728	0	0	0	0	5	16	96	311	235	57	6	2	0	0	0	0	0	0	0	0
7:00 PM	596	0	0	0	1	4	31	133	263	115	37	10	1	0	1	0	0	0	0	0	0
8:00 PM	403	0	2	0	2	13	17	65	177	95	27	4	1	0	0	0	0	0	0	0	0
9:00 PM	267	0	0	0	0	3	6	25	96	98	30	6	2	1	0	0	0	0	0	0	0
10:00 PM	154	0	0	1	0	0	1	17	49	52	23	7	4	0	0	0	0	0	0	0	0
11:00 PM	88	0	0	0	0	0	3	11	24	37	10	1	2	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2570	3	15	21	54	123	168	342	779	694	311	51	7	2	0	0	0	0	0	0	0
3:00 PM - 6:00 PM	3300	8	9	31	69	146	310	860	1126	573	134	28	6	0	0	0	0	0	0	0	0
6:00 AM - 7:00 PM	12456	13	35	68	178	415	975	2773	4322	2698	805	146	24	3	0	1	0	0	0	0	0
12:00 AM - 12:00 AM	14311	13	37	69	182	436	1042	3047	5016	3224	1013	189	36	5	1	1	0	0	0	0	0
Percent	100%	0.1%	0.3%	0.5%	1.3%	3.0%	7.3%	21.3%	35.0%	22.5%	7.1%	1.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	42.4 mph																				
85th Percentile	48.1 mph																				
95th Percentile	51.7 mph																				

Vehicle Volume Report - Hourly

Site Description: 1ST AVE N.O LIMBERLOST DR
 Site Number: 24
 Start Date: 3/26/2024
 End Date: 3/26/2024

Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	81	74	155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	44	42	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	36	31	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	41	41	82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	71	73	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	188	202	390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	436	436	872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	788	1037	1825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	822	1265	2087	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	797	1021	1818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	786	956	1742	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	942	1055	1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	1001	1124	2125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	1028	1090	2118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	1125	1143	2268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1165	1235	2400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1168	1231	2399	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1172	1221	2393	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	894	905	1799	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	616	766	1382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	497	602	1099	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	370	386	756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	242	272	514	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	144	142	286	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	2046	2738	4784	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3505	3687	7192	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	12124	13719	25843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	14454	16350	30804	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	46.9%	53.1%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-	-	8:00 AM	9:00 AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	3:00 PM	4:00 PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vehicle Classification Report - Hourly

Site Description: 1ST AVE N.O LEMBERLOST DR
Site Number: 24
Start Date: 3/26/2024
End Date: 3/26/2024

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

		FHWA Vehicle Classification - Total Study												
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13
Northbound	14454	41	10939	2488	3	839	23	0	17	23	43	3	1	34
Percent	100.0%	0.3%	75.7%	17.2%	0.0%	5.8%	0.2%	0.0%	0.1%	0.2%	0.3%	0.0%	0.0%	0.2%
Southbound	16350	70	8609	6113	8	1352	36	0	33	39	39	8	5	38
Percent	100.0%	0.4%	52.7%	37.4%	0.0%	8.3%	0.2%	0.0%	0.2%	0.2%	0.2%	0.0%	0.0%	0.2%
Total	30804	111	19548	8601	11	2191	59	0	50	62	82	11	6	72
Percent	100.0%	0.4%	63.5%	27.9%	0.0%	7.1%	0.2%	0.0%	0.2%	0.2%	0.3%	0.0%	0.0%	0.2%

Site Description: 1ST AVE N.O LIMBERLOST DR
 Site Number: 24
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Northbound - 03/26/2024)

Tuesday	Total	Northbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	81 	1	60	15	0	4	0	0	1	0	0	0	0	0
1:00 AM	44 	0	33	9	0	2	0	0	0	0	0	0	0	0
2:00 AM	36 	0	24	9	0	3	0	0	0	0	0	0	0	0
3:00 AM	41 	0	27	12	0	2	0	0	0	0	0	0	0	0
4:00 AM	71 	1	46	14	0	8	0	0	2	0	0	0	0	0
5:00 AM	188 	4	115	41	0	27	0	0	0	1	0	0	0	0
6:00 AM	436 	2	251	127	0	49	2	0	2	1	0	0	0	2
7:00 AM	788 	2	566	145	0	63	4	0	2	1	1	0	0	4
8:00 AM	822 	1	606	140	1	60	2	0	1	2	4	1	0	4
9:00 AM	797 	4	560	152	0	74	1	0	2	0	2	1	0	1
10:00 AM	786 	1	564	161	1	52	1	0	0	1	5	0	0	0
11:00 AM	942 	4	698	157	0	66	2	0	1	1	6	0	0	7
12:00 PM	1001 	2	769	164	0	58	1	0	1	3	2	0	0	1
1:00 PM	1028 	1	795	179	0	43	1	0	2	2	2	0	1	2
2:00 PM	1125 	5	879	165	0	60	2	0	1	1	6	0	0	6
3:00 PM	1165 	5	930	168	0	52	1	0	1	3	2	0	0	3
4:00 PM	1168 	1	940	169	1	42	2	0	0	5	6	0	0	2
5:00 PM	1172 	1	951	170	0	42	2	0	0	0	5	0	0	1
6:00 PM	894 	1	693	159	0	37	1	0	0	1	1	0	0	1
7:00 PM	616 	0	473	104	0	37	1	0	0	0	1	0	0	0
8:00 PM	497 	2	349	119	0	25	0	0	1	0	0	1	0	0
9:00 PM	370 	0	300	54	0	16	0	0	0	0	0	0	0	0
10:00 PM	242 	1	198	33	0	9	0	0	0	1	0	0	0	0
11:00 PM	144 	2	112	22	0	8	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2046	5	1423	412	1	172	8	0	5	4	5	1	0	10
3:00 PM - 6:00 PM	3505	7	2821	507	1	136	5	0	1	8	13	0	0	6
6:00 AM - 7:00 PM	12124	30	9202	2056	3	698	22	0	13	21	42	2	1	34
12:00 AM - 12:00 AM	14454	41	10939	2488	3	839	23	0	17	23	43	3	1	34
Percent	100%	0.3%	75.7%	17.2%	0.0%	5.8%	0.2%	0.0%	0.1%	0.2%	0.3%	0.0%	0.0%	0.2%

Site Description: 1ST AVE N.O LIMBERLOST DR
 Site Number: 24
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Southbound - 03/26/2024)

Tuesday	Total	Southbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	74	1	31	39	1	2	0	0	0	0	0	0	0	0
1:00 AM	42	0	16	25	0	1	0	0	0	0	0	0	0	0
2:00 AM	31	0	13	16	0	2	0	0	0	0	0	0	0	0
3:00 AM	41	0	23	13	0	4	0	0	0	1	0	0	0	0
4:00 AM	73	0	24	35	0	12	0	0	2	0	0	0	0	0
5:00 AM	202	1	68	88	0	44	0	0	1	0	0	0	0	0
6:00 AM	436	1	136	221	0	73	1	0	3	0	1	0	0	0
7:00 AM	1037	6	514	420	0	79	3	0	3	3	2	1	0	6
8:00 AM	1265	4	532	600	0	104	4	0	5	4	5	0	2	5
9:00 AM	1021	4	456	449	2	96	3	0	3	1	2	0	1	4
10:00 AM	956	7	432	401	0	104	4	0	1	2	2	1	0	2
11:00 AM	1055	4	533	405	1	103	2	0	0	0	4	0	1	2
12:00 PM	1124	2	616	383	1	105	1	0	4	5	4	0	0	3
1:00 PM	1090	1	587	403	0	87	5	0	1	3	0	0	0	3
2:00 PM	1143	2	666	354	1	104	1	0	1	2	7	1	1	3
3:00 PM	1235	6	776	355	0	84	4	0	1	3	1	1	0	4
4:00 PM	1231	10	797	336	1	72	4	0	1	4	4	1	0	1
5:00 PM	1221	8	746	380	1	67	3	0	4	5	4	0	0	3
6:00 PM	905	6	510	322	0	59	0	0	0	3	2	2	0	1
7:00 PM	766	2	397	303	0	58	0	0	1	3	0	1	0	1
8:00 PM	602	0	303	250	0	47	1	0	1	0	0	0	0	0
9:00 PM	386	0	216	149	0	19	0	0	1	0	1	0	0	0
10:00 PM	272	2	145	104	0	21	0	0	0	0	0	0	0	0
11:00 PM	142	3	72	62	0	5	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2738	11	1182	1241	0	256	8	0	11	7	8	1	2	11
3:00 PM - 6:00 PM	3687	24	2319	1071	2	223	11	0	6	12	9	2	0	8
6:00 AM - 7:00 PM	13719	61	7301	5029	7	1137	35	0	27	35	38	7	5	37
12:00 AM - 12:00 AM	16350	70	8609	6113	8	1352	36	0	33	39	39	8	5	38
Percent	100%	0.4%	52.7%	37.4%	0.0%	8.3%	0.2%	0.0%	0.2%	0.2%	0.2%	0.0%	0.0%	0.2%

Vehicle Speed Report - Hourly

Site Description: 1ST AVE N.O LIMBERLOST DR
 Site Number: 24
 Start Date: 3/26/2024
 End Date: 3/26/2024

Total Study Speed Summary		
	Northbound	Southbound
Average Speed	36.3 mph	37.4 mph
50th Percentile	36.7 mph	38.2 mph
85th Percentile	42.2 mph	45.1 mph
95th Percentile	46.1 mph	49.4 mph

Speed Range (MPH) - Total Study																					
	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
Northbound	14454	11	65	200	512	1240	3253	5317	2834	805	167	35	7	4	1	3	0	0	0	0	0
Percent	100.0%	0.1%	0.4%	1.4%	3.5%	8.6%	22.5%	36.8%	19.6%	5.6%	1.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Southbound	16350	28	110	298	771	1605	2779	4197	3992	1847	552	129	27	7	5	3	0	0	0	0	0
Percent	100.0%	0.2%	0.7%	1.8%	4.7%	9.8%	17.0%	25.7%	24.4%	11.3%	3.4%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	30804	39	175	498	1283	2845	6032	9514	6826	2652	719	164	34	11	6	6	0	0	0	0	0
Percent	100.0%	0.1%	0.6%	1.6%	4.2%	9.2%	19.6%	30.9%	22.2%	8.6%	2.3%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Site Description: 1ST AVE N.O LIMBERLOST DR
 Site Number: 24
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Speed Report (Northbound - 03/26/2024)

Tuesday	Northbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	81	0	0	0	1	0	0	18	35	18	5	4	0	0	0	0	0	0	0	0	0
1:00 AM	44	0	0	0	1	0	2	7	20	13	0	1	0	0	0	0	0	0	0	0	0
2:00 AM	36	0	0	0	1	0	1	8	12	10	3	0	0	1	0	0	0	0	0	0	0
3:00 AM	41	0	0	0	1	2	4	5	16	6	5	2	0	0	0	0	0	0	0	0	0
4:00 AM	71	0	0	0	0	1	4	14	25	17	7	3	0	0	0	0	0	0	0	0	0
5:00 AM	188	0	0	0	1	7	6	35	84	47	5	0	1	2	0	0	0	0	0	0	0
6:00 AM	436	0	0	0	2	7	20	79	169	112	34	9	2	1	1	0	0	0	0	0	0
7:00 AM	788	1	0	3	7	23	124	363	190	61	15	1	0	0	0	0	0	0	0	0	0
8:00 AM	822	0	0	0	6	32	104	394	220	57	9	0	0	0	0	0	0	0	0	0	0
9:00 AM	797	0	1	0	7	23	86	324	273	65	13	4	1	0	0	0	0	0	0	0	0
10:00 AM	786	0	0	1	11	23	134	359	200	50	8	0	0	0	0	0	0	0	0	0	0
11:00 AM	942	1	5	2	20	76	278	391	141	24	3	1	0	0	0	0	0	0	0	0	0
12:00 PM	1001	1	4	13	41	109	346	375	93	15	3	1	0	0	0	0	0	0	0	0	0
1:00 PM	1028	0	0	3	29	88	325	408	132	32	8	2	1	0	0	0	0	0	0	0	0
2:00 PM	1125	0	5	8	37	144	396	394	120	16	4	0	1	0	0	0	0	0	0	0	0
3:00 PM	1165	2	7	39	146	228	307	315	92	26	3	0	0	0	0	0	0	0	0	0	0
4:00 PM	1168	5	40	118	115	196	346	269	61	13	3	1	1	0	0	0	0	0	0	0	0
5:00 PM	1172	1	0	9	35	134	331	458	165	33	5	1	0	0	0	0	0	0	0	0	0
6:00 PM	894	0	1	1	12	46	174	407	209	35	3	3	0	0	0	3	0	0	0	0	0
7:00 PM	616	0	2	0	19	42	115	242	162	27	6	1	0	0	0	0	0	0	0	0	0
8:00 PM	497	0	0	1	5	28	75	186	154	41	7	0	0	0	0	0	0	0	0	0	0
9:00 PM	370	0	0	1	11	15	46	147	116	29	5	0	0	0	0	0	0	0	0	0	0
10:00 PM	242	0	0	1	2	10	20	77	97	29	5	1	0	0	0	0	0	0	0	0	0
11:00 PM	144	0	0	0	2	6	9	42	48	29	8	0	0	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2046	1	0	3	15	62	248	836	579	230	58	10	2	1	1	0	0	0	0	0	0
3:00 PM - 6:00 PM	3505	8	47	166	296	558	984	1042	318	72	11	2	1	0	0	0	0	0	0	0	0
6:00 AM - 7:00 PM	12124	11	63	197	468	1129	2971	4536	2065	539	111	23	6	1	1	3	0	0	0	0	0
12:00 AM - 12:00 AM	14454	11	65	200	512	1240	3253	5317	2834	805	167	35	7	4	1	3	0	0	0	0	0
Percent	100%	0.1%	0.4%	1.4%	3.5%	8.6%	22.5%	36.8%	19.6%	5.6%	1.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	36.7 mph																				
85th Percentile	42.2 mph																				
95th Percentile	46.1 mph																				

Site Description: 1ST AVE N.O LIMBERLOST DR
 Site Number: 24
 Start Date: 3/26/2024
 End Date: 3/26/2024

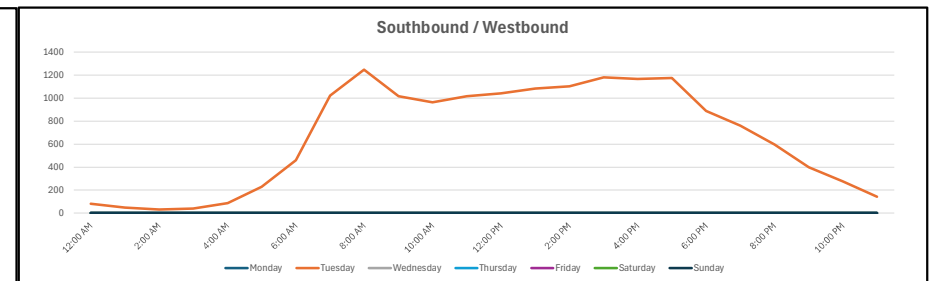
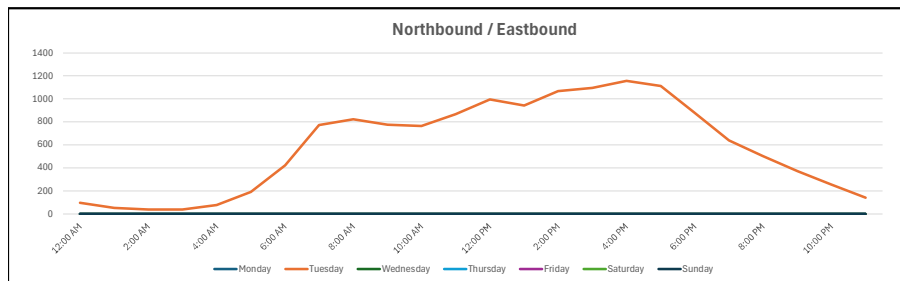
Vehicle Speed Report (Southbound - 03/26/2024)

Tuesday	Southbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	74	0	0	1	1	4	8	15	21	16	6	1	1	0	0	0	0	0	0	0	0
1:00 AM	42	0	0	0	0	2	1	9	17	7	5	1	0	0	0	0	0	0	0	0	0
2:00 AM	31	0	0	0	0	1	1	7	12	5	4	1	0	0	0	0	0	0	0	0	0
3:00 AM	41	0	0	0	1	2	2	5	13	12	5	1	0	0	0	0	0	0	0	0	0
4:00 AM	73	0	0	0	0	1	1	9	19	19	18	6	0	0	0	0	0	0	0	0	0
5:00 AM	202	0	0	0	1	5	14	28	55	60	21	10	6	1	1	0	0	0	0	0	0
6:00 AM	436	0	0	2	2	7	14	48	121	134	91	15	2	0	0	0	0	0	0	0	0
7:00 AM	1037	3	10	12	50	84	164	229	242	167	56	15	3	1	1	0	0	0	0	0	0
8:00 AM	1265	1	2	6	30	71	199	361	351	197	39	7	1	0	0	0	0	0	0	0	0
9:00 AM	1021	0	1	2	13	44	102	231	342	216	51	17	1	0	1	0	0	0	0	0	0
10:00 AM	956	0	0	2	11	37	107	239	337	168	46	6	2	1	0	0	0	0	0	0	0
11:00 AM	1055	5	7	6	39	84	204	320	283	82	20	3	1	1	0	0	0	0	0	0	0
12:00 PM	1124	1	6	28	71	153	228	341	213	66	13	2	0	1	1	0	0	0	0	0	0
1:00 PM	1090	0	17	27	65	124	224	293	246	77	11	5	1	0	0	0	0	0	0	0	0
2:00 PM	1143	0	8	21	55	129	251	352	234	76	14	2	1	0	0	0	0	0	0	0	0
3:00 PM	1235	4	15	49	112	175	263	359	196	44	16	2	0	0	0	0	0	0	0	0	0
4:00 PM	1231	10	25	82	136	264	301	241	120	34	14	2	2	0	0	0	0	0	0	0	0
5:00 PM	1221	2	13	41	116	203	269	309	212	44	10	1	1	0	0	0	0	0	0	0	0
6:00 PM	905	1	4	10	29	78	169	242	254	91	17	6	1	0	0	3	0	0	0	0	0
7:00 PM	766	0	2	2	15	51	72	225	262	96	31	7	3	0	0	0	0	0	0	0	0
8:00 PM	602	0	0	5	14	42	91	162	172	90	18	6	1	1	0	0	0	0	0	0	0
9:00 PM	386	0	0	1	2	24	49	90	133	64	21	2	0	0	0	0	0	0	0	0	0
10:00 PM	272	0	0	0	7	13	35	55	87	53	12	9	0	1	0	0	0	0	0	0	0
11:00 PM	142	1	0	1	1	7	10	27	50	29	13	2	0	0	1	0	0	0	0	0	0
6:00 AM - 9:00 AM	2738	4	12	20	82	162	377	638	714	498	186	37	6	1	1	0	0	0	0	0	0
3:00 PM - 6:00 PM	3687	16	53	172	364	642	833	909	528	122	40	5	3	0	0	0	0	0	0	0	0
6:00 AM - 7:00 PM	13719	27	108	288	729	1453	2495	3565	3151	1396	398	83	16	4	3	3	0	0	0	0	0
12:00 AM - 12:00 AM	16350	28	110	298	771	1605	2779	4197	3992	1847	552	129	27	7	5	3	0	0	0	0	0
Percent	100%	0.2%	0.7%	1.8%	4.7%	9.8%	17.0%	25.7%	24.4%	11.3%	3.4%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	38.2 mph																				
85th Percentile	45.1 mph																				
95th Percentile	49.4 mph																				

Vehicle Volume Report - Hourly

Site Description: 1ST AVE N.O ROGER RD
 Site Number: 25
 Start Date: 3/26/2024
 End Date: 3/26/2024

Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	97	81	178	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	52	48	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	40	31	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	38	41	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	78	87	165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	193	230	423	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	421	461	882	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	773	1024	1797	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	823	1247	2070	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	776	1017	1793	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	765	962	1727	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	869	1017	1886	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	994	1041	2035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	944	1082	2026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	1068	1103	2171	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1096	1181	2277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1158	1166	2324	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1113	1175	2288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	878	888	1766	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	639	761	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	503	595	1098	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	373	398	771	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	256	277	533	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	142	141	283	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	2017	2732	4749	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3367	3522	6889	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	11678	13364	25042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	14089	16054	30143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	46.7%	53.3%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Classification Report - Hourly

Site Description: 1ST AVE N.O ROGER RD
Site Number: 25
Start Date: 3/26/2024
End Date: 3/26/2024

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

		FHWA Vehicle Classification - Total Study												
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13
Northbound	14089	32	8634	4183	5	1082	33	0	25	20	26	11	5	33
Percent	100.0%	0.2%	61.3%	29.7%	0.0%	7.7%	0.2%	0.0%	0.2%	0.1%	0.2%	0.1%	0.0%	0.2%
Southbound	16054	84	11340	3332	3	1075	71	0	28	42	51	3	0	25
Percent	100.0%	0.5%	70.6%	20.8%	0.0%	6.7%	0.4%	0.0%	0.2%	0.3%	0.3%	0.0%	0.0%	0.2%
Total	30143	116	19974	7515	8	2157	104	0	53	62	77	14	5	58
Percent	100.0%	0.4%	66.3%	24.9%	0.0%	7.2%	0.3%	0.0%	0.2%	0.2%	0.3%	0.0%	0.0%	0.2%

Site Description: 1ST AVE N.O ROGER RD
 Site Number: 25
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Northbound - 03/26/2024)

Tuesday	Total	Northbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	97 	1	43	48	0	4	0	0	1	0	0	0	0	0
1:00 AM	52 	0	30	20	0	2	0	0	0	0	0	0	0	0
2:00 AM	40 	0	17	21	0	2	0	0	0	0	0	0	0	0
3:00 AM	38 	1	17	18	0	2	0	0	0	0	0	0	0	0
4:00 AM	78 	1	27	41	0	7	0	0	1	1	0	0	0	0
5:00 AM	193 	5	82	69	0	36	0	0	0	1	0	0	0	0
6:00 AM	421 	2	168	176	1	62	3	0	3	2	1	2	0	1
7:00 AM	773 	1	428	238	0	91	0	0	5	2	4	1	1	2
8:00 AM	823 	2	496	234	0	84	0	0	1	1	2	2	0	1
9:00 AM	776 	1	412	257	0	99	1	0	1	1	2	0	0	2
10:00 AM	765 	0	405	276	1	79	1	0	2	0	0	0	0	1
11:00 AM	869 	1	547	234	2	76	1	0	2	4	1	0	0	1
12:00 PM	994 	1	587	319	1	70	8	0	3	0	1	0	2	2
1:00 PM	944 	3	585	273	0	73	4	0	1	3	1	0	0	1
2:00 PM	1068 	0	722	271	0	59	4	0	2	1	3	1	1	4
3:00 PM	1096 	2	802	217	0	60	3	0	0	2	3	1	0	6
4:00 PM	1158 	4	796	290	0	54	2	0	3	1	2	0	0	6
5:00 PM	1113 	2	811	240	0	45	4	0	0	0	4	2	1	4
6:00 PM	878 	1	543	271	0	57	2	0	0	0	1	1	0	2
7:00 PM	639 	0	379	214	0	45	0	0	0	0	1	0	0	0
8:00 PM	503 	2	272	197	0	31	0	0	0	0	0	1	0	0
9:00 PM	373 	0	233	120	0	20	0	0	0	0	0	0	0	0
10:00 PM	256 	1	157	83	0	14	0	0	0	1	0	0	0	0
11:00 PM	142 	1	75	56	0	10	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2017	5	1092	648	1	237	3	0	9	5	7	5	1	4
3:00 PM - 6:00 PM	3367	8	2409	747	0	159	9	0	3	3	9	3	1	16
6:00 AM - 7:00 PM	11678	20	7302	3296	5	909	33	0	23	17	25	10	5	33
12:00 AM - 12:00 AM	14089	32	8634	4183	5	1082	33	0	25	20	26	11	5	33
Percent	100%	0.2%	61.3%	29.7%	0.0%	7.7%	0.2%	0.0%	0.2%	0.1%	0.2%	0.1%	0.0%	0.2%

Site Description: 1ST AVE N.O ROGER RD
 Site Number: 25
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Southbound - 03/26/2024)

Tuesday	Total	Southbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	81 	0	59	20	0	2	0	0	0	0	0	0	0	0
1:00 AM	48 	0	33	14	0	1	0	0	0	0	0	0	0	0
2:00 AM	31 	1	18	10	0	2	0	0	0	0	0	0	0	0
3:00 AM	41 	0	27	7	0	6	0	0	0	1	0	0	0	0
4:00 AM	87 	0	50	21	0	13	0	0	3	0	0	0	0	0
5:00 AM	230 	1	127	59	0	39	2	0	1	1	0	0	0	0
6:00 AM	461 	2	266	127	0	60	0	0	3	1	1	0	0	1
7:00 AM	1024 	7	693	233	0	72	4	0	2	3	7	0	0	3
8:00 AM	1247 	3	874	276	0	79	5	0	2	4	2	0	0	2
9:00 AM	1017 	5	653	264	1	85	2	0	3	1	2	0	0	1
10:00 AM	962 	5	640	234	0	71	5	0	0	2	5	0	0	0
11:00 AM	1017 	4	701	209	0	87	8	0	0	3	2	0	0	3
12:00 PM	1041 	5	734	200	1	76	7	0	5	5	5	0	0	3
1:00 PM	1082 	7	752	230	0	77	11	0	1	0	1	0	0	3
2:00 PM	1103 	11	806	213	0	60	3	0	2	1	5	0	0	2
3:00 PM	1181 	11	904	189	0	60	6	0	2	3	3	1	0	2
4:00 PM	1166 	5	859	218	1	63	8	0	0	8	3	1	0	0
5:00 PM	1175 	8	903	191	0	50	2	0	2	7	6	1	0	5
6:00 PM	888 	4	659	173	0	45	3	0	0	0	4	0	0	0
7:00 PM	761 	1	550	155	0	47	4	0	1	0	3	0	0	0
8:00 PM	595 	0	399	156	0	37	1	0	0	1	1	0	0	0
9:00 PM	398 	1	301	71	0	23	0	0	1	0	1	0	0	0
10:00 PM	277 	2	218	44	0	13	0	0	0	0	0	0	0	0
11:00 PM	141 	1	114	18	0	7	0	0	0	1	0	0	0	0
6:00 AM - 9:00 AM	2732	12	1833	636	0	211	9	0	7	8	10	0	0	6
3:00 PM - 6:00 PM	3522	24	2666	598	1	173	16	0	4	18	12	3	0	7
6:00 AM - 7:00 PM	13364	77	9444	2757	3	885	64	0	22	38	46	3	0	25
12:00 AM - 12:00 AM	16054	84	11340	3332	3	1075	71	0	28	42	51	3	0	25
Percent	100%	0.5%	70.6%	20.8%	0.0%	6.7%	0.4%	0.0%	0.2%	0.3%	0.3%	0.0%	0.0%	0.2%

Vehicle Speed Report - Hourly

Site Description: 1ST AVE N.O ROGER RD

Site Number: 25

Start Date: 3/26/2024

End Date: 3/26/2024

Total Study Speed Summary		
	Northbound	Southbound
Average Speed	38.4 mph	30.8 mph
50th Percentile	38.8 mph	31.2 mph
85th Percentile	44.7 mph	40.3 mph
95th Percentile	48.8 mph	45.0 mph

Speed Range (MPH) - Total Study																					
	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
Northbound	14089	23	62	144	409	734	2198	4657	3862	1505	384	69	22	7	6	6	0	1	0	0	0
Percent	100.0%	0.2%	0.4%	1.0%	2.9%	5.2%	15.6%	33.1%	27.4%	10.7%	2.7%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Southbound	16054	115	569	1455	2195	2915	3195	3044	1748	637	146	31	2	0	0	1	0	0	0	1	0
Percent	100.0%	0.7%	3.5%	9.1%	13.7%	18.2%	19.9%	19.0%	10.9%	4.0%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	30143	138	631	1599	2604	3649	5393	7701	5610	2142	530	100	24	7	6	7	0	1	0	1	0
Percent	100.0%	0.5%	2.1%	5.3%	8.6%	12.1%	17.9%	25.5%	18.6%	7.1%	1.8%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Site Description: 1ST AVE N.O ROGER RD
 Site Number: 25
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Speed Report (Northbound - 03/26/2024)

Tuesday	Northbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	97		0	0	0	0	2	5	13	28	31	13	1	3	0	1	0	0	0	0	0
1:00 AM	52		0	0	1	1	0	3	11	16	15	5	0	0	0	0	0	0	0	0	0
2:00 AM	40		0	0	0	0	0	1	5	16	12	5	1	0	0	0	0	0	0	0	0
3:00 AM	38		0	0	0	0	0	2	6	15	8	3	2	1	1	0	0	0	0	0	0
4:00 AM	78		0	0	0	1	0	4	15	20	16	14	4	2	1	0	1	0	0	0	0
5:00 AM	193		0	0	0	3	6	4	28	63	54	30	3	1	0	1	0	0	0	0	0
6:00 AM	421		0	0	0	6	9	20	94	133	101	40	9	2	2	3	2	0	0	0	0
7:00 AM	773		2	2	7	15	15	52	198	286	147	41	5	2	0	1	0	0	0	0	0
8:00 AM	823		4	2	5	17	17	55	228	319	149	25	2	0	0	0	0	0	0	0	0
9:00 AM	776		0	3	2	11	31	54	211	271	139	40	9	3	2	0	0	0	0	0	0
10:00 AM	765		0	3	4	12	24	75	222	274	117	19	12	0	1	0	1	0	1	0	0
11:00 AM	869		1	2	4	18	35	124	314	267	85	15	2	2	0	0	0	0	0	0	0
12:00 PM	994		4	5	9	22	54	177	365	284	64	8	2	0	0	0	0	0	0	0	0
1:00 PM	944		1	9	8	27	38	148	379	269	55	10	0	0	0	0	0	0	0	0	0
2:00 PM	1068		2	7	16	47	67	273	439	170	40	5	1	1	0	0	0	0	0	0	0
3:00 PM	1096		3	18	30	60	119	246	399	175	33	10	1	0	0	0	2	0	0	0	0
4:00 PM	1158		3	4	29	41	165	331	435	120	27	3	0	0	0	0	0	0	0	0	0
5:00 PM	1113		2	3	10	54	81	299	422	195	42	3	1	1	0	0	0	0	0	0	0
6:00 PM	878		1	1	4	29	34	137	333	263	64	11	1	0	0	0	0	0	0	0	0
7:00 PM	639		0	1	4	14	17	71	204	217	82	28	1	0	0	0	0	0	0	0	0
8:00 PM	503		0	0	2	10	7	49	156	189	71	15	4	0	0	0	0	0	0	0	0
9:00 PM	373		0	1	5	17	9	42	104	133	49	11	2	0	0	0	0	0	0	0	0
10:00 PM	256		0	0	2	3	3	15	46	93	71	19	3	1	0	0	0	0	0	0	0
11:00 PM	142		0	1	2	1	1	11	30	46	33	11	3	3	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2017		6	4	12	38	41	127	520	738	397	106	16	4	2	4	2	0	0	0	0
3:00 PM - 6:00 PM	3367		8	25	69	155	365	876	1256	490	102	16	2	1	0	0	2	0	0	0	0
6:00 AM - 7:00 PM	11678		23	59	128	359	689	1991	4039	3026	1063	230	45	11	5	4	5	0	1	0	0
12:00 AM - 12:00 AM	14089		23	62	144	409	734	2198	4657	3862	1505	384	69	22	7	6	6	0	1	0	0
Percent	100%		0.2%	0.4%	1.0%	2.9%	5.2%	15.6%	33.1%	27.4%	10.7%	2.7%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	38.8 mph																				
85th Percentile	44.7 mph																				
95th Percentile	48.8 mph																				

Site Description: 1ST AVE N.O ROGER RD
 Site Number: 25
 Start Date: 3/26/2024
 End Date: 3/26/2024

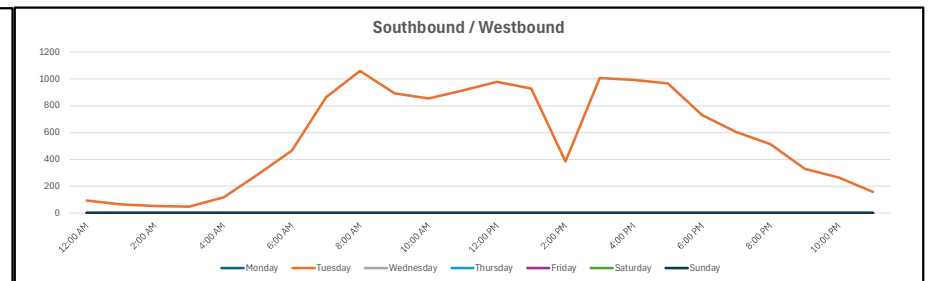
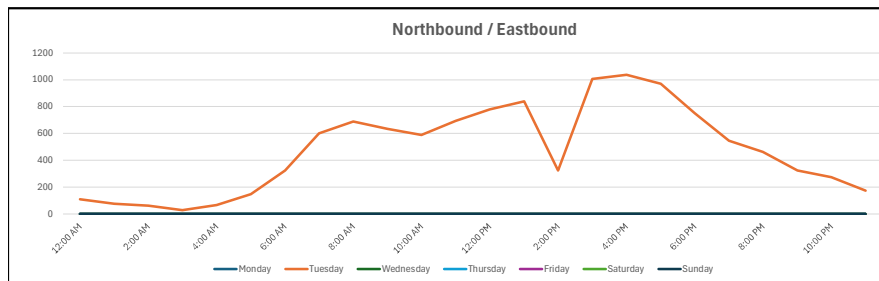
Vehicle Speed Report (Southbound - 03/26/2024)

Tuesday	Southbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	81	0	0	0	1	3	10	28	23	13	2	1	0	0	0	0	0	0	0	0	0
1:00 AM	48	0	0	0	0	2	10	16	13	5	2	0	0	0	0	0	0	0	0	0	0
2:00 AM	31	0	0	1	0	0	5	11	11	2	1	0	0	0	0	0	0	0	0	0	0
3:00 AM	41	0	0	1	0	2	5	10	12	10	1	0	0	0	0	0	0	0	0	0	0
4:00 AM	87	0	0	0	1	2	5	18	21	24	14	2	0	0	0	0	0	0	0	0	0
5:00 AM	230	0	1	2	2	9	41	47	70	42	11	5	0	0	0	0	0	0	0	0	0
6:00 AM	461	0	2	6	17	36	88	115	112	64	19	2	0	0	0	0	0	0	0	0	0
7:00 AM	1024	2	25	61	112	138	178	212	201	76	16	3	0	0	0	0	0	0	0	0	0
8:00 AM	1247	9	40	113	175	263	266	217	126	32	5	1	0	0	0	0	0	0	0	0	0
9:00 AM	1017	3	12	44	87	165	212	229	168	71	22	4	0	0	0	0	0	0	0	0	0
10:00 AM	962	3	7	49	113	183	175	229	133	55	9	5	1	0	0	0	0	0	0	0	0
11:00 AM	1017	4	34	76	148	234	229	195	85	9	3	0	0	0	0	0	0	0	0	0	0
12:00 PM	1041	14	49	164	201	212	179	143	56	21	2	0	0	0	0	0	0	0	0	0	0
1:00 PM	1082	11	52	131	193	225	224	151	72	18	3	1	1	0	0	0	0	0	0	0	0
2:00 PM	1103	11	58	147	216	222	188	181	64	14	2	0	0	0	0	0	0	0	0	0	0
3:00 PM	1181	14	88	218	198	277	206	121	38	14	6	0	0	0	0	1	0	0	0	0	0
4:00 PM	1166	24	101	178	214	245	200	147	48	9	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	1175	9	72	166	230	207	227	188	57	13	2	3	0	0	0	0	0	0	0	1	0
6:00 PM	888	10	16	55	133	193	227	157	75	17	5	0	0	0	0	0	0	0	0	0	0
7:00 PM	761	1	9	24	57	125	192	193	112	44	3	1	0	0	0	0	0	0	0	0	0
8:00 PM	595	0	0	10	43	95	155	176	83	26	6	1	0	0	0	0	0	0	0	0	0
9:00 PM	398	0	3	7	39	50	107	105	68	15	3	1	0	0	0	0	0	0	0	0	0
10:00 PM	277	0	0	2	11	16	44	101	60	35	7	1	0	0	0	0	0	0	0	0	0
11:00 PM	141	0	0	0	4	11	22	54	40	8	2	0	0	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2732	11	67	180	304	437	532	544	439	172	40	6	0	0	0	0	0	0	0	0	0
3:00 PM - 6:00 PM	3522	47	261	562	642	729	633	456	143	36	8	3	0	0	0	1	0	0	0	1	0
6:00 AM - 7:00 PM	13364	114	556	1408	2037	2600	2599	2285	1235	413	94	19	2	0	0	1	0	0	0	1	0
12:00 AM - 12:00 AM	16054	115	569	1455	2195	2915	3195	3044	1748	637	146	31	2	0	0	1	0	0	0	1	0
Percent	100%	0.7%	3.5%	9.1%	13.7%	18.2%	19.9%	19.0%	10.9%	4.0%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	31.2 mph																				
85th Percentile	40.3 mph																				
95th Percentile	45.0 mph																				

Vehicle Volume Report - Hourly

Site Description: 1ST AVE S.O JACINTO ST
 Site Number: 26
 Start Date: 3/26/2024
 End Date: 3/26/2024

Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	110	94	204	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	77	65	142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	61	54	115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	29	49	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	67	117	184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	147	287	434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	324	465	789	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	601	864	1465	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	689	1059	1748	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	635	893	1528	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	589	854	1443	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	694	915	1609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	780	978	1758	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	840	929	1769	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	323	386	709	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1007	1007	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1036	992	2028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	969	968	1937	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	751	732	1483	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	545	605	1150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	461	514	975	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	324	330	654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	275	266	541	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	173	159	332	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1614	2388	4002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3012	2967	5979	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	9238	11042	20280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	11507	13582	25089	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	45.9%	54.1%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Classification Report - Hourly

Site Description: 1ST AVE S.O JACINTO ST
Site Number: 26
Start Date: 3/26/2024
End Date: 3/26/2024

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

		FHWA Vehicle Classification - Total Study												
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13
Northbound	11507	38	6439	3810	4	1068	45	0	37	10	30	4	2	20
Percent	100.0%	0.3%	56.0%	33.1%	0.0%	9.3%	0.4%	0.0%	0.3%	0.1%	0.3%	0.0%	0.0%	0.2%
Southbound	13582	93	8989	3188	5	1158	42	0	30	22	28	6	0	21
Percent	100.0%	0.7%	66.2%	23.5%	0.0%	8.5%	0.3%	0.0%	0.2%	0.2%	0.2%	0.0%	0.0%	0.2%
Total	25089	131	15428	6998	9	2226	87	0	67	32	58	10	2	41
Percent	100.0%	0.5%	61.5%	27.9%	0.0%	8.9%	0.3%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	0.2%

Site Description: 1ST AVE S.O JACINTO ST
 Site Number: 26
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Northbound - 03/26/2024)

Tuesday	Total	Northbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	110 	0	62	41	0	5	1	0	1	0	0	0	0	0
1:00 AM	77 	0	47	28	0	2	0	0	0	0	0	0	0	0
2:00 AM	61 	1	34	22	0	3	1	0	0	0	0	0	0	0
3:00 AM	29 	0	14	12	0	3	0	0	0	0	0	0	0	0
4:00 AM	67 	1	42	17	0	5	0	0	1	1	0	0	0	0
5:00 AM	147 	1	77	45	0	23	0	0	0	1	0	0	0	0
6:00 AM	324 	3	147	111	1	54	1	0	1	2	3	0	0	1
7:00 AM	601 	4	312	183	0	88	4	0	3	2	2	1	1	1
8:00 AM	689 	1	371	205	1	96	5	0	4	0	4	1	1	0
9:00 AM	635 	2	334	213	0	79	0	0	5	0	1	0	0	1
10:00 AM	589 	1	311	198	1	70	1	0	4	1	2	0	0	0
11:00 AM	694 	1	354	249	1	83	1	0	0	0	3	0	0	2
12:00 PM	780 	3	445	236	0	84	1	0	3	2	3	0	0	3
1:00 PM	840 	3	438	306	0	82	2	0	2	0	3	2	0	2
2:00 PM	323 	0	195	99	0	26	0	0	2	0	1	0	0	0
3:00 PM	1007 	2	563	358	0	74	7	0	1	1	0	0	0	1
4:00 PM	1036 	4	591	358	0	69	3	0	3	0	4	0	0	4
5:00 PM	969 	2	575	320	0	58	4	0	3	0	4	0	0	3
6:00 PM	751 	3	418	261	0	54	10	0	3	0	0	0	0	2
7:00 PM	545 	2	351	155	0	36	1	0	0	0	0	0	0	0
8:00 PM	461 	3	284	144	0	29	1	0	0	0	0	0	0	0
9:00 PM	324 	1	199	104	0	20	0	0	0	0	0	0	0	0
10:00 PM	275 	0	171	86	0	16	2	0	0	0	0	0	0	0
11:00 PM	173 	0	104	59	0	9	0	0	1	0	0	0	0	0
6:00 AM - 9:00 AM	1614	8	830	499	2	238	10	0	8	4	9	2	2	2
3:00 PM - 6:00 PM	3012	8	1729	1036	0	201	14	0	7	1	8	0	0	8
6:00 AM - 7:00 PM	9238	29	5054	3097	4	917	39	0	34	8	30	4	2	20
12:00 AM - 12:00 AM	11507	38	6439	3810	4	1068	45	0	37	10	30	4	2	20
Percent	100%	0.3%	56.0%	33.1%	0.0%	9.3%	0.4%	0.0%	0.3%	0.1%	0.3%	0.0%	0.0%	0.2%

Site Description: 1ST AVE S.O JACINTO ST
 Site Number: 26
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Classification Report (Southbound - 03/26/2024)

Tuesday	Total	Southbound												
		Classes												
		1	2	3	4	5	6	7	8	9	10	11	12	13
3/26/24														
12:00 AM	94 	0	74	17	0	3	0	0	0	0	0	0	0	0
1:00 AM	65 	0	45	14	0	6	0	0	0	0	0	0	0	0
2:00 AM	54 	1	42	7	0	4	0	0	0	0	0	0	0	0
3:00 AM	49 	1	38	7	0	3	0	0	0	0	0	0	0	0
4:00 AM	117 	0	79	25	0	13	0	0	0	0	0	0	0	0
5:00 AM	287 	4	161	73	0	47	0	0	1	0	1	0	0	0
6:00 AM	465 	2	217	170	0	72	2	0	0	0	0	2	0	0
7:00 AM	864 	3	588	204	1	61	3	0	2	0	1	0	0	1
8:00 AM	1059 	3	694	271	0	78	3	0	2	3	4	1	0	0
9:00 AM	893 	5	595	219	3	63	0	0	4	1	2	0	0	1
10:00 AM	854 	4	532	217	0	87	2	0	3	2	4	0	0	3
11:00 AM	915 	2	568	235	0	91	9	0	2	2	4	0	0	2
12:00 PM	978 	6	637	227	1	95	4	0	5	1	1	0	0	1
1:00 PM	929 	9	583	233	0	94	1	0	3	3	1	1	0	1
2:00 PM	386 	27	251	77	0	20	5	0	1	1	1	1	0	2
3:00 PM	1007 	6	613	256	0	114	7	0	3	0	3	1	0	4
4:00 PM	992 	9	652	248	0	75	2	0	2	3	1	0	0	0
5:00 PM	968 	3	678	206	0	72	1	0	1	3	2	0	0	2
6:00 PM	732 	3	529	153	0	46	0	0	0	0	0	0	0	1
7:00 PM	605 	5	438	107	0	48	3	0	1	1	1	0	0	1
8:00 PM	514 	0	406	77	0	28	0	0	0	0	2	0	0	1
9:00 PM	330 	0	255	55	0	19	0	0	0	1	0	0	0	0
10:00 PM	266 	0	195	59	0	11	0	0	0	0	0	0	0	1
11:00 PM	159 	0	119	31	0	8	0	0	0	1	0	0	0	0
6:00 AM - 9:00 AM	2388	8	1499	645	1	211	8	0	4	3	5	3	0	1
3:00 PM - 6:00 PM	2967	18	1943	710	0	261	10	0	6	6	6	1	0	6
6:00 AM - 7:00 PM	11042	82	7137	2716	5	968	39	0	28	19	24	6	0	18
12:00 AM - 12:00 AM	13582	93	8989	3188	5	1158	42	0	30	22	28	6	0	21
Percent	100%	0.7%	66.2%	23.5%	0.0%	8.5%	0.3%	0.0%	0.2%	0.2%	0.2%	0.0%	0.0%	0.2%

Vehicle Speed Report - Hourly

Site Description: 1ST AVE S.O JACINTO ST
 Site Number: 26
 Start Date: 3/26/2024
 End Date: 3/26/2024

Total Study Speed Summary		
	Northbound	Southbound
Average Speed	40.4 mph	37.8 mph
50th Percentile	40.9 mph	38.0 mph
85th Percentile	46.7 mph	43.4 mph
95th Percentile	50.6 mph	47.2 mph

Speed Range (MPH) - Total Study																					
	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
Northbound	11507	18	87	109	172	336	1076	3194	3833	1997	520	127	25	7	5	1	0	0	0	0	0
Percent	100.0%	0.2%	0.8%	0.9%	1.5%	2.9%	9.4%	27.8%	33.3%	17.4%	4.5%	1.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Southbound	13582	101	64	38	102	584	2764	5257	3359	1011	238	46	13	4	1	0	0	0	0	0	0
Percent	100.0%	0.7%	0.5%	0.3%	0.8%	4.3%	20.4%	38.7%	24.7%	7.4%	1.8%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	25089	119	151	147	274	920	3840	8451	7192	3008	758	173	38	11	6	1	0	0	0	0	0
Percent	100.0%	0.5%	0.6%	0.6%	1.1%	3.7%	15.3%	33.7%	28.7%	12.0%	3.0%	0.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Site Description: 1ST AVE S.O JACINTO ST
 Site Number: 26
 Start Date: 3/26/2024
 End Date: 3/26/2024

Vehicle Speed Report (Northbound - 03/26/2024)

Tuesday	Northbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	110		0	1	0	1	1	5	23	35	29	12	1	1	1	0	0	0	0	0	0
1:00 AM	77		0	0	0	0	1	5	21	28	17	4	1	0	0	0	0	0	0	0	0
2:00 AM	61		0	0	1	0	0	3	9	27	18	1	2	0	0	0	0	0	0	0	0
3:00 AM	29		0	0	0	0	0	2	6	13	6	0	1	0	1	0	0	0	0	0	0
4:00 AM	67		0	0	0	0	0	5	16	22	16	7	1	0	0	0	0	0	0	0	0
5:00 AM	147		1	1	1	0	1	3	22	47	45	18	6	1	0	0	1	0	0	0	0
6:00 AM	324		0	0	0	2	4	20	53	94	112	30	7	2	0	0	0	0	0	0	0
7:00 AM	601		0	4	3	19	15	43	136	234	102	28	12	3	1	1	0	0	0	0	0
8:00 AM	689		2	8	15	7	32	85	201	186	116	28	5	2	0	2	0	0	0	0	0
9:00 AM	635		0	7	4	8	23	76	187	205	92	27	5	0	1	0	0	0	0	0	0
10:00 AM	589		0	6	2	14	27	63	154	179	105	28	9	2	0	0	0	0	0	0	0
11:00 AM	694		2	3	5	16	28	73	203	243	101	18	2	0	0	0	0	0	0	0	0
12:00 PM	780		2	5	7	14	28	86	237	257	106	29	8	1	0	0	0	0	0	0	0
1:00 PM	840		1	6	5	18	44	107	253	272	102	26	5	1	0	0	0	0	0	0	0
2:00 PM	323		0	2	2	1	6	26	122	101	50	10	2	1	0	0	0	0	0	0	0
3:00 PM	1007		3	11	15	14	22	83	353	322	140	39	4	1	0	0	0	0	0	0	0
4:00 PM	1036		2	9	12	14	33	111	303	358	154	31	8	1	0	0	0	0	0	0	0
5:00 PM	969		4	20	26	15	23	119	249	317	150	33	11	1	1	0	0	0	0	0	0
6:00 PM	751		1	4	9	21	26	68	223	239	125	28	6	1	0	0	0	0	0	0	0
7:00 PM	545		0	0	2	2	4	33	166	199	100	31	6	1	0	1	0	0	0	0	0
8:00 PM	461		0	0	0	2	7	26	96	166	120	30	11	2	1	0	0	0	0	0	0
9:00 PM	324		0	0	0	1	4	11	71	129	78	22	6	2	0	0	0	0	0	0	0
10:00 PM	275		0	0	0	3	5	15	45	104	75	22	4	0	1	1	0	0	0	0	0
11:00 PM	173		0	0	0	0	2	8	45	56	38	18	4	2	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	1614		2	12	18	28	51	148	390	514	330	86	24	7	1	3	0	0	0	0	0
3:00 PM - 6:00 PM	3012		9	40	53	43	78	313	905	997	444	103	23	3	1	0	0	0	0	0	0
6:00 AM - 7:00 PM	9238		17	85	105	163	311	960	2674	3007	1455	355	84	16	3	3	0	0	0	0	0
12:00 AM - 12:00 AM	11507		18	87	109	172	336	1076	3194	3833	1997	520	127	25	7	5	1	0	0	0	0
Percent	100%		0.2%	0.8%	0.9%	1.5%	2.9%	9.4%	27.8%	33.3%	17.4%	4.5%	1.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	40.9 mph																				
85th Percentile	46.7 mph																				
95th Percentile	50.6 mph																				

Site Description: 1ST AVE S.O JACINTO ST
 Site Number: 26
 Start Date: 3/26/2024
 End Date: 3/26/2024

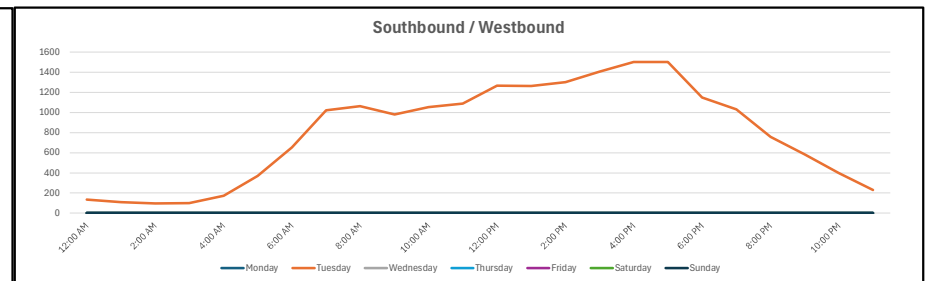
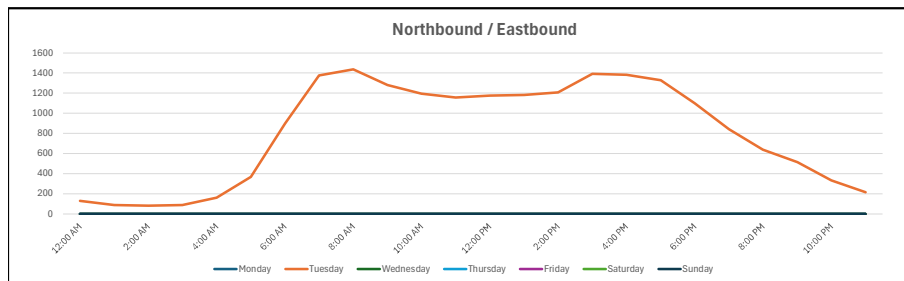
Vehicle Speed Report (Southbound - 03/26/2024)

Tuesday	Southbound																				
3/26/24	Total	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100+
12:00 AM	94		0	1	0	1	4	10	35	29	8	6	0	0	0	0	0	0	0	0	0
1:00 AM	65		0	0	0	0	2	8	30	15	10	0	0	0	0	0	0	0	0	0	0
2:00 AM	54		0	2	0	0	2	5	23	18	4	0	0	0	0	0	0	0	0	0	0
3:00 AM	49		0	0	0	0	1	4	23	12	8	0	1	0	0	0	0	0	0	0	0
4:00 AM	117		0	0	0	0	5	12	27	36	28	8	0	1	0	0	0	0	0	0	0
5:00 AM	287		0	0	0	1	3	8	49	116	72	26	7	5	0	0	0	0	0	0	0
6:00 AM	465		0	0	1	5	3	50	124	158	85	28	8	2	1	0	0	0	0	0	0
7:00 AM	864		0	3	2	4	13	123	323	284	73	32	6	1	0	0	0	0	0	0	0
8:00 AM	1059		1	5	5	9	64	268	398	227	66	14	0	0	1	1	0	0	0	0	0
9:00 AM	893		0	3	4	1	39	181	351	225	73	12	3	0	1	0	0	0	0	0	0
10:00 AM	854		1	3	1	9	52	230	309	192	48	8	1	0	0	0	0	0	0	0	0
11:00 AM	915		3	3	3	16	55	230	357	183	55	8	1	1	0	0	0	0	0	0	0
12:00 PM	978		0	4	3	2	50	264	382	214	45	12	2	0	0	0	0	0	0	0	0
1:00 PM	929		2	3	7	8	55	224	395	174	45	10	4	2	0	0	0	0	0	0	0
2:00 PM	386		89	27	7	8	11	59	113	62	10	0	0	0	0	0	0	0	0	0	0
3:00 PM	1007		1	2	2	17	70	201	418	212	61	21	1	1	0	0	0	0	0	0	0
4:00 PM	992		0	1	2	1	30	197	441	247	61	8	4	0	0	0	0	0	0	0	0
5:00 PM	968		2	4	0	10	39	197	399	231	72	11	2	0	1	0	0	0	0	0	0
6:00 PM	732		1	0	0	5	43	183	257	188	45	8	2	0	0	0	0	0	0	0	0
7:00 PM	605		1	0	1	1	12	146	290	126	22	5	1	0	0	0	0	0	0	0	0
8:00 PM	514		0	2	0	2	17	78	225	146	41	3	0	0	0	0	0	0	0	0	0
9:00 PM	330		0	1	0	1	8	35	131	118	29	7	0	0	0	0	0	0	0	0	0
10:00 PM	266		0	0	0	1	6	31	103	90	26	7	2	0	0	0	0	0	0	0	0
11:00 PM	159		0	0	0	0	0	20	54	56	24	4	1	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	2388	1	8	8	18	80	441	845	669	224	74	14	3	2	1	0	0	0	0	0	0
3:00 PM - 6:00 PM	2967	3	7	4	28	139	595	1258	690	194	40	7	1	1	0	0	0	0	0	0	0
6:00 AM - 7:00 PM	11042	100	58	37	95	524	2407	4267	2597	739	172	34	7	4	1	0	0	0	0	0	0
12:00 AM - 12:00 AM	13582	101	64	38	102	584	2764	5257	3359	1011	238	46	13	4	1	0	0	0	0	0	0
Percent	100%	0.7%	0.5%	0.3%	0.8%	4.3%	20.4%	38.7%	24.7%	7.4%	1.8%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50th Percentile	38.0 mph																				
85th Percentile	43.4 mph																				
95th Percentile	47.2 mph																				

Vehicle Volume Report - Hourly

Site Description: GRANT RD E.O 4TH AVE
 Site Number: 27
 Start Date: 3/26/2024
 End Date: 3/26/2024

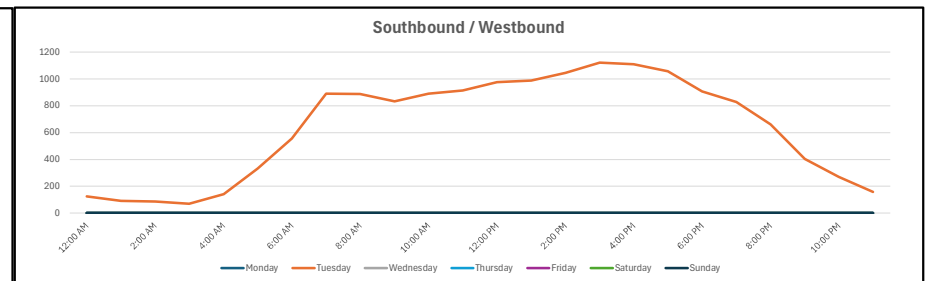
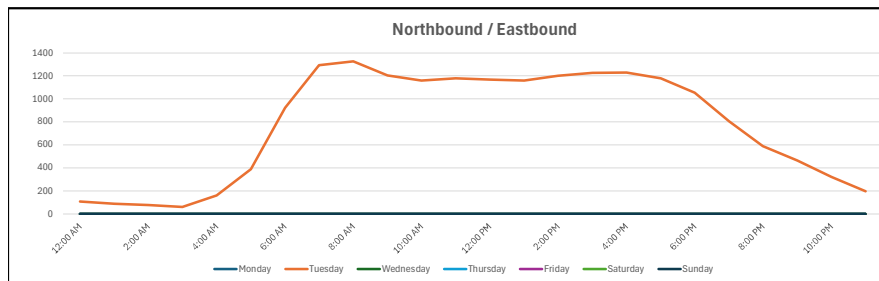
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	130	134	264	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	89	108	197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	82	96	178	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	87	99	186	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	162	171	333	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	368	370	738	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	900	653	1553	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	1375	1023	2398	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	1438	1065	2503	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	1281	981	2262	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	1193	1053	2246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	1158	1087	2245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	1176	1267	2443	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	1182	1263	2445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	1209	1301	2510	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1392	1408	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1384	1503	2887	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1328	1503	2831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	1100	1148	2248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	842	1030	1872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	640	760	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	515	583	1098	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	333	398	731	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	215	231	446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	3713	2741	6454	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	4104	4414	8518	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	16116	15255	31371	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	19579	19235	38814	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	50.4%	49.6%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-	-	8:00 AM	9:00 AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	4:00 PM	5:00 PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vehicle Volume Report - Hourly

Site Description: GRANT RD E.O FREMONT AVE
 Site Number: 28
 Start Date: 3/26/2024
 End Date: 3/26/2024

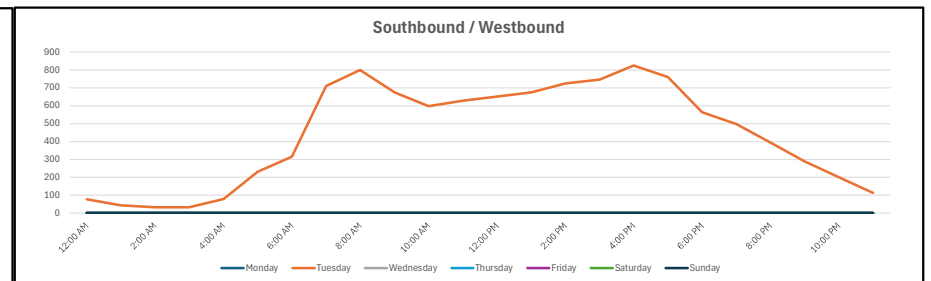
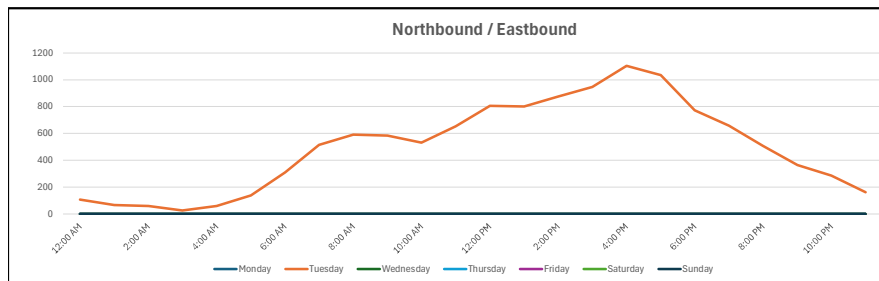
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	109	124	233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	87	93	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	77	86	163	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	62	69	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	161	142	303	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	390	332	722	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	923	556	1479	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	1292	891	2183	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	1326	889	2215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	1204	832	2036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	1159	892	2051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	1179	915	2094	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	1168	977	2145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	1160	988	2148	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	1202	1045	2247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1226	1121	2347	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1229	1111	2340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1179	1057	2236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	1054	908	1962	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	807	828	1635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	590	661	1251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	465	403	868	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	323	271	594	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	198	159	357	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	3541	2336	5877	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3634	3289	6923	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	15301	12182	27483	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	18570	15350	33920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	54.7%	45.3%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-	-	8:00 AM	9:00 AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	3:00 PM	4:00 PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vehicle Volume Report - Hourly

Site Description: EUCLID AVE N.O EDISON ST
 Site Number: 29
 Start Date: 3/26/2024
 End Date: 3/26/2024

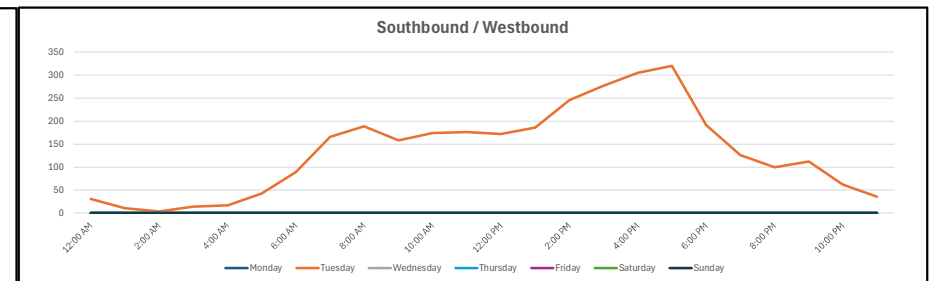
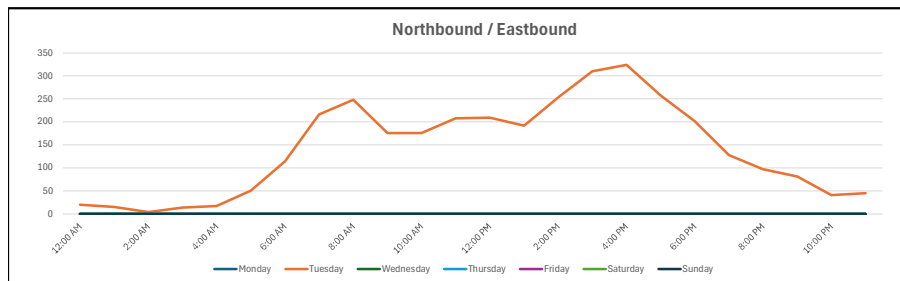
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	106	77	183	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	66	43	109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	59	32	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	26	33	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	60	79	139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	139	231	370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	309	316	625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	515	711	1226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	592	800	1392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	585	675	1260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	532	598	1130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	653	628	1281	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	805	651	1456	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	801	675	1476	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	874	725	1599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	945	747	1692	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1104	825	1929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1034	760	1794	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	772	563	1335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	658	497	1155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	508	394	902	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	364	288	652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	286	200	486	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	161	114	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1416	1827	3243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3083	2332	5415	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	9521	8674	18195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	11954	10662	22616	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	52.9%	47.1%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Volume Report - Hourly

Site Description: GLENN ST E/O LOS ALTOS AVE
 Site Number: 30
 Start Date: 3/26/2024
 End Date: 3/26/2024

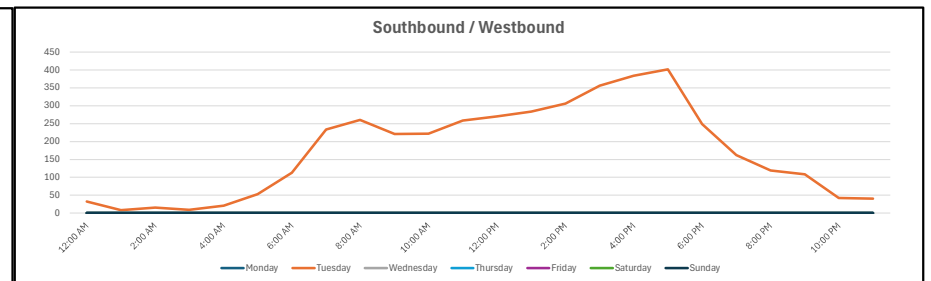
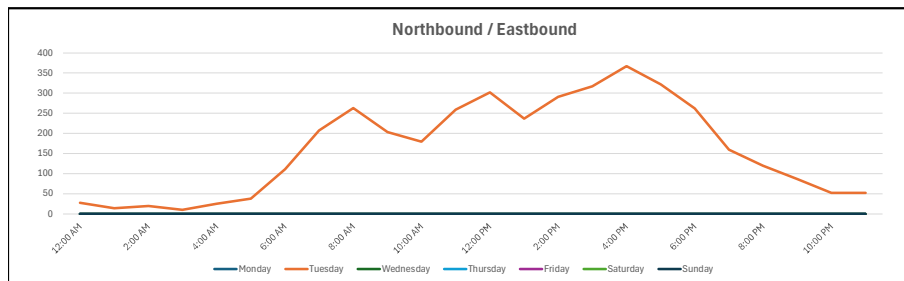
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	20	31	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	15	11	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	4	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	14	14	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	17	17	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	51	43	94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	115	89	204	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	216	166	382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	248	189	437	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	176	158	334	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	176	174	350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	208	176	384	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	209	172	381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	192	186	378	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	253	246	499	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	310	277	587	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	324	305	629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	257	320	577	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	202	192	394	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	128	126	254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	97	100	197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	81	112	193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	41	62	103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	45	36	81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	579	444	1023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	891	902	1793	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	2886	2650	5536	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	3399	3206	6605	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	51.5%	48.5%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Volume Report - Hourly

Site Description: GLENN ST E/O EUCLID AVE
 Site Number: 31
 Start Date: 3/26/2024
 End Date: 3/26/2024

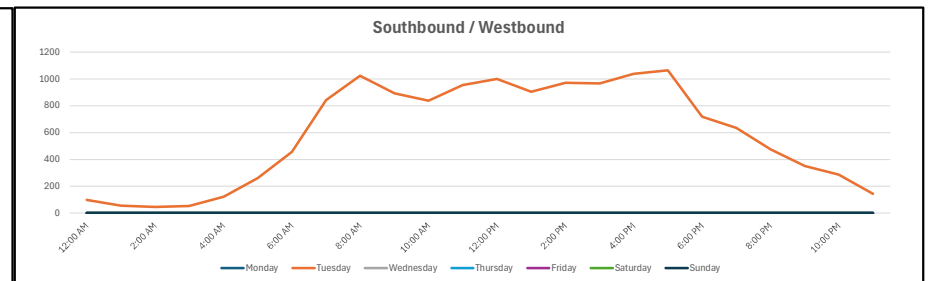
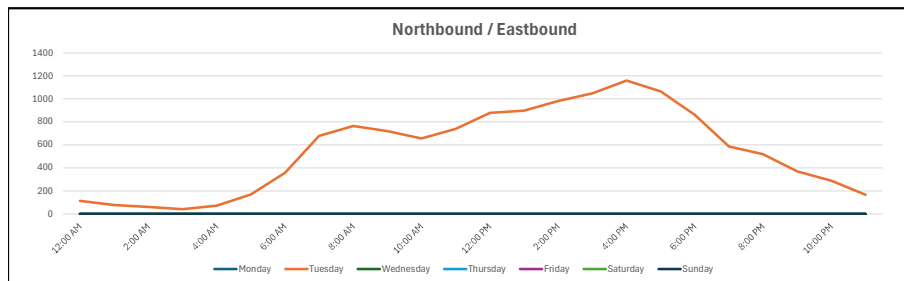
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	28	33	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	14	8	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	20	15	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	10	9	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	25	21	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	38	53	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	111	113	224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	207	234	441	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	263	261	524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	203	221	424	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	179	222	401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	259	259	518	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	302	270	572	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	237	284	521	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	291	306	597	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	317	356	673	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	367	384	751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	322	402	724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	262	249	511	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	160	162	322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	120	119	239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	87	109	196	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	52	42	94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	52	40	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	581	608	1189	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	1006	1142	2148	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	3320	3561	6881	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	3926	4172	8098	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	48.5%	51.5%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Volume Report - Hourly

Site Description: 1ST AVE S.O LAGUNA ST
Site Number: 32
Start Date: 3/26/2024
End Date: 3/26/2024

Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	112	99	211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	78	55	133	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	60	47	107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	42	54	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	72	123	195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	169	262	431	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	358	457	815	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	677	843	1520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	763	1025	1788	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	720	894	1614	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	656	837	1493	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	738	954	1692	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	878	1001	1879	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	899	904	1803	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	982	972	1954	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1049	966	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1160	1038	2198	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1066	1064	2130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	863	719	1582	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	588	636	1224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	521	476	997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	369	351	720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	288	287	575	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	165	143	308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1798	2325	4123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3275	3068	6343	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	10809	11674	22483	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	13273	14207	27480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	48.3%	51.7%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-	-	8:00 AM	9:00 AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	4:00 PM	5:00 PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



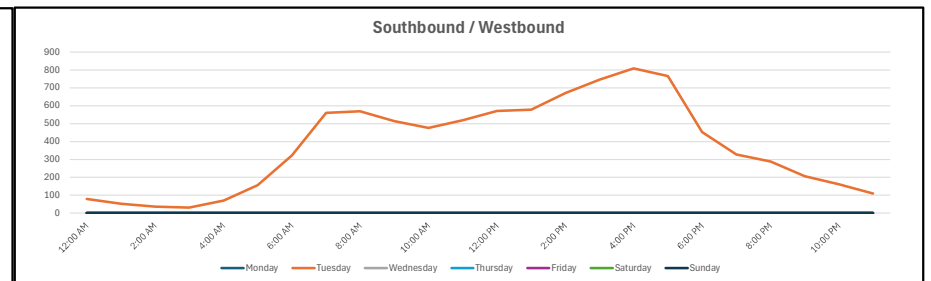
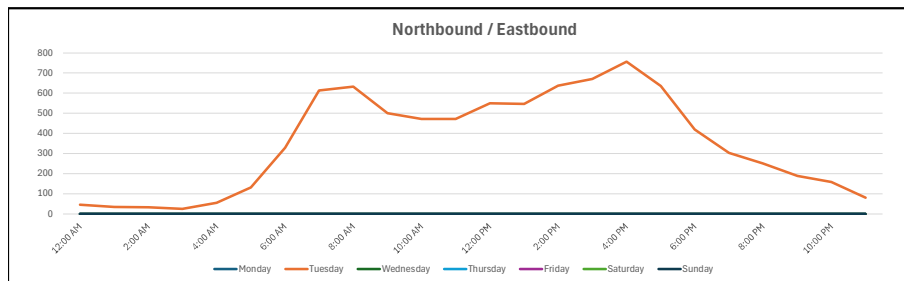
Site Code: 33
1ST AVE N.O HALCYON RD

Start Time	26-Mar-24 Tue	NB	SB	Total
12:00 AM		114	94	208
01:00		83	57	140
02:00		63	41	104
03:00		46	61	107
04:00		77	121	198
05:00		201	274	475
06:00		431	508	939
07:00		828	1073	1901
08:00		911	1234	2145
09:00		808	1032	1840
10:00		828	1028	1856
11:00		889	1339	2228
12:00 PM		1030	1316	2346
01:00		1083	1119	2202
02:00		1250	1139	2389
03:00		1313	1206	2519
04:00		1366	1306	2672
05:00		1354	1229	2583
06:00		971	898	1869
07:00		664	770	1434
08:00		563	562	1125
09:00		414	411	825
10:00		331	308	639
11:00		181	162	343
Total		15799	17288	33087
Percent		47.7%	52.3%	
AM Peak	-	08:00	11:00	-
Vol.	-	911	1339	-
PM Peak	-	16:00	12:00	-
Vol.	-	1366	1316	-
Grand Total		15799	17288	33087
Percent		47.7%	52.3%	
ADT		ADT 33,087	AADT 33,087	

Vehicle Volume Report - Hourly

Site Description: FORT LOWELL RD E.O LOS ALTOS AVE
 Site Number: 34
 Start Date: 3/26/2024
 End Date: 3/26/2024

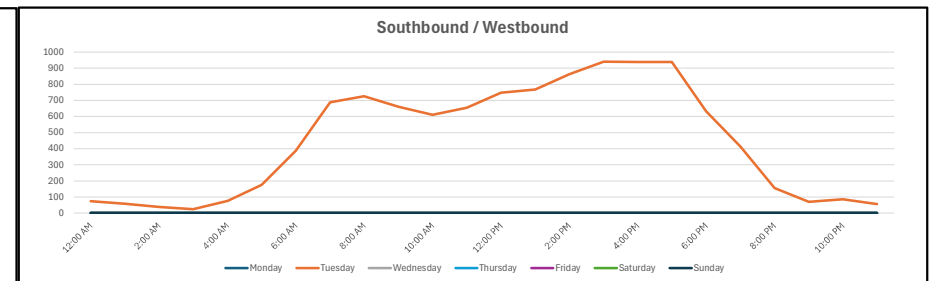
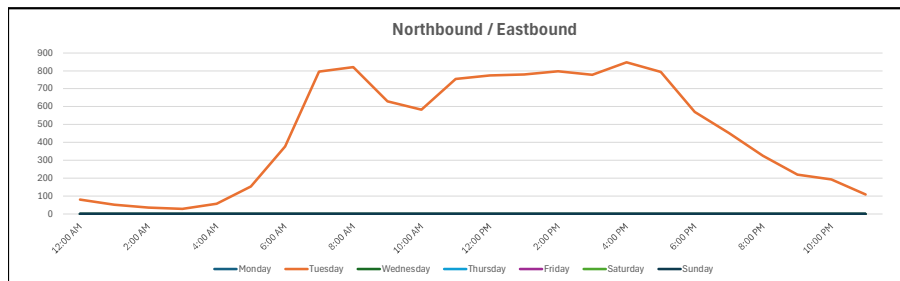
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	46	79	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	34	52	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	33	37	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	25	31	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	56	70	126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	131	156	287	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	329	323	652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	613	560	1173	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	633	569	1202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	501	513	1014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	472	477	949	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	472	520	992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	549	571	1120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	546	579	1125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	638	672	1310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	670	747	1417	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	756	809	1565	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	636	766	1402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	419	454	873	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	303	329	632	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	251	289	540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	189	207	396	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	159	161	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	80	110	190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1575	1452	3027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	2062	2322	4384	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	7234	7560	14794	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	8541	9081	17622	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	48.5%	51.5%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-							
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-							



Vehicle Volume Report - Hourly

Site Description: FORT LOWELL RD E.O 1ST AVE
 Site Number: 35
 Start Date: 3/26/2024
 End Date: 3/26/2024

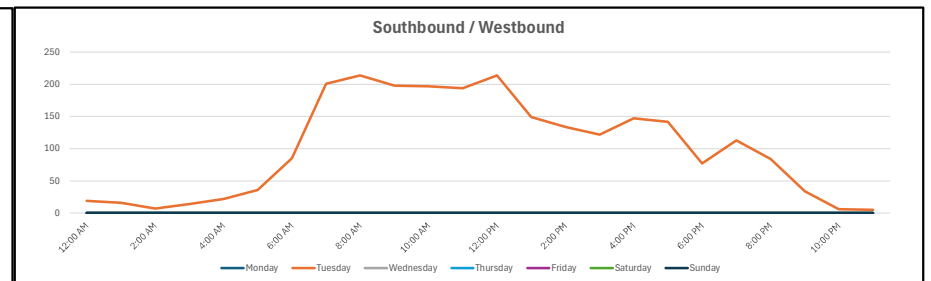
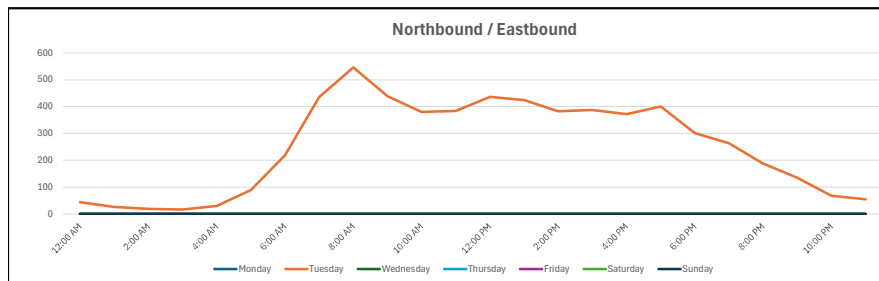
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	81	74	155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	51	59	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	36	39	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	28	25	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	57	77	134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	154	175	329	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	377	388	765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	795	689	1484	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	820	726	1546	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	630	660	1290	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	582	611	1193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	755	655	1410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	774	747	1521	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	779	767	1546	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	797	863	1660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	778	941	1719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	847	940	1787	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	794	939	1733	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	570	632	1202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	453	414	867	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	325	157	482	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	219	70	289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	192	86	278	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	109	57	166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1992	1803	3795	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	2419	2820	5239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	9298	9558	18856	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	11003	10791	21794	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	50.5%	49.5%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-							
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-							



Vehicle Volume Report - Hourly

Site Description: PRINCE RD W.O EUCLID AVE
 Site Number: 36
 Start Date: 3/26/2024
 End Date: 3/26/2024

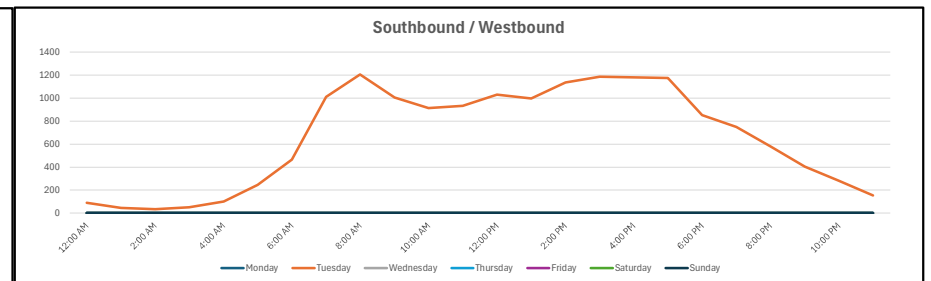
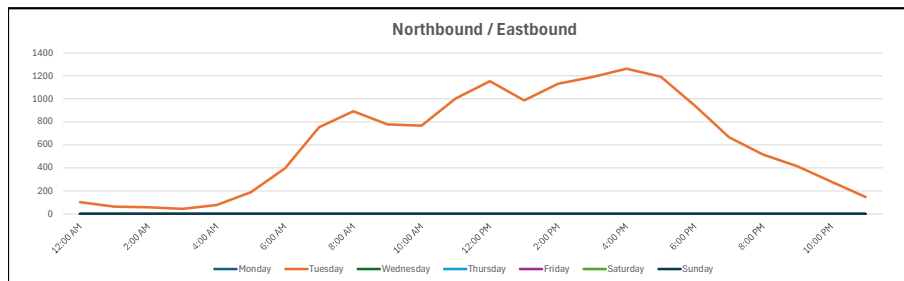
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	44	19	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	26	16	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	19	7	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	16	14	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	30	22	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	89	36	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	219	85	304	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	435	201	636	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	546	214	760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	439	198	637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	380	197	577	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	384	194	578	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	436	214	650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	424	149	573	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	383	134	517	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	387	122	509	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	372	147	519	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	400	142	542	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	302	77	379	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	263	113	376	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	188	84	272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	135	34	169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	67	6	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	55	5	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1200	500	1700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	1159	411	1570	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	5107	2074	7181	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	6039	2430	8469	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	71.3%	28.7%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		12:00 PM	1:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Volume Report - Hourly

Site Description: 1ST AVE S.O PASTIME RD
 Site Number: 37
 Start Date: 3/26/2024
 End Date: 3/26/2024

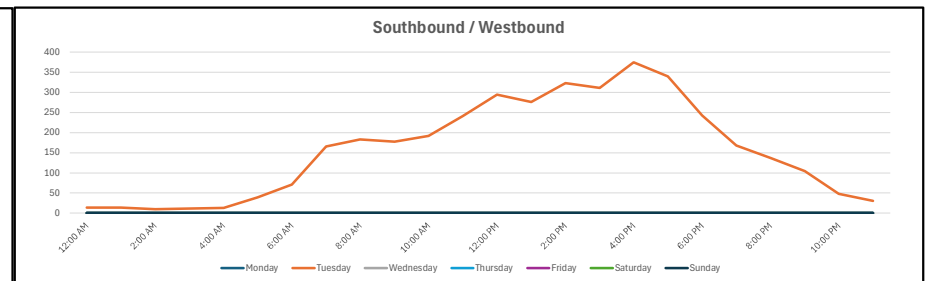
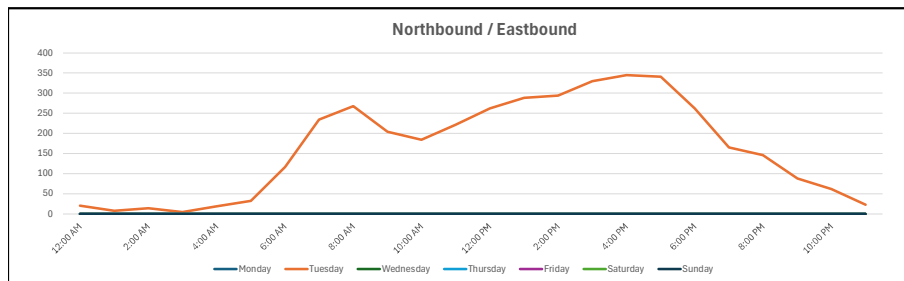
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	103	91	194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	62	45	107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	57	33	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	44	51	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	78	101	179	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	189	247	436	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	399	467	866	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	754	1011	1765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	893	1205	2098	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	779	1005	1784	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	768	914	1682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	1004	934	1938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	1155	1029	2184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	986	998	1984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	1131	1137	2268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	1192	1187	2379	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	1262	1180	2442	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	1193	1176	2369	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	944	853	1797	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	667	750	1417	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	518	579	1097	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	413	405	818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	280	281	561	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	146	155	301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	2046	2683	4729	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	3647	3543	7190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	12460	13096	25556	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	15017	15834	30851	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	48.7%	51.3%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Volume Report - Hourly

Site Description: ROGER RD W.O 1ST AVE
 Site Number: 38
 Start Date: 3/26/2024
 End Date: 3/26/2024

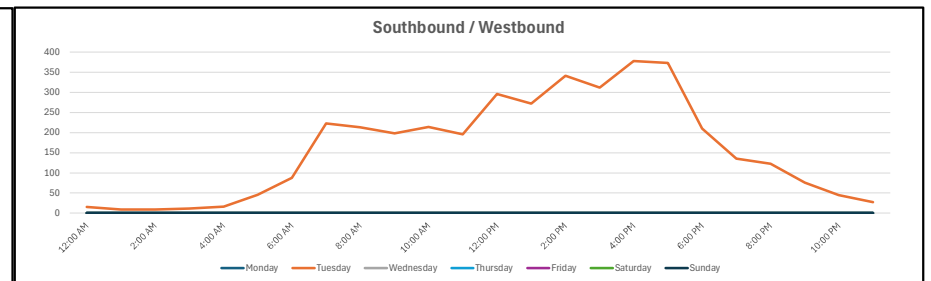
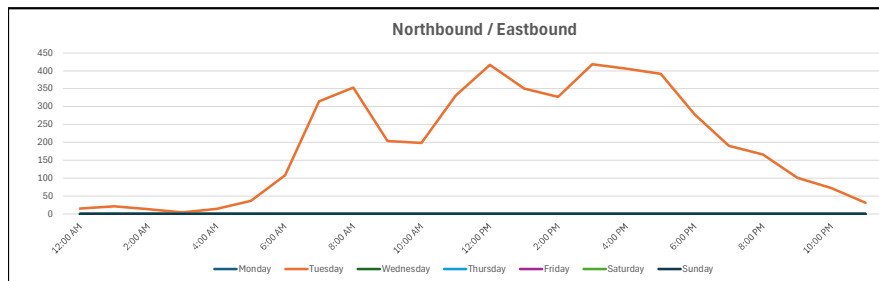
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	21	14	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	8	14	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	14	10	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	5	11	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	19	13	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	33	39	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	117	71	188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	234	166	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	268	183	451	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	204	178	382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	184	192	376	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	222	241	463	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	262	294	556	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	288	276	564	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	294	323	617	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	330	311	641	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	345	375	720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	341	340	681	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	262	243	505	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	165	168	333	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	146	137	283	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	88	104	192	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	62	48	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	23	31	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	619	420	1039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	1016	1026	2042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	3351	3193	6544	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	3935	3782	7717	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	51.0%	49.0%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		11:00 AM	12:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Volume Report - Hourly

Site Description: ROGER RD E.O 1ST AVE
Site Number: 39
Start Date: 3/26/2024
End Date: 3/26/2024

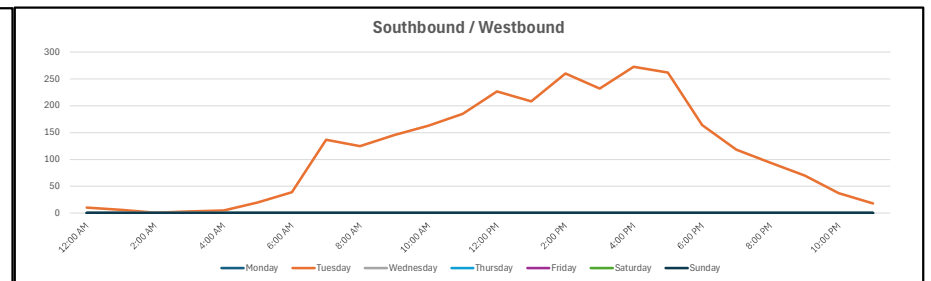
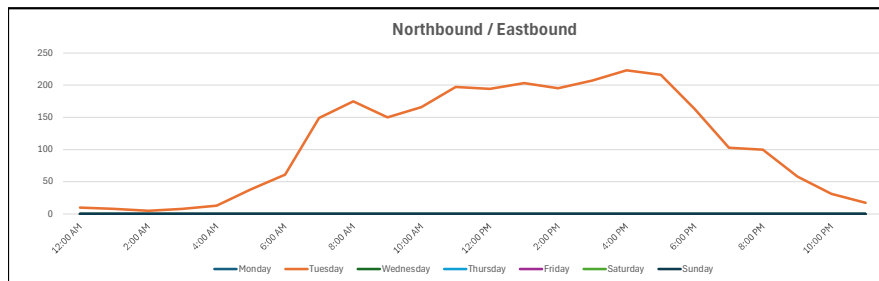
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	15	15	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	21	9	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	13	9	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	4	11	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	14	16	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	37	46	83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	108	88	196	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	314	223	537	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	353	213	566	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	204	198	402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	198	214	412	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	331	196	527	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	417	296	713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	350	272	622	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	327	341	668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	418	312	730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	406	378	784	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	392	373	765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	278	210	488	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	190	135	325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	166	123	289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	101	76	177	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	72	45	117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	31	27	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	775	524	1299	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	1216	1063	2279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	4096	3314	7410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	4760	3826	8586	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	55.4%	44.6%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	



Vehicle Volume Report - Hourly

Site Description: LIMBERLOST DR W.O 1ST AVE
 Site Number: 40
 Start Date: 3/26/2024
 End Date: 3/26/2024

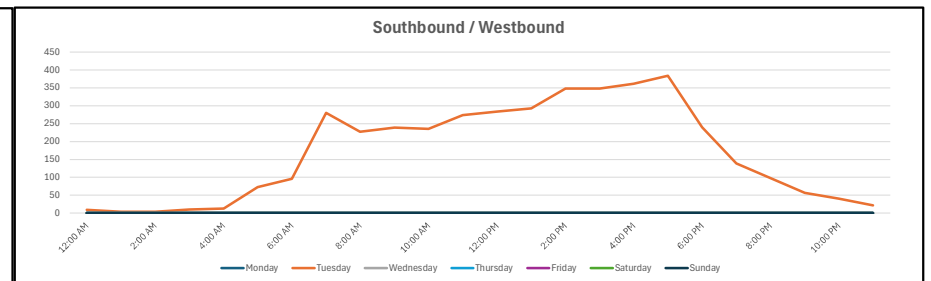
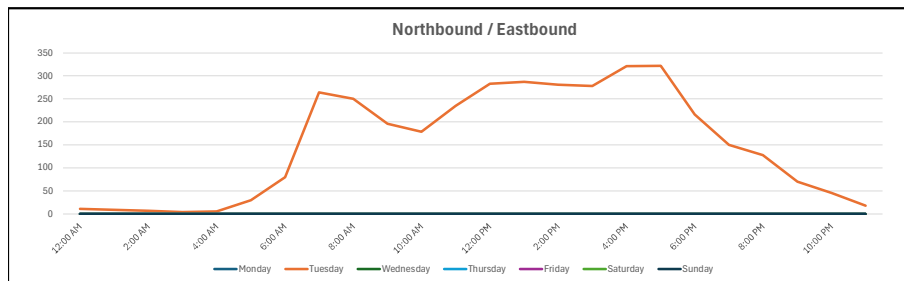
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	10	10	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	8	6	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	5	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	8	3	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	13	5	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	38	20	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	61	39	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	149	137	286	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	175	125	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	150	146	296	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	166	163	329	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	197	185	382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	194	227	421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	203	208	411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	195	260	455	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	207	232	439	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	223	273	496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	216	262	478	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	163	164	327	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	103	118	221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	100	94	194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	58	70	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	31	37	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	17	18	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	385	301	686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	646	767	1413	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	2299	2421	4720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	2690	2803	5493	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	49.0%	51.0%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		11:00 AM	12:00 PM		-	-		-	-		-	-		-	-		-	-							
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-							



Vehicle Volume Report - Hourly

Site Description: LIMBERLOST DR E.O 1ST AVE
 Site Number: 41
 Start Date: 3/26/2024
 End Date: 3/26/2024

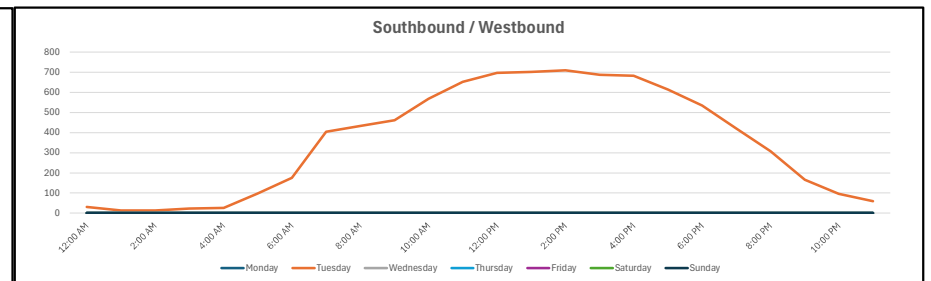
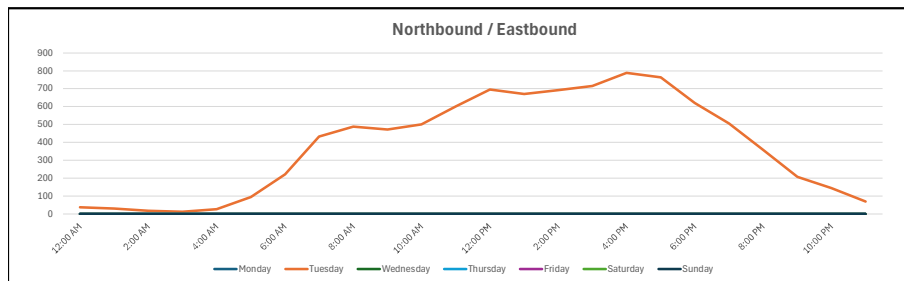
Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	11	9	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	9	4	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	7	4	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	4	10	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	5	13	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	30	73	103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	80	96	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	264	280	544	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	250	228	478	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	196	239	435	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	179	236	415	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	235	274	509	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	283	284	567	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	287	293	580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	281	348	629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	278	348	626	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	321	362	683	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	322	384	706	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	216	240	456	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	150	139	289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	128	98	226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	70	57	127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	46	41	87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	18	22	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	594	604	1198	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	921	1094	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	3192	3612	6804	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	3670	4082	7752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	47.3%	52.7%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		7:00 AM	8:00 AM		-	-		-	-		-	-		-	-		-	-							
PM Peak	-	-		5:00 PM	6:00 PM		-	-		-	-		-	-		-	-		-	-							



Vehicle Volume Report - Hourly

Site Description: WETMORE RD W.O 1ST AVE
 Site Number: 42
 Start Date: 3/26/2024
 End Date: 3/26/2024

Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	37	30	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	29	13	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	18	13	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	13	22	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	26	26	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	94	97	191	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	221	176	397	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	432	405	837	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	488	433	921	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	472	462	934	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	500	568	1068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	601	652	1253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	696	698	1394	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	670	701	1371	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	692	709	1401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	715	687	1402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	789	683	1472	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	763	615	1378	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	621	535	1156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	506	420	926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	359	307	666	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	208	166	374	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	144	96	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	70	59	129	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1141	1014	2155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	2267	1985	4252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	7660	7324	14984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	9164	8573	17737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	51.7%	48.3%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		11:00 AM	12:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		4:00 PM	5:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	





All Traffic Data Services

SITE 17_E - RIVER RD EAST OF 1ST AVE

Time	EB	WB	Total
3/26/2024	17	16	33
3/26/2024 12:15:00 AM	11	20	31
3/26/2024 12:30:00 AM	16	22	38
3/26/2024 12:45:00 AM	19	12	31
3/26/2024 1:00:00 AM	16	17	33
3/26/2024 1:15:00 AM	12	6	18
3/26/2024 1:30:00 AM	14	13	27
3/26/2024 1:45:00 AM	5	12	17
3/26/2024 2:00:00 AM	8	11	19
3/26/2024 2:15:00 AM	9	9	18
3/26/2024 2:30:00 AM	6	10	16
3/26/2024 2:45:00 AM	13	14	27
3/26/2024 3:00:00 AM	7	14	21
3/26/2024 3:15:00 AM	6	10	16
3/26/2024 3:30:00 AM	10	10	20
3/26/2024 3:45:00 AM	14	21	35
3/26/2024 4:00:00 AM	15	14	29
3/26/2024 4:15:00 AM	16	26	42
3/26/2024 4:30:00 AM	31	24	55
3/26/2024 4:45:00 AM	32	32	64
3/26/2024 5:00:00 AM	51	42	93
3/26/2024 5:15:00 AM	59	59	118
3/26/2024 5:30:00 AM	88	79	167
3/26/2024 5:45:00 AM	130	111	241
3/26/2024 6:00:00 AM	97	81	178
3/26/2024 6:15:00 AM	193	124	317
3/26/2024 6:30:00 AM	272	196	468
3/26/2024 6:45:00 AM	249	240	489
3/26/2024 7:00:00 AM	270	242	512
3/26/2024 7:15:00 AM	356	282	638
3/26/2024 7:30:00 AM	365	376	741
3/26/2024 7:45:00 AM	348	392	740
3/26/2024 8:00:00 AM	325	366	691
3/26/2024 8:15:00 AM	335	347	682
3/26/2024 8:30:00 AM	293	369	662
3/26/2024 8:45:00 AM	319	390	709
3/26/2024 9:00:00 AM	268	329	597
3/26/2024 9:15:00 AM	283	305	588
3/26/2024 9:30:00 AM	284	305	589
3/26/2024 9:45:00 AM	278	310	588
3/26/2024 10:00:00 AM	266	264	530
3/26/2024 10:15:00 AM	294	309	603
3/26/2024 10:30:00 AM	347	311	658
3/26/2024 10:45:00 AM	300	392	692
3/26/2024 11:00:00 AM	304	351	655
3/26/2024 11:15:00 AM	327	394	721
3/26/2024 11:30:00 AM	297	334	631
3/26/2024 11:45:00 AM	351	384	735
Total	7,626	7,997	15,623
Percentage	48.8%	51.2%	
Peak Hour	7:15 AM	7:30 AM	7:30 AM
Volume	1,394	1,481	2,854
PHF	0.955	0.945	0.963



All Traffic Data Services

SITE 17_E - RIVER RD EAST OF 1ST AVE

Time	EB	WB	Total
3/26/2024 12:00:00 PM	301	352	653
3/26/2024 12:15:00 PM	301	366	667
3/26/2024 12:30:00 PM	358	366	724
3/26/2024 12:45:00 PM	315	372	687
3/26/2024 1:00:00 PM	281	357	638
3/26/2024 1:15:00 PM	343	358	701
3/26/2024 1:30:00 PM	304	420	724
3/26/2024 1:45:00 PM	273	367	640
3/26/2024 2:00:00 PM	274	421	695
3/26/2024 2:15:00 PM	317	377	694
3/26/2024 2:30:00 PM	341	372	713
3/26/2024 2:45:00 PM	334	421	755
3/26/2024 3:00:00 PM	303	376	679
3/26/2024 3:15:00 PM	347	421	768
3/26/2024 3:30:00 PM	341	410	751
3/26/2024 3:45:00 PM	308	443	751
3/26/2024 4:00:00 PM	322	425	747
3/26/2024 4:15:00 PM	301	414	715
3/26/2024 4:30:00 PM	327	385	712
3/26/2024 4:45:00 PM	364	471	835
3/26/2024 5:00:00 PM	331	515	846
3/26/2024 5:15:00 PM	357	517	874
3/26/2024 5:30:00 PM	296	449	745
3/26/2024 5:45:00 PM	272	434	706
3/26/2024 6:00:00 PM	255	310	565
3/26/2024 6:15:00 PM	294	268	562
3/26/2024 6:30:00 PM	249	256	505
3/26/2024 6:45:00 PM	249	253	502
3/26/2024 7:00:00 PM	224	213	437
3/26/2024 7:15:00 PM	212	221	433
3/26/2024 7:30:00 PM	198	232	430
3/26/2024 7:45:00 PM	185	209	394
3/26/2024 8:00:00 PM	177	187	364
3/26/2024 8:15:00 PM	163	179	342
3/26/2024 8:30:00 PM	124	150	274
3/26/2024 8:45:00 PM	134	123	257
3/26/2024 9:00:00 PM	115	107	222
3/26/2024 9:15:00 PM	105	123	228
3/26/2024 9:30:00 PM	97	93	190
3/26/2024 9:45:00 PM	82	86	168
3/26/2024 10:00:00 PM	94	73	167
3/26/2024 10:15:00 PM	75	70	145
3/26/2024 10:30:00 PM	56	57	113
3/26/2024 10:45:00 PM	47	46	93
3/26/2024 11:00:00 PM	50	39	89
3/26/2024 11:15:00 PM	43	44	87
3/26/2024 11:30:00 PM	25	30	55
3/26/2024 11:45:00 PM	28	30	58
Total	10,892	13,208	24,100
Percentage	45.2%	54.8%	
Peak Hour	4:30 PM	4:45 PM	4:45 PM
Volume	1,379	1,952	3,300
PHF	0.947	0.944	0.944
Grand Total	18,518	21,205	39,723
Percentage	46.6%	53.4%	



All Traffic Data Services

SITE 17_W - RIVER RD WEST OF 1ST AVE

Time	EB	WB	Total
3/26/2024	15	13	28
3/26/2024 12:15:00 AM	18	20	38
3/26/2024 12:30:00 AM	17	22	39
3/26/2024 12:45:00 AM	23	16	39
3/26/2024 1:00:00 AM	17	20	37
3/26/2024 1:15:00 AM	10	7	17
3/26/2024 1:30:00 AM	12	9	21
3/26/2024 1:45:00 AM	6	12	18
3/26/2024 2:00:00 AM	5	10	15
3/26/2024 2:15:00 AM	7	8	15
3/26/2024 2:30:00 AM	7	11	18
3/26/2024 2:45:00 AM	15	12	27
3/26/2024 3:00:00 AM	7	12	19
3/26/2024 3:15:00 AM	8	8	16
3/26/2024 3:30:00 AM	6	12	18
3/26/2024 3:45:00 AM	14	15	29
3/26/2024 4:00:00 AM	17	20	37
3/26/2024 4:15:00 AM	19	26	45
3/26/2024 4:30:00 AM	31	22	53
3/26/2024 4:45:00 AM	32	28	60
3/26/2024 5:00:00 AM	35	33	68
3/26/2024 5:15:00 AM	47	54	101
3/26/2024 5:30:00 AM	60	61	121
3/26/2024 5:45:00 AM	98	90	188
3/26/2024 6:00:00 AM	72	75	147
3/26/2024 6:15:00 AM	144	121	265
3/26/2024 6:30:00 AM	221	184	405
3/26/2024 6:45:00 AM	194	187	381
3/26/2024 7:00:00 AM	186	216	402
3/26/2024 7:15:00 AM	284	218	502
3/26/2024 7:30:00 AM	293	256	549
3/26/2024 7:45:00 AM	270	286	556
3/26/2024 8:00:00 AM	276	276	552
3/26/2024 8:15:00 AM	294	225	519
3/26/2024 8:30:00 AM	265	258	523
3/26/2024 8:45:00 AM	282	281	563
3/26/2024 9:00:00 AM	237	221	458
3/26/2024 9:15:00 AM	220	259	479
3/26/2024 9:30:00 AM	246	254	500
3/26/2024 9:45:00 AM	194	240	434
3/26/2024 10:00:00 AM	207	208	415
3/26/2024 10:15:00 AM	244	231	475
3/26/2024 10:30:00 AM	254	246	500
3/26/2024 10:45:00 AM	237	276	513
3/26/2024 11:00:00 AM	243	263	506
3/26/2024 11:15:00 AM	250	305	555
3/26/2024 11:30:00 AM	263	243	506
3/26/2024 11:45:00 AM	285	297	582
Total	6,187	6,167	12,354
Percentage	50.1%	49.9%	
Peak Hour	7:30 AM	11:00 AM	7:30 AM
Volume	1,133	1,108	2,176
PHF	0.963	0.908	0.978



All Traffic Data Services

SITE 17_W - RIVER RD WEST OF 1ST AVE

Time	EB	WB	Total
3/26/2024 12:00:00 PM	258	263	521
3/26/2024 12:15:00 PM	240	284	524
3/26/2024 12:30:00 PM	277	285	562
3/26/2024 12:45:00 PM	270	296	566
3/26/2024 1:00:00 PM	221	286	507
3/26/2024 1:15:00 PM	272	272	544
3/26/2024 1:30:00 PM	261	305	566
3/26/2024 1:45:00 PM	228	281	509
3/26/2024 2:00:00 PM	245	304	549
3/26/2024 2:15:00 PM	252	283	535
3/26/2024 2:30:00 PM	272	295	567
3/26/2024 2:45:00 PM	299	343	642
3/26/2024 3:00:00 PM	251	282	533
3/26/2024 3:15:00 PM	278	332	610
3/26/2024 3:30:00 PM	269	290	559
3/26/2024 3:45:00 PM	274	317	591
3/26/2024 4:00:00 PM	288	339	627
3/26/2024 4:15:00 PM	272	345	617
3/26/2024 4:30:00 PM	259	306	565
3/26/2024 4:45:00 PM	298	338	636
3/26/2024 5:00:00 PM	277	371	648
3/26/2024 5:15:00 PM	310	368	678
3/26/2024 5:30:00 PM	227	320	547
3/26/2024 5:45:00 PM	239	336	575
3/26/2024 6:00:00 PM	225	236	461
3/26/2024 6:15:00 PM	232	228	460
3/26/2024 6:30:00 PM	187	220	407
3/26/2024 6:45:00 PM	181	182	363
3/26/2024 7:00:00 PM	184	169	353
3/26/2024 7:15:00 PM	170	176	346
3/26/2024 7:30:00 PM	175	165	340
3/26/2024 7:45:00 PM	158	164	322
3/26/2024 8:00:00 PM	136	148	284
3/26/2024 8:15:00 PM	113	160	273
3/26/2024 8:30:00 PM	103	112	215
3/26/2024 8:45:00 PM	112	102	214
3/26/2024 9:00:00 PM	90	96	186
3/26/2024 9:15:00 PM	97	95	192
3/26/2024 9:30:00 PM	84	74	158
3/26/2024 9:45:00 PM	71	70	141
3/26/2024 10:00:00 PM	80	67	147
3/26/2024 10:15:00 PM	70	60	130
3/26/2024 10:30:00 PM	47	46	93
3/26/2024 10:45:00 PM	43	36	79
3/26/2024 11:00:00 PM	47	45	92
3/26/2024 11:15:00 PM	36	41	77
3/26/2024 11:30:00 PM	20	30	50
3/26/2024 11:45:00 PM	29	26	55
Total	9,027	10,189	19,216
Percentage	47.0%	53.0%	
Peak Hour	4:30 PM	4:45 PM	4:30 PM
Volume	1,144	1,397	2,527
PHF	0.923	0.941	0.932
Grand Total	15,214	16,356	31,570
Percentage	48.2%	51.8%	



All Traffic Data Services

SITE 17_N - 1ST AVE NORTH OF RIVER RD

Time	NB	SB	Total
3/26/2024	17	11	28
3/26/2024 12:15:00 AM	14	3	17
3/26/2024 12:30:00 AM	12	4	16
3/26/2024 12:45:00 AM	7	4	11
3/26/2024 1:00:00 AM	6	2	8
3/26/2024 1:15:00 AM	8	7	15
3/26/2024 1:30:00 AM	5	4	9
3/26/2024 1:45:00 AM	6	1	7
3/26/2024 2:00:00 AM	5	3	8
3/26/2024 2:15:00 AM	3	2	5
3/26/2024 2:30:00 AM	4	3	7
3/26/2024 2:45:00 AM	5	2	7
3/26/2024 3:00:00 AM	6	3	9
3/26/2024 3:15:00 AM	6	1	7
3/26/2024 3:30:00 AM	5	10	15
3/26/2024 3:45:00 AM	9	11	20
3/26/2024 4:00:00 AM	11	8	19
3/26/2024 4:15:00 AM	14	8	22
3/26/2024 4:30:00 AM	15	21	36
3/26/2024 4:45:00 AM	15	19	34
3/26/2024 5:00:00 AM	24	38	62
3/26/2024 5:15:00 AM	32	38	70
3/26/2024 5:30:00 AM	66	59	125
3/26/2024 5:45:00 AM	56	83	139
3/26/2024 6:00:00 AM	45	68	113
3/26/2024 6:15:00 AM	68	98	166
3/26/2024 6:30:00 AM	110	147	257
3/26/2024 6:45:00 AM	152	168	320
3/26/2024 7:00:00 AM	142	222	364
3/26/2024 7:15:00 AM	183	251	434
3/26/2024 7:30:00 AM	271	297	568
3/26/2024 7:45:00 AM	266	312	578
3/26/2024 8:00:00 AM	235	293	528
3/26/2024 8:15:00 AM	259	271	530
3/26/2024 8:30:00 AM	216	312	528
3/26/2024 8:45:00 AM	238	288	526
3/26/2024 9:00:00 AM	198	246	444
3/26/2024 9:15:00 AM	195	269	464
3/26/2024 9:30:00 AM	213	225	438
3/26/2024 9:45:00 AM	213	245	458
3/26/2024 10:00:00 AM	187	209	396
3/26/2024 10:15:00 AM	212	220	432
3/26/2024 10:30:00 AM	194	284	478
3/26/2024 10:45:00 AM	207	271	478
3/26/2024 11:00:00 AM	238	234	472
3/26/2024 11:15:00 AM	254	261	515
3/26/2024 11:30:00 AM	237	225	462
3/26/2024 11:45:00 AM	248	250	498
Total	5,132	6,011	11,143
Percentage	46.1%	53.9%	
Peak Hour	7:30 AM	7:45 AM	7:30 AM
Volume	1,031	1,188	2,206
PHF	0.951	0.952	0.954



All Traffic Data Services

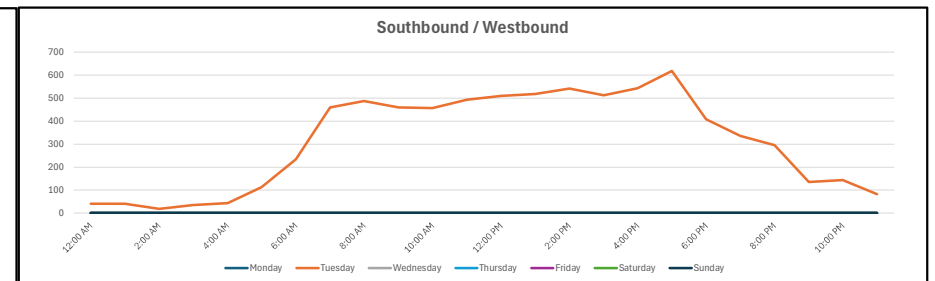
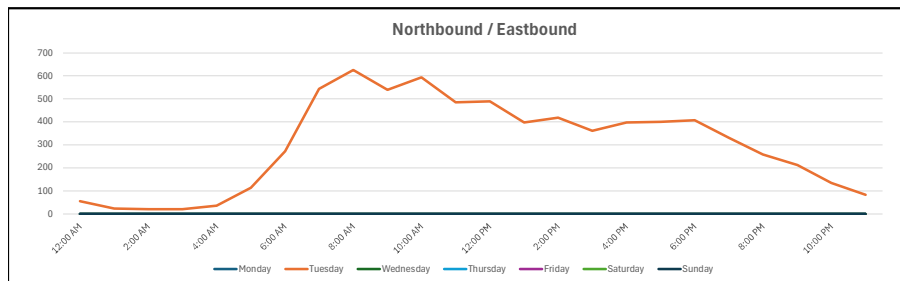
SITE 17_N - 1ST AVE NORTH OF RIVER RD

Time	NB	SB	Total
3/26/2024 12:00:00 PM	243	243	486
3/26/2024 12:15:00 PM	239	243	482
3/26/2024 12:30:00 PM	267	229	496
3/26/2024 12:45:00 PM	250	250	500
3/26/2024 1:00:00 PM	249	237	486
3/26/2024 1:15:00 PM	272	240	512
3/26/2024 1:30:00 PM	315	255	570
3/26/2024 1:45:00 PM	272	219	491
3/26/2024 2:00:00 PM	278	223	501
3/26/2024 2:15:00 PM	292	256	548
3/26/2024 2:30:00 PM	313	268	581
3/26/2024 2:45:00 PM	269	243	512
3/26/2024 3:00:00 PM	278	280	558
3/26/2024 3:15:00 PM	312	270	582
3/26/2024 3:30:00 PM	325	270	595
3/26/2024 3:45:00 PM	356	253	609
3/26/2024 4:00:00 PM	327	208	535
3/26/2024 4:15:00 PM	312	266	578
3/26/2024 4:30:00 PM	349	246	595
3/26/2024 4:45:00 PM	379	236	615
3/26/2024 5:00:00 PM	380	240	620
3/26/2024 5:15:00 PM	357	273	630
3/26/2024 5:30:00 PM	360	228	588
3/26/2024 5:45:00 PM	310	222	532
3/26/2024 6:00:00 PM	261	165	426
3/26/2024 6:15:00 PM	231	191	422
3/26/2024 6:30:00 PM	221	160	381
3/26/2024 6:45:00 PM	201	156	357
3/26/2024 7:00:00 PM	181	144	325
3/26/2024 7:15:00 PM	163	119	282
3/26/2024 7:30:00 PM	152	101	253
3/26/2024 7:45:00 PM	144	83	227
3/26/2024 8:00:00 PM	118	100	218
3/26/2024 8:15:00 PM	99	107	206
3/26/2024 8:30:00 PM	100	85	185
3/26/2024 8:45:00 PM	69	64	133
3/26/2024 9:00:00 PM	80	75	155
3/26/2024 9:15:00 PM	86	57	143
3/26/2024 9:30:00 PM	73	52	125
3/26/2024 9:45:00 PM	60	38	98
3/26/2024 10:00:00 PM	43	50	93
3/26/2024 10:15:00 PM	48	31	79
3/26/2024 10:30:00 PM	41	37	78
3/26/2024 10:45:00 PM	36	19	55
3/26/2024 11:00:00 PM	29	23	52
3/26/2024 11:15:00 PM	24	13	37
3/26/2024 11:30:00 PM	12	11	23
3/26/2024 11:45:00 PM	17	11	28
Total	9,793	7,790	17,583
Percentage	55.7%	44.3%	
Peak Hour	4:45 PM	3:00 PM	4:30 PM
Volume	1,477	1,074	2,462
PHF	0.972	0.959	0.977
Grand Total	14,925	13,801	28,726
Percentage	52.0%	48.0%	

Vehicle Volume Report - Hourly

Site Description: PRINCE RD E.O LOS ALTOS AVE
 Site Number: 46
 Start Date: 3/26/2024
 End Date: 3/26/2024

Time	Monday 4/1/24			Tuesday 3/26/24			Wednesday 3/27/24			Thursday 3/28/24			Friday 3/29/24			Saturday 3/30/24			Sunday 3/31/24			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	NB	SB	NB	SB
12:00 AM	-	-	-	55	41	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	24	40	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	21	18	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	21	35	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	36	43	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	114	113	227	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	273	235	508	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	543	459	1002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	626	487	1113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	539	460	999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	594	457	1051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	485	493	978	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	489	510	999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	397	518	915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	418	542	960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	361	513	874	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	397	543	940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	401	618	1019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	408	408	816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	331	336	667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	258	296	554	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	213	135	348	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	134	143	277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	83	82	165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	1442	1181	2623	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	1159	1674	2833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	5931	6243	12174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	7221	7525	14746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	49.0%	51.0%	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		8:00 AM	9:00 AM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	
PM Peak	-	-		5:00 PM	6:00 PM		-	-		-	-		-	-		-	-		-	-		-	-		-	-	

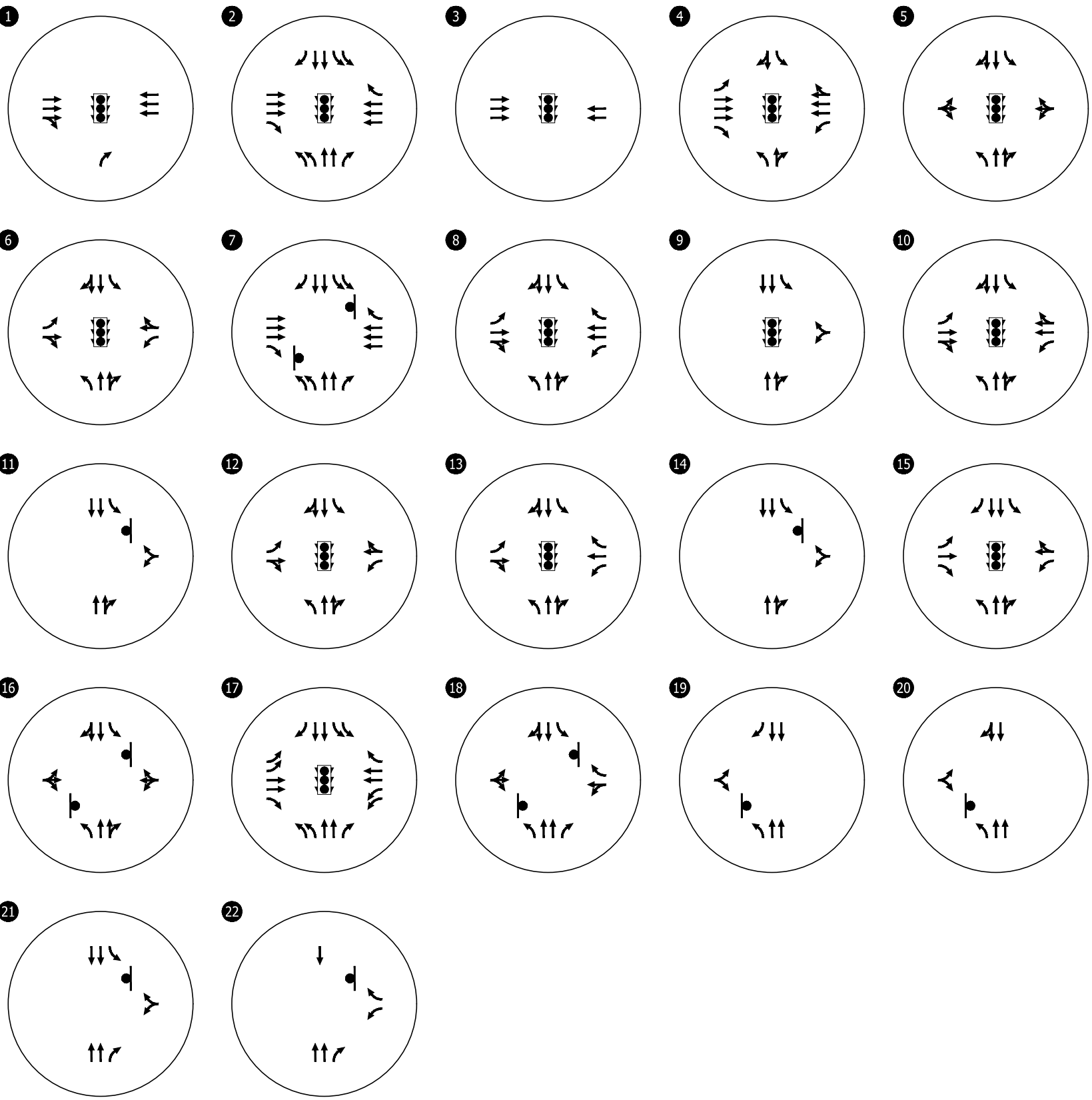
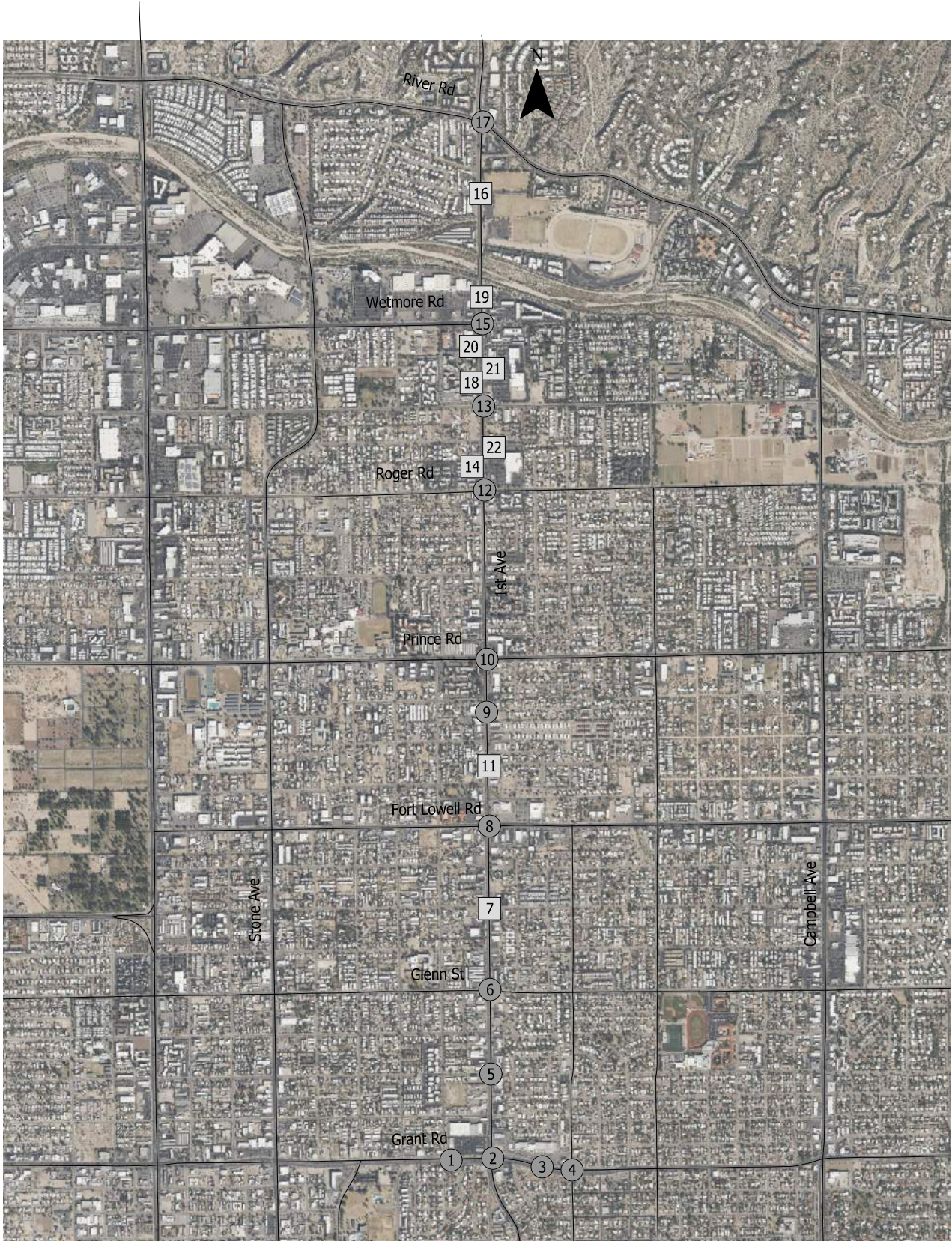




Appendix C-C

Balanced TMC Figures

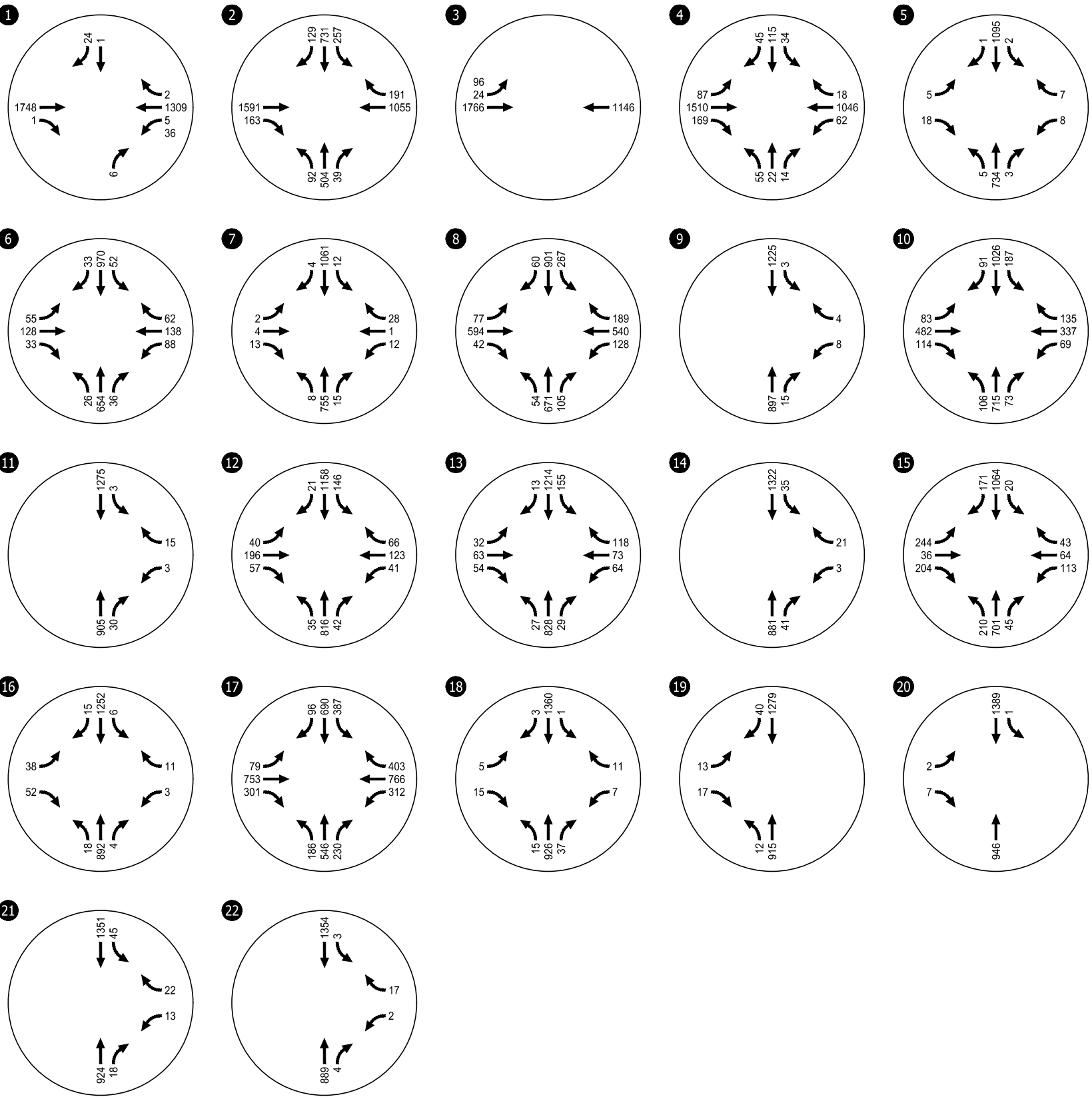
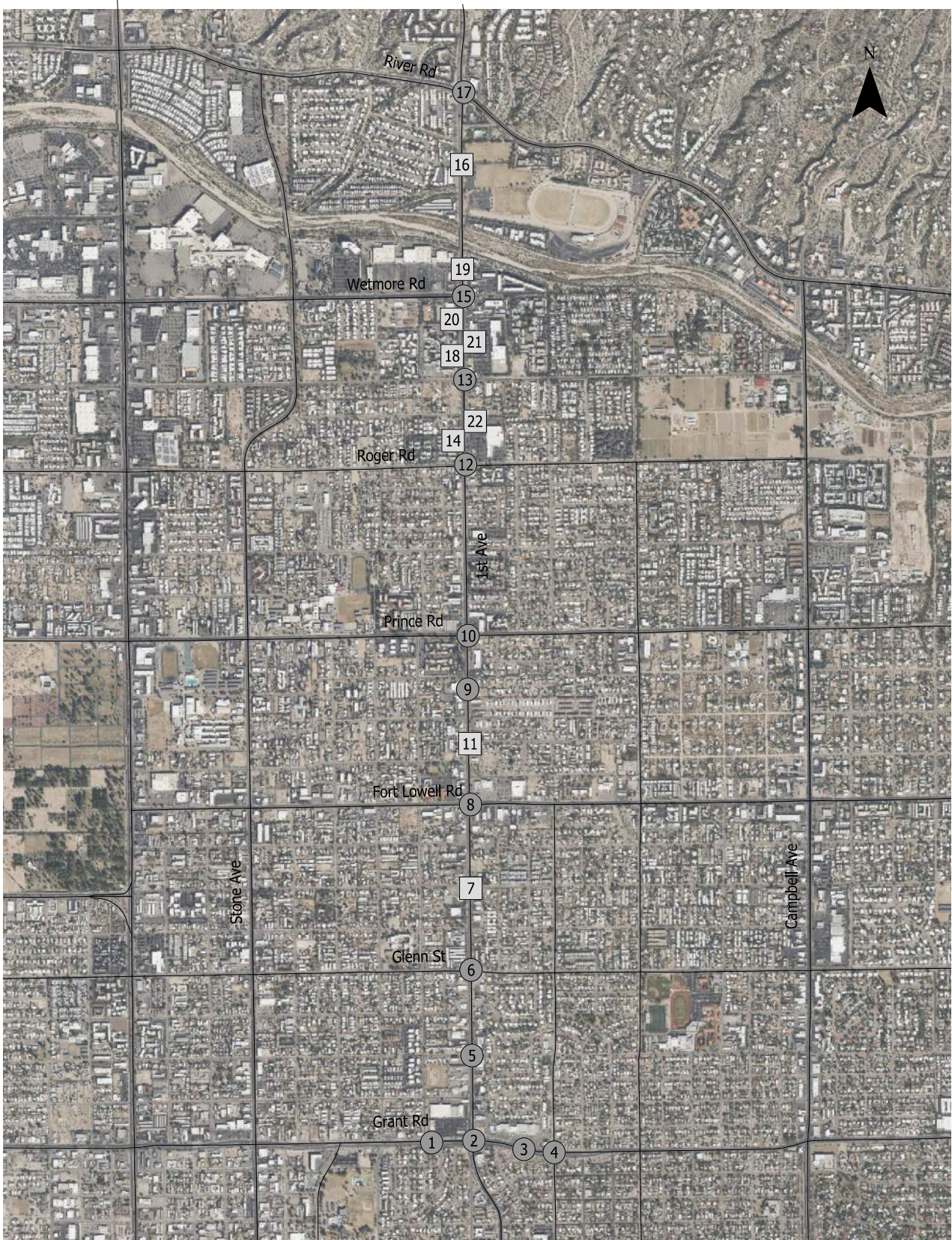
C:\Users\jamarillas\appdata\local\temp\AcPublish_33516\29660 TMC Figures.dwg Oct 30, 2024 • 12:37pm • jamarillas Layout Tab: LaneGeo



Existing Lane Configuration
Tucson, AZ

Figure
1

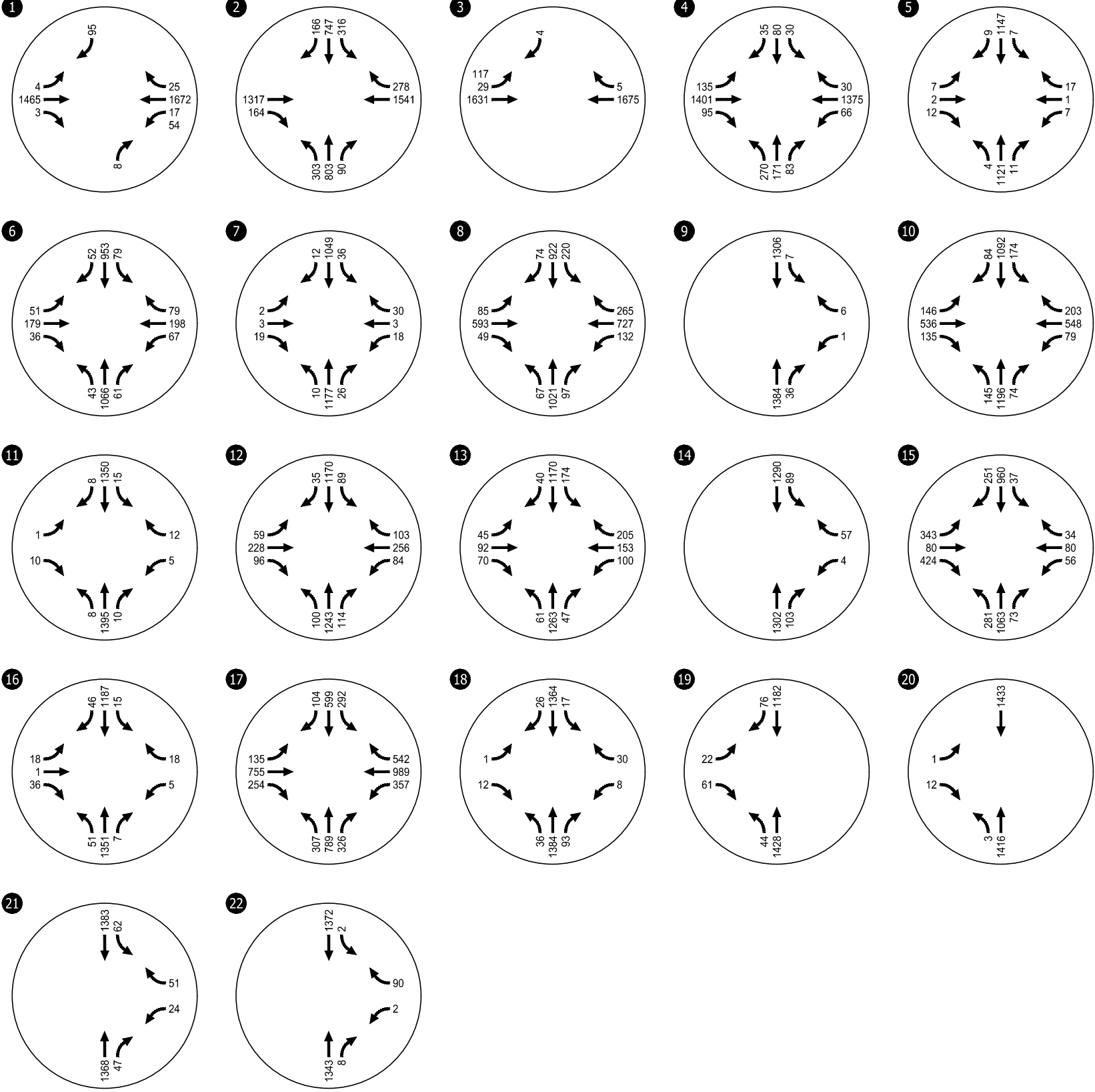
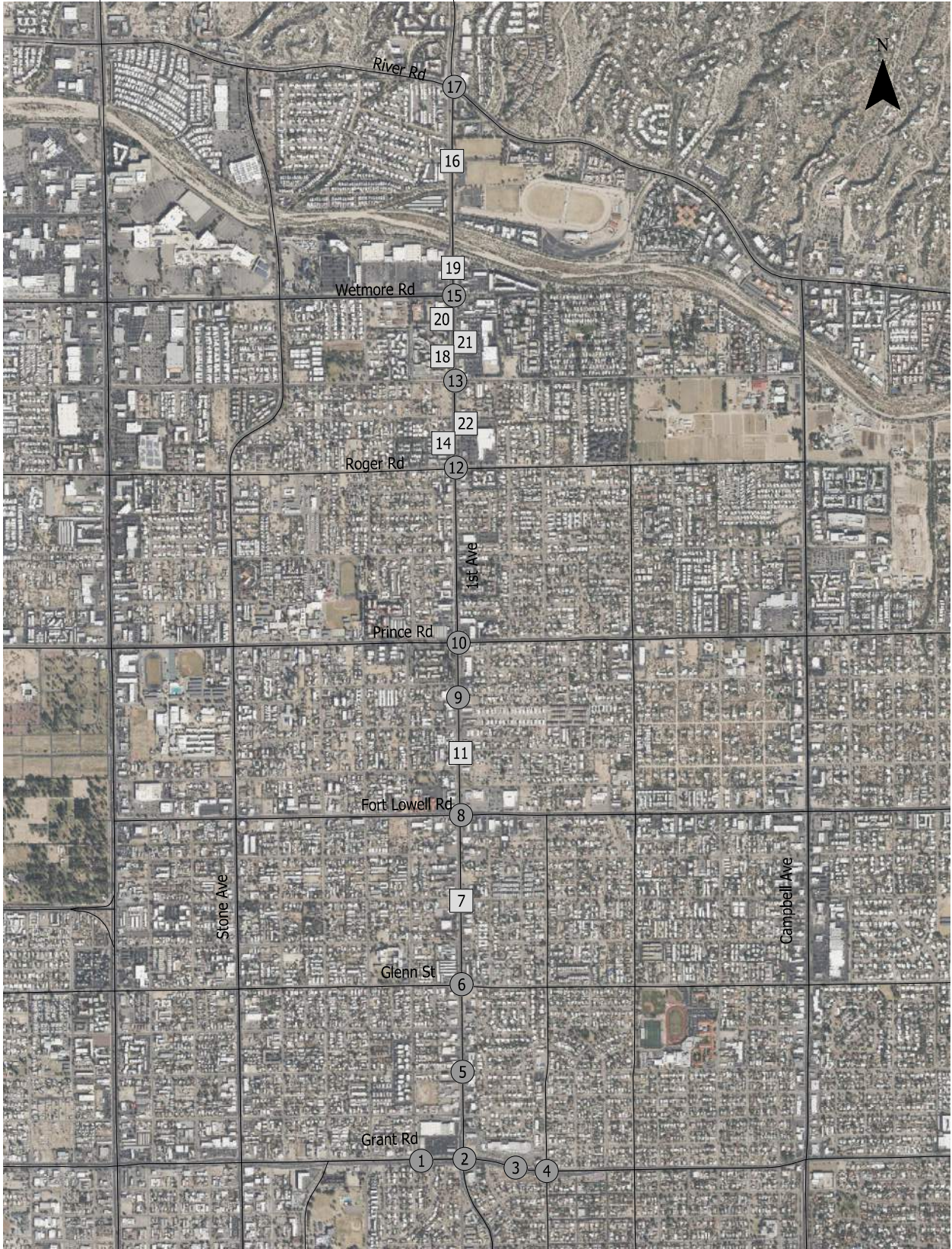
C:\Users\jamarillas\appdata\local\temp\AcPublish_33516\29660 TMC Figures.dwg Oct 30, 2024 • 12:37pm • jamarillas Layout Tab: EXAM



Existing Traffic Volumes
AM Peak Hours
Tucson, AZ

Figure
2

C:\Users\jamarillas\appdata\local\temp\AcPublish_33516\29660 TMC Figures.dwg Oct 30, 2024 • 12:37pm • jamarillas Layout Tab: EXPM



Existing Traffic Volumes
PM Peak Hours
Tucson, AZ

Figure
3



Appendix C-D Vissim GEH Statistics

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
13-SBT	1214	1207.6	0.183926272	5.4
13-EBT	63	64.7	0.212749462	43.5
13-WBT	73	76.3	0.381943421	40.7
13-EBR	54	52.9	0.150459228	42.2
13-WBR	118	114.8	0.296601599	6.7
13-WBL	64	63.1	0.112897606	44.9
13-NBT	828	832	0.138842027	14
13-EBL	32	30	0.359210604	45.4
13-SBL	155	153	0.161164593	13.2
13-SBT-BIKE	10	9.8	0.063564173	7.6
13-NBR	29	25.9	0.591684945	12.3
13-NBL	27	28.7	0.322133819	17.5
13-NBT-BIKE	10	7.8	0.737441675	4.2
13-SBR	13	13.4	0.110096377	4.4
33-NBT	771	776.7	0.204902125	0.2
33-NBT-BIKE	10	7.9	0.701952584	0
33-WBR	7	9	0.707106781	8
33-SBT	1055	1029	0.805451674	1.2
33-SBT-BIKE	10	9.9	0.031702131	0
33-WBL	0	0.1	0.447213595	12.7
33-SBL	0	0	0	
33-NBR	0	0	0	
8-SBL	267	257.8	0.567944518	35.9
8-SBR	60	60.3	0.038681512	13.2
8-EBL	77	78.3	0.147527377	40
8-WBR	189	184.8	0.307216573	6.8
8-EBR	42	42.5	0.076923077	29.7
8-NBR	105	106.2	0.116774842	8
8-WBL	128	124.4	0.320459258	47.3
8-NBL	54	51.5	0.344214195	27.2
8-SBT-BIKE	10	9.9	0.031702131	12.4
8-EBT-BIKE	5	5.7	0.302636391	27
8-WBT-BIKE	5	4.5	0.229415734	22.1
8-EBT	594	575.3	0.773381234	35.9
8-WBT	540	529.7	0.445370272	34.3
8-NBT-BIKE	10	7.6	0.809039835	8.1
8-NBT	671	690.1	0.732155532	11.5
8-EBT-BIKE	5	2	1.603567451	53.4
8-SBT	901	896.9	0.136746459	13.3
31-SBR	0	0	0	
31-WBT	0	0	0	
31-EBT	0	0	0	
31-EBL	0	0	0	

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
31-NBR	0	0	0	0
31-NBL	0	0	0	0
31-WBR	45	45.2	0.029781168	7.4
31-SBL	0	0	0	0
31-NBT	785	801.1	0.57170974	0.2
31-EBR	6	5.7	0.124034735	8.5
31-NBT-BIKE	10	7.7	0.773136542	0
31-WBL	0	0	0	0
31-SBT	1071	1056.3	0.450731554	0.3
31-SBT-BIKE	10	9.6	0.127775313	0
11-EBL	0	0	0	0
11-NBR	30	29.6	0.073274331	0.6
11-SBT	1275	1261.2	0.387527329	0.5
11-EBT	0	0	0	0
11-SBR	0	0	0	0
11-WBL	3	2.1	0.563601862	23.2
11-NBT-BIKE	10	7.6	0.809039835	0
11-NBT	905	913.2	0.271961873	0.2
11-SBL	3	3.3	0.169030851	5.8
11-WBT	0	0	0	0
11-WBR	15	16	0.254000254	6.2
11-NBL	0	0	0	0
11-SBT-BIKE	10	9.9	0.031702131	0
11-EBR	0	0	0	0
1-EBR	1	1.1	0.097590007	3.6
1-EBT-BIKE	5	5.1	0.044499416	3.3
1-NBR	6	4	0.894427191	2.549999994
1-WBT-BIKE	5	5.4	0.175411604	0
1-WBL	41	35.3	0.922842495	10.1
1-EBT	1748	1706	1.010655448	3.506684248
1-WBU	36	31	0.863868426	11.42499999
1-WBT	1309	1284.9	0.66919922	0.4
14-WBL	3	2.4	0.365148372	14
14-NBR	41	40.9	0.015626908	0.7
14-NBT-BIKE	10	8	0.666666667	0
14-WBR	21	21.1	0.021795857	8.1
14-SBL	35	36.7	0.283925462	5.9
14-NBT	881	898.4	0.58334765	0.5
14-SBT-BIKE	10	9.8	0.063564173	0
14-SBT	1322	1317	0.137646543	1.6
17-WBT-BIKE	10	4.6	1.998629668	22.4
17-EBL	79	79.1	0.01124732	27.5
17-NBT	546	558.9	0.548836797	47.2

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
17-WBL	312	314.1	0.118689538	38.9
17-WBR	403	401.9	0.054832332	8.9
17-EBT	753	753.5	0.018217989	20.9
17-SBT	690	677.4	0.481878728	49.9
17-SBL	387	395.1	0.409608418	58.7
17-SBR	96	96	1.45E-15	7.2
17-EBR	301	305.9	0.281288845	8.2
17-EBT-BIKE	10	5.6	1.575452723	12.9
17-NBT-BIKE	10	7.2	0.954792075	41.3
17-NBL	186	182.3	0.272656504	58
17-SBT-BIKE	10	8.8	0.391396844	45.7
17-NBR	230	228	0.13216372	5.5
17-WBT	766	764.4	0.057840562	21.9
20-SBR	0	0	0	
20-SBT-BIKE	10	9.8	0.063564173	1.5
20-EBL	2	2.2	0.138013112	12.1
20-EBR	7	6.8	0.076138699	9.2
20-NBL	0	0	0	
20-NBT	946	950.6	0.149377421	0.4
20-SBT	1389	1387.8	0.032205047	0.1
20-NBT-BIKE	10	7.6	0.809039835	0
12-WBT-BIKE	5	5.4	0.175411604	29.2
12-EBT	196	194.4	0.114519667	41.4
12-NBR	42	46.4	0.661822521	5.7
12-EBT-BIKE	5	4.3	0.324617227	33.4
12-WBR	66	65.7	0.036969482	25.6
12-SBT-BIKE	10	9.8	0.063564173	4.4
12-SBR	21	24.2	0.673125059	8.4
12-EBL	40	38	0.320256308	44.1
12-NBT-BIKE	10	8	0.666666667	9.1
12-WBT	123	125.7	0.242125689	39.9
12-SBL	146	142.9	0.257930631	24.3
12-NBT	816	832.7	0.58164855	5.3
12-NBL	35	36.8	0.300417537	19.5
12-WBL	41	39.7	0.204654634	60.2
12-EBR	57	56.3	0.093003241	31.1
12-SBT	1158	1161.4	0.099840349	8.3
19-EBR	17	17	0	7.1
19-NBL	12	12.5	0.142857143	7.5
19-NBT-BIKE	10	7.4	0.881482555	0
19-SBT-BIKE	10	9.3	0.225337973	0
19-NBT	915	915.8	0.026441405	0.1
19-SBR	40	38.3	0.271695871	0.8

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
19-SBT	1279	1274.5	0.125938809	1.7
19-EBL	13	12.7	0.083689253	15.8
23-WBR	21	21.6	0.130005417	8.9
23-NBT	941	950.5	0.308912463	0.3
23-NBR	0	0	0	
23-SBT	1273	1269.8	0.089744713	0.4
23-SBR	30	27.7	0.428208148	0.5
23-EBR	0	0	0	
23-NBT-BIKE	10	7.4	0.881482555	0
23-SBT-BIKE	10	9.2	0.25819889	0
4-EBT	1510	1509.6	0.010294382	4.5
4-WBT-BIKE	5	5.4	0.175411604	5.4
4-WBR	18	15.9	0.510075476	4.2
4-SBL	34	33.6	0.068802092	37.2
4-EBT-BIKE	5	5.2	0.088561489	5.2
4-EBR	169	166.1	0.224040112	2
4-SBT	115	111.8	0.300499291	40
4-SBR	45	34.8	1.614781346	25
4-WBT	1046	938.7	3.406177572	5.8
4-WBL	62	62.2	0.025379566	13.9
4-NBR	14	12.3	0.468798318	13.3
4-NBL	55	50.9	0.56344415	50.8
4-NBT	22	22.5	0.105999788	38.9
4-EBL	87	84.6	0.25910011	7.7
2-EBT	1591	1581.6	0.236012601	11.2
2-NBL	92	95.9	0.402361311	42.9
2-SBL	257	251.8	0.326020411	43.2
2-NBT-BIKE	10	8	0.666666667	22.7
2-EBR	163	163.7	0.054769461	5.5
2-SBT-BIKE	10	9.9	0.031702131	30.9
2-NBT	504	530	1.143478693	34
2-WBT-BIKE	5	5.3	0.132195795	10.7
2-NBR	39	39.4	0.063887656	8.4
2-WBT	1055	1054.5	0.015395551	9.3
2-SBR	129	127.7	0.114748077	11.2
2-WBR	191	184.4	0.481738992	8
2-SBT	731	735	0.147743371	27.7
2-EBT-BIKE	5	5.1	0.044499416	6.2
27-SBT	1256	1250.1	0.166673982	0.1
27-WBR	0	0	0	
27-WBL	0	0	0	
27-NBR	40	38.7	0.207238759	0.7
27-EBT	0	0	0	

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
27-SBL	0	0.1	0.447213595	2.5
27-NBT	893	907.4	0.479946676	0.2
27-SBT-BIKE	10	9.9	0.031702131	0
27-EBL	0	0	0	
27-WBT	0	0	0	
27-EBR	48	45	0.439941345	8.9
27-SBR	0	0	0	
27-NBT-BIKE	10	8.3	0.562002664	0
27-NBL	0	0.1	0.447213595	1.1
38-WBT	0	0	0	
38-WBR	8	7.8	0.071156807	8.3
38-NBR	0	0	0	
38-SBT	1381	1378.8	0.059224155	0.6
38-EBT	0	0	0	
38-SBT-BIKE	10	9.7	0.095587948	0
38-NBT-BIKE	10	7.4	0.881482555	0
38-EBL	0	0	0	0
38-WBL	0	0.1	0.447213595	11.3
38-EBR	9	8.7	0.100843897	6.7
38-NBT	948	948	0	2.054790494
38-SBR	0	0	0	
15-WBR	43	43.2	0.030464311	28
15-NBL	210	215.2	0.356633153	20.8
15-NBT-BIKE	10	7.4	0.881482555	4.3
15-SBR	171	168.3	0.207294048	0.1
15-EBL	244	247.1	0.197829806	45
15-SBT	1064	1056.7	0.22418071	8.4
15-NBR	45	44.4	0.089742361	4.9
15-SBT-BIKE	10	9.6	0.127775313	14.3
15-EBR	204	208.7	0.327186685	5.9
15-NBT	701	698.7	0.086941144	4.9
15-EBT	36	34.4	0.269679945	39.6
15-SBL	20	18.4	0.365148372	13.1
15-WBT	64	62.5	0.188608384	49.8
15-WBL	113	113.4	0.037595579	37.2
34-NBR	30	29.2	0.147042924	0.8
34-NBT-BIKE	10	8.1	0.631581371	0
34-EBL	0	0	0	
34-SBL	0	0	0	
34-NBL	0	0	0	
34-SBT-BIKE	10	10	0	0
34-EBR	7	0	3.741657387	
34-EBT	0	0	0	

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
34-EBR	0	5.7	3.376388603	7.4
34-NBT	716	731.1	0.561361564	0.4
34-SBT	1091	1074.1	0.513644595	0.5
34-EBT	0	0	0	
34-EBL	0	0.1	0.447213595	5.8
34-SBR	0	0	0	
25-NBT	884	896	0.402240914	0.179327674
25-NBR	22	19	0.662589156	0.2
25-WBR	0	0	0	
25-WBL	0	0	0	
25-SBT-BIKE	10	9.8	0.063564173	0
25-EBR	25	24.6	0.080321933	9.5
25-EBL	0	0	0	
25-EBT	0	0.3	0.774596669	8.4
25-NBT-BIKE	10	7.8	0.737441675	0
25-WBT	0	0	0	
25-SBL	0	2.5	2.236067977	2.6
25-SBR	0	0	0	
25-NBL	0	0	0	
25-SBT	1332	1322	0.274514026	0.2
21-SBL	45	45.9	0.133498248	4.2
21-SBT-BIKE	10	9.8	0.063564173	0
21-WBR	22	24.7	0.558753584	8
21-NBT-BIKE	10	7.7	0.773136542	0
21-NBR	18	19.5	0.346410162	0.9
21-WBL	13	11.9	0.311751111	16.1
21-NBT	924	925.9	0.062473304	0.2
21-SBT	1351	1348.8	0.059878634	0.1
22-NBR	4	4.7	0.335624311	0.3
2-SBT-BIKE	10	9.8	0.063564173	0
22-WBR	17	16.1	0.221229741	9.7
22-NBT	889	907.2	0.607308053	0.1
2-NBT-BIKE	10	7.9	0.701952584	0
22-SBT	1354	1346.7	0.198655085	0.3
22-WBL	2	2.1	0.06984303	13.4
35-SBT	1117	1113.4	0.107801827	0.8
35-WBT	0	0	0	
35-WBR	47	48.5	0.217072382	8.5
35-NBT	695	708.6	0.513372057	0.2
35-EBL	0	0	0	
35-WBL	0	0	0	
35-EBT	0	0	0	
35-NBT-BIKE	10	7.6	0.809039835	0

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
35-SBT-BIKE	10	9.7	0.095587948	0
35-NBR	0	0	0	
35-EBR	0	0	0	
35-NBL	0	0	0	
35-SBR	4	4.3	0.147264208	0.5
6-EBR	33	35.2	0.37674326	19.9
6-SBT	970	949.6	0.658475764	6.7
6-EBT-BIKE	5	6.8	0.741048273	32.2
6-WBT	138	139.7	0.144269983	38.3
6-WBL	88	88.6	0.06385147	45.5
6-NBR	36	37.8	0.296318879	3.1
6-NBL	26	29	0.572077554	11.9
6-EBL	55	52.6	0.32720513	46.5
6-WBT-BIKE	5	5.9	0.385517643	33.7
6-SBL	52	49.5	0.350931203	13.2
6-WBR	62	59.3	0.346695625	25.5
6-NBT	654	664.4	0.405065019	2.9
6-NBT-BIKE	10	7.9	0.701952584	17
6-SBT-BIKE	10	10	0	6.2
6-SBR	33	29.1	0.699896473	4.6
6-EBT	128	127.7	0.026532055	37.3
24-EBR	12	13.3	0.365509012	9.4
24-SBT-BIKE	10	9.2	0.25819889	0
24-NBT-BIKE	10	7.3	0.918027541	0
24-SBR	0	0	0	
24-NBT	914	917.2	0.105754069	0
24-EBL	0	0	0	
24-NBL	14	14.2	0.053262364	8.3
24-SBT	1307	1299.6	0.204979072	0.1
32-EBR	0	0	0	
32-NBT	778	787.2	0.328865189	0.1
32-NBL	0	0	0	
32-NBT-BIKE	10	7.9	0.701952584	0
32-SBT	1055	1029.7	0.783634839	0.5
32-SBR	31	30.8	0.035979138	1.1
32-EBL	0	0	0	
32-SBT-BIKE	10	9.9	0.031702131	0
26-EBR	1	0	1.414213562	
26-SBT-BIKE	10	9.8	0.063564173	0
26-NBT	893	911.8	0.625832779	0
26-SBR	0	0	0	
26-NBL	9	8.4	0.203419051	4.7
26-SBT	1356	1350.1	0.160396574	0.6

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
26-NBT-BIKE	10	8	0.666666667	0
30-WBR	0	0	0	
30-EBL	0	0	0	
30-WBL	0	0	0	
30-SBT	1228	1215.4	0.36048588	2.2
30-WBT	0	0	0	
30-EBT	0	0	0	
30-NBR	2	2.1	0.06984303	0.6
30-NBT	935	945.9	0.355433733	0.4
30-SBT-BIKE	10	9.9	0.031702131	0
30-NBL	0	0	0	
30-SBR	35	35.1	0.016891024	1.4
30-EBR	0	0	0	
30-NBT-BIKE	10	7.5	0.845154255	0
30-SBL	15	14.9	0.02586303	6.3
5-WBR	5	6.6	0.664363839	6.9
5-SBL	2	1.7	0.220564387	4.7
5-SBT	1095	1081.7	0.403150637	5.4
5-SBT-BIKE	10	9.9	0.031702131	1.1
5-EBR	18	20.9	0.657564252	7.9
5-NBT-BIKE	10	7.7	0.773136542	4.3
5-WBL	8	8.6	0.20826304	11.3
5-SBR	1	1.2	0.190692518	6.1
5-NBL	5	5.2	0.088561489	11
5-WBT-BIKE	5	6.8	0.741048273	9.8
5-NBR	3	3.3	0.169030851	2.7
5-NBT	734	748.9	0.547199049	3.9
5-EBL	5	5.3	0.132195795	12.7
5-EBT	0	0	0	
5-WBT	0	0	0	
36-EBR	1	1.4	0.365148372	0.4
36-NBR	0	0	0	0
36-SBR	100	91	0.920960118	8.640958494
36-WBR	0	0	0	
36-EBT-BIKE	5	5.1	0.044499416	0
36-WBT	1146	1144	0.059105412	0.119271531
36-EBT	1886	1872	0.322971831	0.156726034
36-WBT-BIKE	5	5.3	0.132195795	0.4
10-SBL	187	186.7	0.021946977	34.3
10-NBR	73	80.9	0.900580998	7.8
10-NBT-BIKE	10	7.6	0.809039835	9.3
10-NBT	715	715.2	0.007479053	8.6
10-SBR	91	89.3	0.179046591	16.5

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
10-SBT-BIKE	10	10	0	5.7
10-WBT	337	341.7	0.255137286	34.1
10-EBT	482	497.3	0.691430529	37
10-EBR	114	116.6	0.242135627	30.6
10-WBT-BIKE	5	5	0	39.3
10-NBL	106	105.2	0.077849894	35.4
10-WBL	69	69.7	0.084057178	47.8
10-SBT	1026	1007.3	0.586483602	18.2
10-EBL	83	87.1	0.4445767	42.5
10-EBT-BIKE	5	5.1	0.044499416	25
10-WBR	135	141.7	0.569619989	26.5
7-EBT	4	3.9	0.050315461	19.1
7-NBL	8	8.3	0.105085417	5.8
7-EBL	2	2.1	0.06984303	14.6
7-SBT-BIKE	10	9.8	0.063564173	1.2
7-SBR	4	3.5	0.25819889	0.5
7-SBL	12	12.1	0.02880756	1.9
7-WBR	28	27.8	0.037864122	5.8
7-NBT-BIKE	10	8	0.666666667	0
7-NBR	15	14.2	0.209369569	0.5
7-SBT	1061	1039.6	0.660324013	0.1
7-NBT	755	766.4	0.413331156	0.2
7-EBR	13	11.1	0.547343642	8.2
7-WBL	12	12.7	0.199188638	11
7-WBT	1	0.5	0.577350269	13.1
9-SBT	1225	1210.6	0.412643024	0.7
9-WBR	4	3.8	0.101273937	6.5
9-NBR	15	14	0.262612866	1.9
9-SBT-BIKE	10	9.9	0.031702131	0.8
9-WBL	8	8.3	0.105085417	14.1
9-NBT-BIKE	10	7.7	0.773136542	0.7
9-NBT	897	905.8	0.293105451	2.1
9-SBL	3	2.9	0.058222251	3.3
3-EBT	1766	1759.7	0.150048918	0.1
3-EBT-BIKE	5	5.1	0.044499416	0
3-WBT-BIKE	5	5.5	0.21821789	0.1
3-WBT	1146	1026	3.641382774	0.3
3-EBU	120	120.9	0.082004769	11.7
29-NBL	8	8	0	4.4
29-NBT	912	919.9	0.261030471	0.1
29-SBT-BIKE	10	10	0	0
29-EBL	0	0	0	
29-SBT	1233	1219.1	0.396972762	0.1

Existing Conditions

AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
29-SBR	0	0	0	
29-EBR	45	44.6	0.05976143	8.4
29-NBT-BIKE	10	7.8	0.737441675	0
16-NBT	892	897.7	0.190545955	0.1
16-WBT	0	0	0	
16-NBL	18	17.6	0.094809093	6.6
16-NBT-BIKE	10	7.3	0.918027541	0
16-EBR	52	48.5	0.493741931	9.8
16-EBT	0	0	0	
16-EBL	38	37.5	0.081378846	15.5
16-NBR	4	4.7	0.335624311	0.6
16-SBR	15	15	0	0.8
16-SBT	1252	1248.5	0.098985051	0.2
16-SBL	6	5.5	0.208514414	8.8
16-WBR	11	12.3	0.380873178	8.2
16-SBT-BIKE	10	9.2	0.25819889	0
16-WBL	3	2.9	0.058222251	10.7
37-WBR	0	0.1	0.447213595	2.4
37-WBT-BIKE	5	5.4	0.175411604	0
37-SBR	76	71.4	0.535826376	9.3
39-SBT-BIKE	10	9.3	0.225337973	0
39-NBR	61	59	0.25819889	0.3
39-NBT-BIKE	10	7.4	0.881482555	0
39-EBR	0	0	0	0
39-WBR	0	0	0	
39-NBT	927	924	0.098612744	0.435898631
28-NBT-BIKE	10	7.7	0.773136542	0
28-NBL	7	4.8	0.905725667	8.5
28-EBL	0	0	0	
28-SBT	1209	1194.6	0.415380775	1.1
28-EBR	19	18.1	0.208963557	6.9
28-SBR	0	0	0	
28-NBT	894	904.6	0.353470821	0.2
28-SBT-BIKE	10	10	0	0
18-NBL	15	13.9	0.289373503	11.6
18-SBL	1	1.2	0.190692518	5.1
18-SBT-BIKE	10	9.8	0.063564173	0
18-SBT	1360	1355.8	0.113976521	0.5
18-SBR	3	3.4	0.223606798	0.5
18-WBL	7	6.4	0.231800223	16.8
18-EBR	15	15.8	0.203858877	10.4
18-EBL	5	5.7	0.302636391	19.1
18-NBT	926	928.9	0.095225387	0.4

Existing Conditions
AM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
18-WBT	0	0	0	
18-NBT-BIKE	10	7.9	0.701952584	0
18-EBT	0	0.1	0.447213595	23.7
18-NBR	37	34.3	0.452203581	1.3
18-WBR	11	11	0	7.5

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
13-SBT	1170	1158.7	0.3311590817741378	10.8
13-EBT	92	92.80000000000001	0.083225038	41.2
13-WBT	153	148.6	0.35830428809145143	37.8
13-EBR	70	67.5	0.30151134457776363	41.5
13-WBR	205	200.70000000000002	0.3019123993306789	10.4
13-WBL	100	97.89999999999999	0.21111125886126786	46
13-NBT	1263	1246	0.47996944236464284	14.4
13-EBL	45	41	0.6099942813304187	46.1
13-SBL	174	173	0.075918962	28.7
13-SBT-BIKE	10	9.8	0.063564173	15.9
13-NBR	47	44.099999999999994	0.429688576	14.4
13-NBL	61	64.39999999999999	0.4293832972403123	21.1
13-NBT-BIKE	10	7.5	0.8451542547285166	1.7
13-SBR	40	39.7	0.047523355	10.7
33-NBT	1196	1198.4	0.069363003	0.3
33-NBT-BIKE	10	7.9	0.7019525839881192	0
33-WBR	17	18.8	0.4254475133223591	8.6
33-SBT	1084	1063	0.6409413198575191	0.7
33-SBT-BIKE	10	10	0	0
33-WBL	0	0.1	0.447213595	23.1
33-SBL	0	0.1	0.447213595	33
33-NBR	0	0	0	
8-SBL	220	204.79999999999998	1.042956828150651	50
8-SBR	74	75	0.11585688927269845	13.2
8-EBL	85	87.9	0.31190008929578505	45.4
8-WBR	265	260.90000000000003	0.25284086599633765	9.7
8-EBR	49	50.2	0.17038855027411984	30.1
8-NBR	97	99.5	0.25221663615265916	11.5
8-WBL	132	128.2	0.33315393583959335	49.5
8-NBL	67	69.60000000000001	0.3146030988557867	33
8-SBT-BIKE	10	9.9	0.031702131	20.5
8-EBT-BIKE	5	5.7	0.30263639081698196	29.3
8-WBT-BIKE	5	4.5	0.22941573387056177	27.5
8-EBT	593	574.2	0.7782160932982561	35.6
8-WBT	727	717.3	0.3609591260621229	37.3
8-NBT-BIKE	10	7.6	0.8090398349558906	18.4
8-NBT	1021	1024.7	0.11568998088502239	14.8
8-EBT-BIKE	5	2	1.6035674514745464	29.6
8-SBT	922	920	0.065902241	13.1
31-SBR	6	6.799999999999999	0.31622776601683755	1.1
31-WBT	0	0	0	
31-EBT	0	0	0	
31-EBL	0	0	0	
31-NBR	24	25.6	0.3212877315609998	0.8

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
31-NBL	0	0		0
31-WBR	0	0		0
31-SBL	0	0		0
31-NBT	1185	1199.3	0.4141623210987746	0.8
31-EBR	0	0		0
31-NBT-BIKE	10	7.6	0.8090398349558906	0
31-WBL	0	0		0
31-SBT	1097	1086.6	0.31474714130592335	0.4
31-SBT-BIKE	10	9.5	0.16012815380508713	0
11-EBL	1	0.9999999999999999	1.1102230246251565e-16	18.8
11-NBR	10	10.799999999999999	0.2480694691784166	0.6
11-SBT	1350	1336.9	0.3574049324741033	0.6
11-EBT	0	0		0
11-SBR	8	8.2	0.070272837	1.2
11-WBL	5	4.4	0.2767593624086654	21.4
11-NBT-BIKE	10	7.3999999999999995	0.8814825547070536	0
11-NBT	1395	1384.6	0.27896979650014736	0.2
11-SBL	15	15.899999999999999	0.2289698330916526	6
11-WBT	0	0.2	0.6324555320336759	25.4
11-WBR	12	12.600000000000001	0.1710797845536607	8.8
11-NBL	8	8.2	0.070272837	5.9
11-SBT-BIKE	10	9.899999999999999	0.031702131	0
11-EBR	10	10		0
1-EBR	3	3.5000000000000004	0.2773500981126148	2.1
1-EBT-BIKE	5	5.1	0.044499415948998325	0
1-NBR	8	5	1.1766968108291043	8.774999923000001
1-WBT-BIKE	5	5.4	0.175411604	0.6
1-WBL	71	17.2	8.101454196050419	8
1-EBT	1465	1403	1.6372579723615233	1.930003831676795
1-WBU	54	46	1.131370849898476	7.256876450525107
1-WBT	1672	1675	0.07333451	0.1
14-WBL	4	4		0
14-NBR	103	101.1	0.18808194029873318	1
14-NBT-BIKE	10	8.1	0.631581371	0
14-WBR	57	59	0.2626128657194451	9.5
14-SBL	89	94.5	0.5741953260690686	14.2
14-NBT	1302	1299.2	0.077640113	0.8
14-SBT-BIKE	10	9.8	0.063564173	0
14-SBT	1290	1280.6999999999998	0.2594013593548665	2.1
17-WBT-BIKE	10	4.6000000000000005	1.9986296675335338	25.6
17-EBL	135	132.8	0.19012200791583897	43
17-NBT	789	780.1	0.3177457082268015	56.9
17-WBL	357	362	0.2637063313749449	45.5
17-WBR	542	540.9000000000001	0.047273037	17.1

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
17-EBT	755	753.5	0.054617724	26.8
17-SBT	599	581.1	0.7369001138658061	46.4
17-SBL	292	300.1	0.47076317818783553	61.9
17-SBR	104	100.9	0.30627088428905747	8.4
17-EBR	254	259.9	0.36806769430760405	7.3
17-EBT-BIKE	10	5.6	1.5754527228867525	15.9
17-NBT-BIKE	10	7.1	0.9917790736823157	35.8
17-NBL	307	315.4	0.4761672169616428	56.3
17-SBT-BIKE	10	8.6	0.4590780850487672	41.8
17-NBR	326	321.5	0.2500965064695278	13.4
17-WBT	989	986.0999999999999	0.092282309	30
20-SBR	0	0	0	
20-SBT-BIKE	10	9.8	0.063564173	2.9
20-EBL	1	1	0	23.2
20-EBR	12	12.5	0.14285714285714285	8.5
20-NBL	3	3	0	14.9
20-NBT	1416	1390.8	0.6726819968104067	1.5
20-SBT	1433	1428.1	0.1295521304341156	0.1
20-NBT-BIKE	10	7.4	0.8814825547070534	0
12-WBT-BIKE	5	5.4	0.175411604	31.2
12-EBT	228	225.10000000000002	0.1926708283913233	54.7
12-NBR	114	122.79999999999998	0.808736084	5.4
12-EBT-BIKE	5	4.3	0.32461722703211787	34.2
12-WBR	103	95	0.8040302522073697	72.6
12-SBT-BIKE	10	10.1	0.031544014893825474	3.9
12-SBR	35	36.7	0.2839254621575301	7.3
12-EBL	59	57	0.2626128657194451	107.6
12-NBT-BIKE	10	8.1	0.631581371	21.3
12-WBT	256	259.8	0.23662352813587315	81.7
12-SBL	89	82.3	0.7239542450862492	35.2
12-NBT	1243	1249.2	0.17563668901790272	5.5
12-NBL	100	100.7	0.069877821	16.7
12-WBL	84	80.6	0.374782237	168.8
12-EBR	96	92.8	0.3293547878370476	42.2
12-SBT	1170	1175.1	0.14893764777380752	11.8
19-EBR	61	63.60000000000001	0.32940434592452694	8.8
19-NBL	44	38.3	0.8885665001975883	8.4
19-NBT-BIKE	10	7.4	0.8814825547070534	0
19-SBT-BIKE	10	9.3	0.22533797299287742	0
19-NBT	1428	1405.6000000000001	0.5951051987913181	0.1
19-SBR	76	72.30000000000001	0.42968099631870676	1
19-SBT	1182	1177.6	0.12809980851872227	2.7
19-EBL	22	22.7	0.1480673406264154	18.5
23-WBR	35	36.2	0.20112045694619776	27

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
23-NBT	1387	1386.6	0.010741206718837725	6.3
23-NBR	0	0	0	
23-SBT	1210	1205.9	0.11796668560671636	0.2
23-SBR	0	0	0	
23-EBR	38	39.5	0.24096579867074966	10.3
23-NBT-BIKE	10	7.3	0.918027541	0
23-SBT-BIKE	10	9.2	0.2581988897471614	0
4-EBT	1401	1401.5	0.0133571	7.5
4-WBT-BIKE	5	5.4	0.175411604	9.4
4-WBR	30	29.500000000000004	0.09166985	11.9
4-SBL	30	29.8	0.036575848	39.6
4-EBT-BIKE	5	5.2	0.088561489	21.6
4-EBR	95	98.30000000000001	0.3356703726407884	2
4-SBT	80	74.10000000000001	0.6721492062655813	28.8
4-SBR	35	29.7	0.9318343744416363	17.2
4-WBT	1375	1245.4	3.580438381215227	12.2
4-WBL	66	67.2	0.1470429244187619	19
4-NBR	83	75.3	0.8654963995811507	24.2
4-NBL	270	245.20000000000002	1.545178837465602	42.1
4-NBT	171	172.29999999999998	0.099225078	33.7
4-EBL	135	139.8	0.4094943095082659	18.2
2-EBT	1317	1305.2	0.3258847956067088	17.7
2-NBL	303	302	0.057495957	39.4
2-SBL	316	319.1	0.17396249801731134	45.5
2-NBT-BIKE	10	8	0.6666666666666666	21.6
2-EBR	164	152.79999999999998	0.889898417	7.3
2-SBT-BIKE	10	9.9	0.031702131	31.6
2-NBT	803	813.1999999999999	0.3588125447528198	33.2
2-WBT-BIKE	5	5.4	0.175411604	18.2
2-NBR	90	92	0.20965696734438366	10.1
2-WBT	1541	1527.5	0.3446558882095258	13.3
2-SBR	166	167.2	0.092970196	11.4
2-WBR	278	272	0.36181361349331637	10.1
2-SBT	747	737.5	0.34869723380354367	24.3
2-EBT-BIKE	5	5.1	0.044499415948998325	10.5
27-SBT	1350	1336.9	0.3574049324741033	0.1
27-WBR	0	0	0	
27-WBL	0	0	0	
27-NBR	88	84.4	0.38774737631894673	1.7
27-EBT	0	0	0	
27-SBL	0	0.1	0.447213595	12
27-NBT	1457	1474.6999999999998	0.46230490437251365	1.2
27-SBT-BIKE	10	10	0	0
27-EBL	0	0.1	0.447213595	24.4

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
27-WBT	0	0	0	0
27-EBR	0	0	0	0
27-SBR	0	0	0	0
27-NBT-BIKE	10	8.1	0.631581371	0
27-NBL	0	0	0	0
38-WBT	0	0	0	0
38-WBR	0	0	0	0
38-NBR	0	0	0	0
38-SBT	1433	1427.7	0.14013761095881125	0.8
38-EBT	0	0	0	0
38-SBT-BIKE	10	9.7	0.095587948	0
38-NBT-BIKE	10	7.3999999999999995	0.8814825547070536	0
38-EBL	0	0	0	0
38-WBL	0	0	0	0
38-EBR	0	0	0	0
38-NBT	1417	1385	0.8549306962324238	7.042628294406452
38-SBR	7	6.1	0.3516590993240537	0.6
15-WBR	34	32	0.3481553119113957	25.3
15-NBL	281	277.9	0.1854426551533695	28.7
15-NBT-BIKE	10	7.3999999999999995	0.8814825547070536	11.5
15-SBR	251	249.2	0.11381923419515287	0.2
15-EBL	343	340	0.16234013422468224	50.7
15-SBT	960	954	0.19395245515057077	14.5
15-NBR	73	67.800000000000001	0.6197506830096337	11.2
15-SBT-BIKE	10	9.600000000000001	0.12777531299998754	21.5
15-EBR	424	426.400000000000003	0.11638971742268014	11.3
15-NBT	1063	1037.5	0.7868534173559047	9.1
15-EBT	80	81.4	0.15584442405980728	45.8
15-SBL	37	36.199999999999996	0.13223592098145798	22.8
15-WBT	80	78.8	0.13467004177297037	49.6
15-WBL	56	52.699999999999996	0.4476248264792619	31.3
34-NBR	0	0.1	0.447213595	0.6
34-NBT-BIKE	10	8.100000000000001	0.6315813705488065	0
34-WBL	0	0	0	0
34-SBL	0	0.1	0.447213595	0.6
34-NBL	0	0	0	0
34-SBT-BIKE	10	9.8	0.063564173	0
34-WBR	25	26.200000000000003	0.237170825	10.9
34-EBT	0	0	0	0
34-EBR	107	107.1	0.009665107	8.8
34-NBT	1145	1149.4	0.1299071656514292	0.3
34-SBT	1056	1040.6	0.4756395153721182	0.5
34-WBT	0	0	0	0
34-EBL	0	0	0	0

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
34-SBR	0	0	0	0
25-NBT	1371	1364	0.18929292081858015	0.6825696863912277
25-NBR	62	57	0.6482037235521644	0.4720604392278407
25-WBR	0	0	0	0
25-WBL	0	0	0	0
25-SBT-BIKE	10	9.8	0.063564173	0
25-EBR	34	33	0.17277368511627203	9.9
25-EBL	0	0.1	0.447213595	15
25-EBT	0	0.1	0.447213595	11.7
25-NBT-BIKE	10	8	0.6666666666666666	0
25-WBT	0	0	0	0
25-SBL	0	1.5	1.7320508075688772	18.4
25-SBR	0	0.1	0.447213595	1.8
25-NBL	0	0	0	0
25-SBT	1340	1325.2	0.40542620009324276	0.3
21-SBL	62	59.6	0.307793506	8.5
21-SBT-BIKE	10	9.8	0.063564173	0
21-WBR	51	53.599999999999994	0.359519543	12.3
21-NBT-BIKE	10	7.4	0.8814825547070534	0
21-NBR	47	47.7	0.10172742427190869	1
21-WBL	24	22.7	0.2690295033294124	25.9
21-NBT	1368	1340.5	0.7472798496630207	0.6
21-SBT	1383	1380.8	0.059181283	0.2
22-NBR	8	7.8	0.071156807	0.7
2-SBT-BIKE	10	9.8	0.063564173	0
22-WBR	90	94.1	0.42733844001442145	11.4
22-NBT	1343	1337.7	0.14476606186649044	0.3
2-NBT-BIKE	10	7.999999999999999	0.666666667	0
22-SBT	1372	1361	0.2975691244522792	0.4
22-WBL	2	2.3	0.20459830184114194	15.1
35-SBT	1166	1169.1	0.090724368	0.5
35-WBT	0	0	0	0
35-SBL	0	0.1	0.447213595	4.1
35-WBR	55	57.800000000000004	0.37283654890391577	11.4
35-NBT	1081	1078.6999999999998	0.069991632	0.2
35-EBL	0	0	0	0
35-WBL	0	0	0	0
35-EBT	0	0	0	0
35-NBT-BIKE	10	7.6	0.8090398349558906	0
35-SBT-BIKE	10	9.8	0.063564173	0
35-NBR	0	0	0	0
35-EBR	63	64	0.12549116102763172	9.2
35-NBL	0	0.1	0.447213595	1.2
35-SBR	0	0.1	0.447213595	0.4

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
6-EBR	36	38.900000000000006	0.4738840450125862	24.4
6-SBT	953	931.5	0.7004149170192047	5.8
6-EBT-BIKE	5	6.800000000000001	0.7410482726333567	30.7
6-WBT	198	201.7	0.2617276753269008	37.7
6-WBL	67	69.299999999999998	0.2786088488944981	44
6-NBR	61	62.3	0.1655681559785215	4.8
6-NBL	43	45.599999999999994	0.39063529896129684	16.3
6-EBL	51	49.5	0.21160368475757949	44.4
6-WBT-BIKE	5	5.9	0.38551764319030757	31.1
6-SBL	79	75.100000000000001	0.44430201770097716	25.7
6-WBR	79	80.2	0.13450075189866642	27.9
6-NBT	1066	1067.2	0.036743494393890595	6.1
6-NBT-BIKE	10	7.9	0.7019525839881192	20.1
6-SBT-BIKE	10	9.9	0.031702131	13.1
6-SBR	52	54.8	0.38316638605278097	3.8
6-EBT	179	176.399999999999998	0.19504267025168862	38.1
24-EBR	30	31.3	0.23481623094768472	9.5
24-SBT-BIKE	10	9.2	0.2581988897471614	0
24-NBT-BIKE	10	7.2	0.9547920752586628	0
24-SBR	0	0	0	
24-NBT	1409	1405	0.10663823359494556	0.1
24-EBL	0	0	0	
24-NBL	41	35	0.9733285267845752	8.4
24-SBT	1228	1220.100000000000001	0.22580185851866655	0.1
32-EBR	0	0	0	
32-NBT	1213	1218.7	0.16346879306171716	0.1
32-NBL	0	0.1	0.447213595	0.3
32-NBT-BIKE	10	7.9	0.7019525839881192	0
32-SBT	1084	1063.6	0.6225417291293496	0.1
32-SBR	2	2.4	0.26967994498529674	0.5
32-EBL	0	0	0	
32-SBT-BIKE	10	9.8	0.063564173	0
26-EBR	5	6.300000000000001	0.5469141104851729	14.6
26-SBT-BIKE	10	9.8	0.063564173	0
26-NBT	1351	1348.6	0.065324566	0.1
26-SBR	0	0.1	0.447213595	0
26-NBL	8	9.100000000000001	0.3761920624312236	3.3
26-SBT	1374	1365.2	0.23778573564191308	0.8
26-NBT-BIKE	10	8.1	0.631581371	0
30-WBR	42	42.3	0.046208563	8.8
30-EBL	0	0	0	
30-WBL	0	0	0	
30-SBT	1216	1205.9	0.2902406700627698	3.1
30-WBT	0	0	0	

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
30-EBT	0	0	0	0
30-NBR	0	0	0	0
30-NBT	1371	1365	0.16222142113076254	0.4
30-SBT-BIKE	10	9.9	0.031702131	0
30-NBL	0	0	0	0
30-SBR	49	43.5	0.8087360843031886	1.4
30-EBR	0	0	0	0
30-NBT-BIKE	10	7.3999999999999995	0.8814825547070536	0
30-SBL	100	96.80000000000001	0.32259113541820356	18.5
5-WBR	17	17.299999999999997	0.072441793	7.4
5-SBL	7	6.3	0.2714483570153185	9.4
5-SBT	1147	1140.8999999999999	0.18035422212704189	3.2
5-SBT-BIKE	10	9.9	0.031702131	2.4
5-EBR	12	13.9	0.527981514	7.8
5-NBT-BIKE	10	7.7	0.7731365422707365	2.8
5-WBL	7	6.1	0.3516590993240537	13.6
5-SBR	9	8.2	0.27279773578818967	3.3
5-NBL	4	4.5	0.24253562503633297	5.8
5-WBT-BIKE	5	6.799999999999999	0.741048273	9.9
5-NBR	11	10.2	0.2457180467335807	3.3
5-NBT	1121	1122.6	0.047770773	2.6
5-EBL	7	7.699999999999999	0.2581988897471609	16.5
5-EBT	2	2.7	0.45662965113740966	16.4
5-WBT	1	1.8	0.6761234037828133	15.3
36-EBR	0	0	0	0
36-NBR	54	48	0.8401680504168059	14.149999988208332
36-WBR	0	0	0	0
36-EBT-BIKE	5	5.1	0.044499415948998325	0
36-WBT	1679	1665	0.34238119163116293	0.32235294116871205
36-EBT	1723	1716	0.16880952581134903	0.11496978871888627
36-WBT-BIKE	5	5.5	0.21821789023599236	1.2
10-SBL	174	176.79999999999998	0.21141862151516977	76.4
10-NBR	74	73.39999999999999	0.069890397	21.4
10-NBT-BIKE	10	7.5	0.8451542547285166	19.2
10-NBT	1196	1183.8999999999999	0.35076884574054124	21.2
10-SBR	84	82.4	0.17541160386140522	29.4
10-SBT-BIKE	10	10	0	6.4
10-WBT	548	544	0.17118419700436516	40.2
10-EBT	536	541.1999999999999	0.22406301166675538	37.5
10-EBR	135	137	0.17149858514250885	32.7
10-WBT-BIKE	5	5	0	36.5
10-NBL	145	153.2	0.6715448619986052	41.6
10-WBL	79	76.80000000000001	0.24926078130914223	45.1
10-SBT	1092	1063.6999999999998	0.862000013	32.1

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
10-EBL	146	149.7	0.30429236781965124	70.9
10-EBT-BIKE	5	5.1	0.044499415948998325	29.6
10-WBR	203	208.39999999999998	0.3765100854341621	35.6
7-EBT	3	3.5	0.2773500981126146	24.1
7-NBL	10	9.9	0.031702131	5.2
7-EBL	2	2.8	0.5163977794943222	14.3
7-SBT-BIKE	10	9.399999999999999	0.19264838972038112	1.8
7-SBR	12	12.3	0.086066297	0.8
7-SBL	36	36	0	4.5
7-WBR	30	29.1	0.16556318284174856	10.4
7-NBT-BIKE	10	7.999999999999999	0.666666667	0
7-NBR	26	25.5	0.098532928	0.7
7-SBT	1049	1033	0.4959005818989949	0.3
7-NBT	1177	1187.4	0.3024738692013821	0.3
7-EBR	19	17.5	0.3511234415883917	6.9
7-WBL	18	18.3	0.070417879	19.1
7-WBT	3	4.1000000000000005	0.583819382	25.8
9-SBT	1306	1283.8000000000002	0.6169285360526163	1.4
9-WBR	6	6.4	0.1606438657804999	10.1
9-NBR	36	32	0.6859943405700354	4.2
9-SBT-BIKE	10	10.1	0.031544014893825474	1.5
9-WBL	1	1.1	0.097590007	26.5
9-NBT-BIKE	10	7.699999999999999	0.7731365422707367	1.5
9-NBT	1384	1376.8000000000002	0.1937894013553289	4.6
9-SBL	7	7.4	0.14907119849998612	9.5
3-EBT	1631	1635.0000000000002	0.098984433	0.1
3-EBT-BIKE	5	5.2	0.088561489	0
3-WBT-BIKE	5	5.5	0.21821789023599236	0.2
3-WBT	1679	1522.6	3.9090228664098348	0.5
3-EBU	146	143.5	0.20779290873084566	15.5
29-NBL	0	0	0	
29-NBT	1408	1395.6	0.3311910997981898	0.3
29-SBT-BIKE	10	10	0	0
29-EBL	12	11.799999999999999	0.057977104	20.4
29-SBT	1307	1290.6	0.4550642390442435	0.2
29-SBR	0	0	0	
29-EBR	66	67.3	0.15923673911748845	11.5
29-NBT-BIKE	10	7.6	0.8090398349558906	0
16-NBT	1351	1350.3000000000002	0.019047002050738254	0.2
16-WBT	0	0	0	
16-NBL	51	48.900000000000006	0.2971334519846054	5.9
16-NBT-BIKE	10	7.2	0.9547920752586628	0
16-EBR	36	33.4	0.4413758943522788	8.6
16-EBT	1	0.8999999999999999	0.1025978352085155	16.3

Existing Conditions

PM Peak Hour

Name	Calibration Vehs	Simulation Vehs	GEH	Veh Delay
16-EBL	18	19.1	0.25539990311691496	16.4
16-NBR	7	8.4	0.5045249791095131	0.6
16-SBR	46	48	0.2917299829957891	1.3
16-SBT	1187	1182.4	0.13364528376341314	0.6
16-SBL	15	13.3	0.4519295107486478	9.7
16-WBR	18	19.3	0.30102594902086816	9.4
16-SBT-BIKE	10	9.2	0.2581988897471614	0
16-WBL	5	4.8	0.09035079	13.3
37-WBR	242	266.5	1.5365107516932088	0.5
37-WBT-BIKE	5	5.4	0.175411604	0
37-SBR	0	0	0	0
39-SBT-BIKE	10	9.4000000000000002	0.19264838972037995	0
39-NBR	0	0.1	0.447213595	0.1
39-NBT-BIKE	10	7.4	0.8814825547070534	0
39-EBR	5	4	0.4714045207910317	24.774999752250004
39-WBR	32	30.9	0.19614731169591054	8.2
39-NBT	1440	1409	0.8213541712456781	0.35997468530680415
28-NBT-BIKE	10	7.699999999999999	0.7731365422707367	0
28-NBL	0	0	0	0
28-EBL	25	27.1	0.4114484503012237	22
28-SBT	1306	1281.9	0.6699745337000766	2.3
28-EBR	7	6.3000000000000001	0.27144835701531816	10.5
28-SBR	0	0	0	0
28-NBT	1390	1383.1	0.1853025189997566	0.8
28-SBT-BIKE	10	9.9	0.031702131	0
18-NBL	36	37.6	0.263752189	11.1
18-SBL	17	15.6	0.346764183	8
18-SBT-BIKE	10	9.8	0.063564173	0
18-SBT	1364	1365.1999999999998	0.032484677726125295	0.8
18-SBR	26	23.699999999999996	0.4613862412138985	0.9
18-WBL	8	7.1	0.3275435363610777	22.2
18-EBR	12	13.100000000000001	0.31050659031570055	10.6
18-EBL	1	0.8	0.2108185106778919	19
18-NBT	1384	1357	0.7293302790677049	0.6
18-WBT	0	0	0	0
18-NBT-BIKE	10	7.5	0.8451542547285166	0
18-EBT	0	0	0	0
18-NBR	93	93.9	0.093100681	1.9
18-WBR	30	30	0	10.2



Appendix C-E Vissim Traffic Operations Results

Existing AM Peak Hour - Vissim Traffic Operations Results

Table 1: Node Results - 1: Flores Dr & Grant Rd

1: Flores Dr & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	1706	1	35	1285	--	--	--	4	--	--	--
Movement Delay (sec/veh)	--	3.5	3.6	10.1	0.4	--	--	--	2.5	--	--	--
Movement LOS	--	A	A	B	A	--	--	--	A	--	--	--
Approach Delay (sec/veh)	3.5			0.7			2.5			--		
Approach LOS	A			A			A			--		
Average Queue (ft)	--	12.2	12.2	0.2	1.2	--	--	--	0.4	--	--	--
Max Simulated Queue (ft)	--	188.6	188.6	16.5	48.8	--	--	--	29.7	--	--	--
						Intersection Delay (sec/veh)					2.3	A

Table 2: Node Results - 2: 1st Ave & Grant Rd

2: 1st Ave & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR

Existing AM Peak Hour - Vissim Traffic Operations Results

Volume (veh)	--	1582	164	--	1054	184	96	530	39	252	735	128
Movement Delay (sec/veh)	--	11.2	5.5	--	9.3	8.0	42.9	34.0	8.4	43.2	27.7	11.2
Movement LOS	--	B	A	--	A	A	D	C	A	D	C	B
Approach Delay (sec/veh)	10.7			9.1			33.8			29.3		
Approach LOS	B			A			C			C		
Average Queue (ft)	--	43.5	1.5	--	23.6	4.2	11.9	62.6	0.0	30.3	40.2	4.8
Max Simulated Queue (ft)	--	280.5	48.4	--	166.2	91.3	64.7	222.7	4.5	140.4	440.5	166.9
							Intersection Delay (sec/veh)			17.9	B	

Table 3: Node Results - 3: Ped Cross 2 & Grant Rd

3: Ped Cross 2 & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	1760	--	--	1026	--	--	--	--	--	--	--
Movement Delay (sec/veh)	--	0.1	--	--	0.3	--	--	--	--	--	--	--
Movement LOS	--	A	--	--	A	--	--	--	--	--	--	--

Existing AM Peak Hour - Vissim Traffic Operations Results

Approach Delay (sec/veh)	0.1			0.3			--			--		
Approach LOS	A			A			--			--		
Average Queue (ft)	--	0.0	--	--	0.5	--	--	--	--	--	--	--
Max Simulated Queue (ft)	--	2.0	--	--	35.3	--	--	--	--	--	--	--
							Intersection Delay (sec/veh)			0.2	A	

Table 4: Node Results - 4: Park Ave & Grant Rd

4: Park Ave & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	85	1510	166	62	939	16	51	22	12	34	112	35
Movement Delay (sec/veh)	7.7	4.5	2.0	13.9	5.8	4.2	50.8	38.9	13.3	37.2	40.0	25.0
Movement LOS	A	A	A	B	A	A	D	D	B	D	D	C
Approach Delay (sec/veh)	4.4			6.3			42.4			36.6		
Approach LOS	A			A			D			D		
Average Queue (ft)	0.9	15.7	0.7	1.9	12.1	12.6	13.1	5.2	6.4	6.6	30.3	32.7

Existing AM Peak Hour - Vissim Traffic Operations Results

Max Simulated Queue (ft)	37.5	130.6	69.5	44.6	136.5	139.5	74.2	50.2	55.8	52.8	156.8	161.0
Intersection Delay (sec/veh)											8.0	A

Table 5: Node Results - 5: 1st Ave & Jacinto St/Copper St

5: 1st Ave & Jacinto St/Copper St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	5	0	21	9	0	7	5	749	3	2	1082	1
Movement Delay (sec/veh)	12.7	--	7.9	11.3	--	6.9	11.0	3.9	2.7	4.7	5.4	6.1
Movement LOS	B	--	A	B	--	A	B	A	A	A	A	A
Approach Delay (sec/veh)	8.8			9.4			3.9			5.4		
Approach LOS	A			A			A			A		
Average Queue (ft)	1.3	1.3	1.3	0.7	0.5	0.6	0.1	9.7	9.7	0.0	22.0	22.0
Max Simulated Queue (ft)	46.0	46.0	46.0	34.3	34.0	33.9	5.0	197.0	197.0	0.6	317.4	317.4
Intersection Delay (sec/veh)											4.9	A

Table 6: Node Results - 6: 1st Ave & Glenn St

Existing AM Peak Hour - Vissim Traffic Operations Results

6: 1st Ave & Glenn St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	53	128	35	89	140	59	29	664	38	50	950	29
Movement Delay (sec/veh)	46.5	37.3	19.9	45.5	38.3	25.5	11.9	2.9	3.1	13.2	6.7	4.6
Movement LOS	D	D	B	D	D	C	B	A	A	B	A	A
Approach Delay (sec/veh)	36.7			37.9			3.3			7.0		
Approach LOS	D			D			A			A		
Average Queue (ft)	12.7	32.3	33.7	22.2	41.2	41.2	0.4	5.6	5.6	1.5	23.6	25.0
Max Simulated Queue (ft)	74.5	167.7	170.2	108.7	205.5	205.6	13.3	86.3	86.3	46.9	351.2	356.5
						Intersection Delay (sec/veh)					12.5	B

Table 7: Node Results - 7: 1st Ave & Blacklidge Dr

7: 1st Ave & Blacklidge Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	2	4	11	13	0	28	8	766	14	12	1040	4

Existing AM Peak Hour - Vissim Traffic Operations Results

Movement Delay (sec/veh)	14.6	19.1	8.2	11.0	13.1	5.8	5.8	0.2	0.5	1.9	0.1	0.5
Movement LOS	B	C	A	B	B	A	A	A	A	A	A	A
Approach Delay (sec/veh)	11.5			7.4			0.3			0.1		
Approach LOS	B			A			A			A		
Average Queue (ft)	0.7	0.9	0.7	1.4	1.3	1.2	0.2	0.0	1.5	0.1	0.0	0.0
Max Simulated Queue (ft)	37.8	42.5	36.3	37.1	36.7	36.3	15.5	6.6	66.0	12.2	0.0	0.0
							Intersection Delay (sec/veh)			0.4	A	

Table 8: Node Results - 8: 1st Ave & Fort Lowell Rd

8: 1st Ave & Fort Lowell Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	78	575	42	124	530	185	52	690	106	258	897	60
Movement Delay (sec/veh)	40.0	35.9	29.7	47.3	34.3	6.8	27.2	11.5	8.0	35.9	13.3	13.2
Movement LOS	D	D	C	D	C	A	C	B	A	D	B	B
Approach Delay (sec/veh)	36.0			30.2			12.0			18.1		

Existing AM Peak Hour - Vissim Traffic Operations Results

Approach LOS	D			C			B			B		
Average Queue (ft)	16.6	75.8	75.8	35.0	63.2	0.0	5.2	28.7	29.5	57.3	49.6	49.6
Max Simulated Queue (ft)	100.2	280.2	280.2	150.3	241.5	10.0	67.3	286.9	288.9	261.2	417.9	417.9
						Intersection Delay (sec/veh)				22.9	C	

Table 9: Node Results - 9: 1st Ave & Graybill Dr

9: 1st Ave & Graybill Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	8	--	4	--	906	14	3	1211	--
Movement Delay (sec/veh)	--	--	--	14.1	--	6.5	--	2.1	1.9	3.3	0.7	--
Movement LOS	--	--	--	B	--	A	--	A	A	A	A	--
Approach Delay (sec/veh)	--			11.6			2.1			0.7		
Approach LOS	--			B			A			A		
Average Queue (ft)	--	--	--	0.6	--	0.3	--	5.9	6.4	3.7	4.6	--
Max Simulated Queue (ft)	--	--	--	25.8	--	25.4	--	136.7	141.9	112.9	116.9	--

Existing AM Peak Hour - Vissim Traffic Operations Results

Intersection Delay (sec/veh)	1.4	A

Table 10: Node Results - 10: 1 St Ave & Prince Rd

10: 1 St Ave & Prince Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	87	497	117	70	342	142	105	715	81	187	1007	89
Movement Delay (sec/veh)	42.5	37.0	30.6	47.8	34.1	26.5	35.4	8.6	7.8	34.3	18.2	16.5
Movement LOS	D	D	C	D	C	C	D	A	A	C	B	B
Approach Delay (sec/veh)	36.6			33.9			11.7			20.4		
Approach LOS	D			C			B			C		
Average Queue (ft)	20.4	78.8	78.8	17.0	56.7	59.1	18.9	21.4	22.7	31.1	79.9	79.9
Max Simulated Queue (ft)	107.7	283.6	283.6	97.6	219.1	222.3	131.5	256.8	260.8	214.2	541.7	541.7
						Intersection Delay (sec/veh)					23.6	C

Table 11: Node Results - 11: 1st Ave & Halcyon Rd

11: 1st Ave & Halcyon Rd	E/W Road Name					N/S Road Name			
	Eastbound		Westbound			Northbound		Southbound	

Existing AM Peak Hour - Vissim Traffic Operations Results

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	0	2	0	16	0	913	30	3	1261	0
Movement Delay (sec/veh)	--	--	--	23.2	--	6.2	--	0.2	0.6	5.8	0.5	--
Movement LOS	--	--	--	C	--	A	--	A	A	A	A	--
Approach Delay (sec/veh)	--			8.1			0.2			0.5		
Approach LOS	--			A			A			A		
Average Queue (ft)	0.0	0.0	0.0	0.6	0.7	0.6	0.0	0.0	0.1	0.0	0.2	0.9
Max Simulated Queue (ft)	0.0	0.0	0.0	30.9	41.4	30.7	0.0	0.0	9.5	4.6	18.1	45.8
							Intersection Delay (sec/veh)				0.4	A

Table 12: Node Results - 12: 1st Ave & Roger Rd

12: 1st Ave & Roger Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	38	194	56	40	126	66	37	833	46	143	1161	24
Movement Delay (sec/veh)	44.1	41.4	31.1	60.2	39.9	25.6	19.5	5.3	5.7	24.3	8.3	8.4

Existing AM Peak Hour - Vissim Traffic Operations Results

Movement LOS	D	D	C	E	D	C	B	A	A	C	A	A
Approach Delay (sec/veh)	39.8			39.3			5.9			10.0		
Approach LOS	D			D			A			B		
Average Queue (ft)	8.0	58.9	60.5	14.1	39.7	40.5	2.0	13.2	14.3	17.1	40.4	39.9
Max Simulated Queue (ft)	54.1	267.8	270.1	76.7	200.8	201.5	48.2	173.0	177.5	130.5	350.9	349.5
							Intersection Delay (sec/veh)				14.2	B

Table 13: Node Results - 13: 1st Ave & Limberlost Dr

13: 1st Ave & Limberlost Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	30	65	53	63	76	115	29	832	26	153	1208	13
Movement Delay (sec/veh)	45.4	43.5	42.2	44.9	40.7	6.7	17.5	14.0	12.3	13.2	5.4	4.4
Movement LOS	D	D	D	D	D	A	B	B	B	B	A	A
Approach Delay (sec/veh)	43.4			26.3			14.1			6.3		
Approach LOS	D			C			B			A		

Existing AM Peak Hour - Vissim Traffic Operations Results

Average Queue (ft)	6.7	27.9	27.9	15.9	16.7	0.0	1.2	41.3	41.3	8.0	23.0	23.0
Max Simulated Queue (ft)	53.2	141.8	141.8	84.1	97.2	3.2	35.6	351.5	351.5	85.4	245.5	245.5
						Intersection Delay (sec/veh)				12.8	B	

Table 14: Node Results - 14: 1st Ave & Fry's DWY

14: 1st Ave & Fry's DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	2	--	21	--	898	41	37	1317	--
Movement Delay (sec/veh)	--	--	--	14.0	--	8.1	--	0.5	0.7	5.9	1.6	--
Movement LOS	--	--	--	B	--	A	--	A	A	A	A	--
Approach Delay (sec/veh)	--			8.6			0.5			1.7		
Approach LOS	--			A			A			A		
Average Queue (ft)	--	--	--	0.8	--	0.8	--	0.0	0.0	1.1	1.3	--
Max Simulated Queue (ft)	--	--	--	37.0	--	36.0	--	2.2	7.2	32.1	72.7	--
						Intersection Delay (sec/veh)				1.3	A	

Existing AM Peak Hour - Vissim Traffic Operations Results

Table 15: Node Results - 15: 1st Ave & Wetmore Rd

15: 1st Ave & Wetmore Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	247	34	209	113	62	43	215	699	44	18	1057	168
Movement Delay (sec/veh)	45.0	39.6	5.9	37.2	49.8	28.0	20.8	4.9	4.9	13.1	8.4	0.1
Movement LOS	D	D	A	D	D	C	C	A	A	B	A	A
Approach Delay (sec/veh)	27.9			39.0			8.5			7.3		
Approach LOS	C			D			A			A		
Average Queue (ft)	70.1	7.3	2.6	23.7	25.7	25.7	27.4	14.4	14.4	0.6	46.8	0.0
Max Simulated Queue (ft)	262.6	56.1	71.6	134.5	150.3	150.3	190.8	180.9	180.9	20.4	277.1	7.4
						Intersection Delay (sec/veh)					13.6	B

Table 16: Node Results - 16: 1st Ave & Bromley St

16: 1st Ave & Bromley St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR

Existing AM Peak Hour - Vissim Traffic Operations Results

Volume (veh)	38	0	48	3	0	12	18	898	5	6	1248	15
Movement Delay (sec/veh)	15.5	--	9.8	10.7	--	8.2	6.6	0.1	0.6	8.8	0.2	0.8
Movement LOS	C	--	A	B	--	A	A	A	A	A	A	A
Approach Delay (sec/veh)	12.3			8.7			0.2			0.2		
Approach LOS	B			A			A			A		
Average Queue (ft)	5.9	5.8	6.5	0.0	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.0
Max Simulated Queue (ft)	73.2	80.8	83.6	16.2	16.2	16.2	25.3	0.0	0.6	14.8	0.8	2.2
								Intersection Delay (sec/veh)			0.7	A

Table 17: Node Results - 17: 1st Ave & E River Rd

17: 1st Ave & E River Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	79	754	306	314	764	402	182	559	228	395	677	96
Movement Delay (sec/veh)	27.5	20.9	8.2	38.9	21.9	8.9	58.0	47.2	5.5	58.7	49.9	7.2
Movement LOS	C	C	A	D	C	A	E	D	A	E	D	A

Existing AM Peak Hour - Vissim Traffic Operations Results

Approach Delay (sec/veh)	17.9			22.0			39.4			49.4		
Approach LOS	B			C			D			D		
Average Queue (ft)	5.3	54.7	0.4	26.6	55.0	0.6	26.2	91.4	3.8	64.1	116.3	0.8
Max Simulated Queue (ft)	52.6	298.4	43.3	129.2	297.0	61.9	113.2	345.4	117.9	206.2	387.7	43.4
						Intersection Delay (sec/veh)				31.3	C	

Table 18: Node Results - 18: 1st Ave & LA Fitness DWY

18: 1st Ave & LA Fitness DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	6	0	16	6	0	11	14	929	34	1	1356	3
Movement Delay (sec/veh)	19.1	23.7	10.4	16.8	--	7.5	11.6	0.4	1.3	5.1	0.5	0.5
Movement LOS	C	C	B	C	--	A	B	A	A	A	A	A
Approach Delay (sec/veh)	12.8			10.8			0.6			0.5		
Approach LOS	B			B			A			A		
Average Queue (ft)	1.2	1.2	1.2	0.3	0.3	0.2	0.8	0.1	0.2	0.0	0.0	0.7

Existing AM Peak Hour - Vissim Traffic Operations Results

Max Simulated Queue (ft)	33.8	34.0	33.3	15.3	15.3	19.7	26.8	19.2	15.6	3.2	5.8	36.9
						Intersection Delay (sec/veh)					0.7	A

Table 19: Node Results - 19: 1st Ave & Walmart DWY

19: 1st Ave & Walmart DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	13	--	17	--	--	--	12	916	--	--	1274	38
Movement Delay (sec/veh)	15.8	--	7.1	--	--	--	7.5	0.1	--	--	1.7	0.8
Movement LOS	C	--	A	--	--	--	A	A	--	--	A	A
Approach Delay (sec/veh)	10.9			--			0.2			1.7		
Approach LOS	B			--			A			A		
Average Queue (ft)	1.4	--	0.8	--	--	--	0.5	0.0	--	--	0.2	0.2
Max Simulated Queue (ft)	38.0	--	32.7	--	--	--	21.5	0.0	--	--	11.8	13.8
						Intersection Delay (sec/veh)					1.2	A

Table 20: Node Results - 20: 1st Ave & DWY

Existing AM Peak Hour - Vissim Traffic Operations Results

20: 1st Ave & DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	2	--	7	--	--	--	0	951	--	--	1388	0
Movement Delay (sec/veh)	12.1	--	9.2	--	--	--	--	0.4	--	--	0.1	--
Movement LOS	B	--	A	--	--	--	--	A	--	--	A	--
Approach Delay (sec/veh)	9.8			--			0.4			0.1		
Approach LOS	A			--			A			A		
Average Queue (ft)	0.3	--	0.3	--	--	--	0.0	0.1	--	--	0.0	0.1
Max Simulated Queue (ft)	22.3	--	22.1	--	--	--	0.0	12.4	--	--	3.3	4.5
						Intersection Delay (sec/veh)					0.3	A

Table 21: Node Results - 21: 1st Ave & Sprouts DWY

21: 1st Ave & Sprouts DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	12	--	25	--	926	20	46	1349	--

Existing AM Peak Hour - Vissim Traffic Operations Results

Movement Delay (sec/veh)	--	--	--	16.1	--	8.0	--	0.2	0.9	4.2	0.1	--
Movement LOS	--	--	--	C	--	A	--	A	A	A	A	--
Approach Delay (sec/veh)	--			10.6			0.2			0.2		
Approach LOS	--			B			A			A		
Average Queue (ft)	--	--	--	1.6	--	1.3	--	0.2	0.1	0.8	0.0	--
Max Simulated Queue (ft)	--	--	--	39.4	--	39.2	--	63.3	16.8	34.4	5.7	--
							Intersection Delay (sec/veh)				0.4	A

Table 22: Node Results - 22: 1st Ave & Fry's DWY 2

22: 1st Ave & Fry's DWY 2	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	2	--	16	--	907	5	--	1347	--
Movement Delay (sec/veh)	--	--	--	13.4	--	9.7	--	0.1	0.3	--	0.3	--
Movement LOS	--	--	--	B	--	A	--	A	A	--	A	--
Approach Delay (sec/veh)	--			10.1			0.1			0.3		

Existing AM Peak Hour - Vissim Traffic Operations Results

Approach LOS	--			B			A			A		
Average Queue (ft)	--	--	--	0.6	--	0.7	--	0.0	0.0	--	0.2	--
Max Simulated Queue (ft)	--	--	--	39.5	--	40.2	--	0.0	0.0	--	14.7	--
						Intersection Delay (sec/veh)					0.3	A

Table 23: Node Results - 23: 1st Ave & Campana Dr

23: 1st Ave & Campana Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	0	--	--	22	--	950	0	--	1270	28
Movement Delay (sec/veh)	--	--	--	--	--	8.9	--	0.3	--	--	0.4	0.5
Movement LOS	--	--	--	--	--	A	--	A	--	--	A	A
Approach Delay (sec/veh)	--			8.9			0.3			0.4		
Approach LOS	--			A			A			A		
Average Queue (ft)	--	--	0.0	--	--	1.2	--	0.0	0.0	--	0.1	0.2
Max Simulated Queue (ft)	--	--	0.0	--	--	48.7	--	1.9	6.3	--	9.7	12.0

Existing AM Peak Hour - Vissim Traffic Operations Results

Intersection Delay (sec/veh)	0.4	A

Table 24: Node Results - 24: 1st Ave & Croydon Park Rd

24: 1st Ave & Croydon Park Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	--	13	--	--	--	14	917	--	--	1300	0
Movement Delay (sec/veh)	--	--	9.4	--	--	--	8.3	0.0	--	--	0.1	--
Movement LOS	--	--	A	--	--	--	A	A	--	--	A	--
Approach Delay (sec/veh)	9.4			--			0.1			0.1		
Approach LOS	A			--			A			A		
Average Queue (ft)	0.4	--	0.8	--	--	--	0.4	0.0	--	--	0.0	0.0
Max Simulated Queue (ft)	37.2	--	42.3	--	--	--	19.9	1.8	--	--	0.0	0.0
						Intersection Delay (sec/veh)					0.2	A

Table 25: Node Results - 25: 1st Ave & Calle Arizona

25: 1st Ave & Calle Arizona	E/W Road Name					N/S Road Name			
	Eastbound		Westbound			Northbound		Southbound	

Existing AM Peak Hour - Vissim Traffic Operations Results

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	25	0	0	0	0	896	19	2	1322	0
Movement Delay (sec/veh)	--	8.4	9.5	--	--	--	--	0.2	0.2	2.6	0.2	--
Movement LOS	--	A	A	--	--	--	--	A	A	A	A	--
Approach Delay (sec/veh)	9.5			--			0.2			0.2		
Approach LOS	A			--			A			A		
Average Queue (ft)	0.8	0.9	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Simulated Queue (ft)	42.8	43.5	41.4	0.0	0.0	0.0	0.0	1.7	5.9	2.2	0.0	2.0
							Intersection Delay (sec/veh)				0.3	A

Table 26: Node Results - 26: 1st Ave & Miraflores Apartments North DWY

26: 1st Ave & Miraflores Apartments North DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	0	--	--	--	8	912	--	--	1350	0
Movement Delay (sec/veh)	--	--	--	--	--	--	4.7	0.0	--	--	0.6	--

Existing AM Peak Hour - Vissim Traffic Operations Results

Movement LOS	--	--	--	--	--	--	A	A	--	--	A	--
Approach Delay (sec/veh)	--			--			0.0			0.6		
Approach LOS	--			--			A			A		
Average Queue (ft)	--	--	0.0	--	--	--	0.2	0.0	--	--	1.4	1.7
Max Simulated Queue (ft)	--	--	0.0	--	--	--	14.0	8.9	--	--	81.2	92.6
						Intersection Delay (sec/veh)					0.4	A

Table 27: Node Results - 27: 1st Ave & Pastime Rd

27: 1st Ave & Pastime Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	45	0	0	0	0	907	39	0	1250	0
Movement Delay (sec/veh)	--	--	8.9	--	--	--	1.1	0.2	0.7	2.5	0.1	--
Movement LOS	--	--	A	--	--	--	A	A	A	A	A	--
Approach Delay (sec/veh)	8.9			--			0.2			0.1		
Approach LOS	A			--			A			A		

Existing AM Peak Hour - Vissim Traffic Operations Results

Average Queue (ft)	1.7	1.7	2.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Max Simulated Queue (ft)	48.9	49.5	48.4	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	4.1
						Intersection Delay (sec/veh)				0.3	A	

Table 28: Node Results - 28: 1 St Ave & Yavapai Rd

28: 1 St Ave & Yavapai Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	--	18	--	--	--	5	905	--	--	1195	0
Movement Delay (sec/veh)	--	--	6.9	--	--	--	8.5	0.2	--	--	1.1	--
Movement LOS	--	--	A	--	--	--	A	A	--	--	A	--
Approach Delay (sec/veh)	6.9			--			0.2			1.1		
Approach LOS	A			--			A			A		
Average Queue (ft)	0.5	--	0.7	--	--	--	0.2	0.1	--	--	3.3	3.7
Max Simulated Queue (ft)	36.4	--	34.7	--	--	--	11.6	17.4	--	--	121.1	133.0
						Intersection Delay (sec/veh)				0.8	A	

Existing AM Peak Hour - Vissim Traffic Operations Results

Table 29: Node Results - 29: 1st Ave & Mohave Rd

29: 1st Ave & Mohave Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	--	45	--	--	--	8	920	--	--	1219	0
Movement Delay (sec/veh)	--	--	8.4	--	--	--	4.4	0.1	--	--	0.1	--
Movement LOS	--	--	A	--	--	--	A	A	--	--	A	--
Approach Delay (sec/veh)	8.4			--			0.1			0.1		
Approach LOS	A			--			A			A		
Average Queue (ft)	1.5	--	2.1	--	--	--	0.2	0.1	--	--	0.0	0.0
Max Simulated Queue (ft)	43.0	--	42.0	--	--	--	11.5	5.6	--	--	0.0	0.0
						Intersection Delay (sec/veh)					0.3	A

Table 30: Node Results - 30: 1st Ave & Navajo Rd

30: 1st Ave & Navajo Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR

Existing AM Peak Hour - Vissim Traffic Operations Results

Volume (veh)	0	0	0	0	0	0	0	946	2	15	1215	35
Movement Delay (sec/veh)	--	--	--	--	--	--	--	0.4	0.6	6.3	2.2	1.4
Movement LOS	--	--	--	--	--	--	--	A	A	A	A	A
Approach Delay (sec/veh)	--			--			0.4			2.2		
Approach LOS	--			--			A			A		
Average Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.5	1.5
Max Simulated Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.6	18.2	75.1	64.2
							Intersection Delay (sec/veh)				1.4	A

Table 31: Node Results - 31: 1st Ave & Delano St/Buddy Ln

31: 1st Ave & Delano St/Buddy Ln	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	6	0	0	45	0	801	0	0	1056	0
Movement Delay (sec/veh)	--	--	8.5	--	--	7.4	--	0.2	--	--	0.3	--
Movement LOS	--	--	A	--	--	A	--	A	--	--	A	--

Existing AM Peak Hour - Vissim Traffic Operations Results

Approach Delay (sec/veh)	8.5			7.4			0.2			0.3		
Approach LOS	A			A			A			A		
Average Queue (ft)	0.2	0.2	0.2	1.8	1.8	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Simulated Queue (ft)	26.6	26.6	25.5	54.7	54.7	49.2	0.0	0.0	2.8	0.0	0.0	0.0
							Intersection Delay (sec/veh)			0.5	A	

Table 32: Node Results - 32: 1st Ave & Laguna St

32: 1st Ave & Laguna St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	--	0	--	--	--	0	787	--	--	1030	31
Movement Delay (sec/veh)	--	--	--	--	--	--	--	0.1	--	--	0.5	1.1
Movement LOS	--	--	--	--	--	--	--	A	--	--	A	A
Approach Delay (sec/veh)	--			--			0.1			0.5		
Approach LOS	--			--			A			A		
Average Queue (ft)	0.0	--	0.0	--	--	--	0.0	0.0	--	--	0.5	0.6

Existing AM Peak Hour - Vissim Traffic Operations Results

Max Simulated Queue (ft)	0.0	--	0.0	--	--	--	0.0	0.0	--	--	24.7	28.7
						Intersection Delay (sec/veh)					0.3	A

Table 33: Node Results - 33: 1st Ave & QuikTrip DWY

33: 1st Ave & QuikTrip DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	0	--	9	--	777	0	0	1029	--
Movement Delay (sec/veh)	--	--	--	12.7	--	8.0	--	0.2	--	--	1.2	--
Movement LOS	--	--	--	B	--	A	--	A	--	--	A	--
Approach Delay (sec/veh)	--			8.0			0.2			1.2		
Approach LOS	--			A			A			A		
Average Queue (ft)	--	--	--	0.0	--	0.3	--	0.0	0.0	0.0	0.1	--
Max Simulated Queue (ft)	--	--	--	0.6	--	25.2	--	0.0	0.0	0.0	10.2	--
						Intersection Delay (sec/veh)					0.8	A

Table 34: Node Results - 34: 1st Ave & Kelso St/Mitchell Dr

Existing AM Peak Hour - Vissim Traffic Operations Results

34: 1st Ave & Kelso St/Mitchell Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	0	--	--	--	0	731	29	0	1074	0
Movement Delay (sec/veh)	--	--	--	--	--	--	--	0.4	0.8	--	0.5	--
Movement LOS	--	--	--	--	--	--	--	A	A	--	A	--
Approach Delay (sec/veh)	--			--			0.4			0.5		
Approach LOS	--			--			A			A		
Average Queue (ft)	0.0	0.2	0.0	--	--	--	0.0	0.0	0.1	0.0	0.0	0.0
Max Simulated Queue (ft)	0.0	25.1	0.0	--	--	--	0.0	0.0	10.6	0.0	0.0	0.6
						Intersection Delay (sec/veh)					0.5	A

Table 35: Node Results - 35: 1st Ave & Alturas St

35: 1st Ave & Alturas St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	0	0	0	48	0	709	0	--	1113	4

Existing AM Peak Hour - Vissim Traffic Operations Results

Movement Delay (sec/veh)	--	--	--	--	--	8.5	--	0.2	--	--	0.8	0.5
Movement LOS	--	--	--	--	--	A	--	A	--	--	A	A
Approach Delay (sec/veh)	--			8.5			0.2			0.8		
Approach LOS	--			A			A			A		
Average Queue (ft)	0.0	0.0	0.0	1.7	1.9	2.2	0.0	0.0	0.0	--	0.2	1.5
Max Simulated Queue (ft)	0.0	0.0	0.0	52.8	55.1	52.3	0.0	0.0	0.0	--	13.5	67.3
							Intersection Delay (sec/veh)				0.8	A

Table 36: Node Results - 36: Hampton St & Grant Rd

36: Hampton St & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	1872	1	--	1144	0	--	--	0	--	--	91
Movement Delay (sec/veh)	--	0.2	0.4	--	0.1	--	--	--	0.0	--	--	8.6
Movement LOS	--	A	A	--	A	--	--	--	A	--	--	A
Approach Delay (sec/veh)	0.2			0.1			--			8.6		

Existing AM Peak Hour - Vissim Traffic Operations Results

Approach LOS	A			A			--			A		
Average Queue (ft)	--	0.0	0.0	--	0.0	0.0	--	--	0.0	--	--	4.9
Max Simulated Queue (ft)	--	0.0	0.0	--	0.0	0.0	--	--	0.0	--	--	75.7
						Intersection Delay (sec/veh)				0.4	A	

Table 37: Node Results - 37: Grant Rd & Fry's DWY

37: Grant Rd & Fry's DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	--	--	0	--	--	--	--	--	71
Movement Delay (sec/veh)	--	--	--	--	--	2.4	--	--	--	--	--	9.3
Movement LOS	--	--	--	--	--	A	--	--	--	--	--	A
Approach Delay (sec/veh)	--			--			--			9.3		
Approach LOS	--			--			--			A		
Average Queue (ft)	--	--	--	--	--	0.1	--	--	--	--	--	3.9
Max Simulated Queue (ft)	--	--	--	--	--	17.4	--	--	--	--	--	68.3

Existing AM Peak Hour - Vissim Traffic Operations Results

Intersection Delay (sec/veh)	9.3	A

Table 38: Node Results - 38: 1st Ave & Speedway DWY

38: 1st Ave & Speedway DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	9	0	0	8	--	948	0	--	1379	0
Movement Delay (sec/veh)	0.0	--	6.7	11.3	--	8.3	--	2.1	--	--	0.6	--
Movement LOS	A	--	A	B	--	A	--	A	--	--	A	--
Approach Delay (sec/veh)	6.7			8.3			2.1			0.6		
Approach LOS	A			A			A			A		
Average Queue (ft)	0.2	0.2	0.2	0.2	0.2	0.3	--	1.4	1.0	--	1.0	0.3
Max Simulated Queue (ft)	29.5	29.5	28.5	26.8	26.8	25.9	--	80.1	58.3	--	64.6	108.6
						Intersection Delay (sec/veh)					1.3	A

Table 39: Node Results - 39: 1st Ave & KFC Dwy

39: 1st Ave & KFC Dwy	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		

Existing AM Peak Hour - Vissim Traffic Operations Results

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	0	--	--	0	--	924	59	--	--	--
Movement Delay (sec/veh)	--	--	0.0	--	--	--	--	0.4	0.3	--	--	--
Movement LOS	--	--	A	--	--	--	--	A	A	--	--	--
Approach Delay (sec/veh)	--			--			0.4			--		
Approach LOS	--			--			A			--		
Average Queue (ft)	--	--	0.0	--	--	0.0	--	0.0	0.1	--	--	--
Max Simulated Queue (ft)	--	--	0.0	--	--	0.0	--	3.5	7.2	--	--	--
						Intersection Delay (sec/veh)					0.4	A

Existing PM Peak Hour - Vissim Traffic Operations Results

Table 1: Node Results - 1: Flores Dr & Grant Rd

1: Flores Dr & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	1403	4	17	1675	--	--	--	5	--	--	--
Movement Delay (sec/veh)	--	1.9	2.1	8.0	0.1	--	--	--	8.8	--	--	--
Movement LOS	--	A	A	A	A	--	--	--	A	--	--	--
Approach Delay (sec/veh)	1.9			0.2			8.8			--		
Approach LOS	A			A			A			--		
Average Queue (ft)	--	5.2	5.2	0.3	0.4	--	--	--	0.4	--	--	--
Max Simulated Queue (ft)	--	126.3	126.3	17.7	29.9	--	--	--	49.5	--	--	--
						Intersection Delay (sec/veh)					1.0	A

Table 2: Node Results - 2: 1st Ave & Grant Rd

2: 1st Ave & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR

Existing PM Peak Hour - Vissim Traffic Operations Results

Volume (veh)	--	1305	153	--	1528	272	302	813	92	319	738	167
Movement Delay (sec/veh)	--	17.7	7.3	--	13.3	10.1	39.4	33.2	10.1	45.5	24.3	11.4
Movement LOS	--	B	A	--	B	B	D	C	B	D	C	B
Approach Delay (sec/veh)	16.6			12.8			33.0			28.1		
Approach LOS	B			B			C			C		
Average Queue (ft)	--	57.6	2.3	--	52.1	10.0	34.3	98.6	1.4	37.8	35.2	2.8
Max Simulated Queue (ft)	--	284.8	62.6	--	273.4	162.4	133.0	347.1	85.1	138.7	453.7	114.5
							Intersection Delay (sec/veh)			21.3	C	

Table 3: Node Results - 3: Ped Cross 2 & Grant Rd

3: Ped Cross 2 & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	1635	--	--	1523	--	--	--	--	--	--	--
Movement Delay (sec/veh)	--	0.1	--	--	0.5	--	--	--	--	--	--	--
Movement LOS	--	A	--	--	A	--	--	--	--	--	--	--

Existing PM Peak Hour - Vissim Traffic Operations Results

Approach Delay (sec/veh)	0.1			0.5			--			--		
Approach LOS	A			A			--			--		
Average Queue (ft)	--	0.0	--	--	1.1	--	--	--	--	--	--	--
Max Simulated Queue (ft)	--	2.2	--	--	60.0	--	--	--	--	--	--	--
							Intersection Delay (sec/veh)			0.3	A	

Table 4: Node Results - 4: Park Ave & Grant Rd

4: Park Ave & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	140	1402	98	67	1245	30	245	172	75	30	74	30
Movement Delay (sec/veh)	18.2	7.5	2.0	19.0	12.2	11.9	42.1	33.7	24.2	39.6	28.8	17.2
Movement LOS	B	A	A	B	B	B	D	C	C	D	C	B
Approach Delay (sec/veh)	8.1			12.5			36.4			28.6		
Approach LOS	A			B			D			C		
Average Queue (ft)	8.4	25.2	0.6	3.8	36.8	37.9	65.3	46.8	50.1	4.6	13.8	15.4

Existing PM Peak Hour - Vissim Traffic Operations Results

Max Simulated Queue (ft)	107.4	137.6	66.2	53.7	232.5	235.5	323.0	282.9	288.4	42.0	110.0	114.3
						Intersection Delay (sec/veh)					14.4	B

Table 5: Node Results - 5: 1st Ave & Jacinto St/Copper St

5: 1st Ave & Jacinto St/Copper St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	8	3	14	6	2	17	4	1123	10	6	1141	8
Movement Delay (sec/veh)	16.5	16.4	7.8	13.6	15.3	7.4	5.8	2.6	3.3	9.4	3.2	3.3
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
Approach Delay (sec/veh)	11.6			9.5			2.6			3.2		
Approach LOS	B			A			A			A		
Average Queue (ft)	1.5	1.5	1.5	1.1	1.0	1.0	0.0	10.1	10.1	0.1	13.6	13.6
Max Simulated Queue (ft)	47.1	47.1	47.1	40.2	39.9	39.7	2.4	231.7	231.7	2.9	291.9	291.9
						Intersection Delay (sec/veh)					3.1	A

Table 6: Node Results - 6: 1st Ave & Glenn St

Existing PM Peak Hour - Vissim Traffic Operations Results

6: 1st Ave & Glenn St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	50	176	39	69	202	80	46	1067	62	75	932	55
Movement Delay (sec/veh)	44.4	38.1	24.4	44.0	37.7	27.9	16.3	6.1	4.8	25.7	5.8	3.8
Movement LOS	D	D	C	D	D	C	B	A	A	C	A	A
Approach Delay (sec/veh)	37.3			36.7			6.4			7.1		
Approach LOS	D			D			A			A		
Average Queue (ft)	11.2	46.9	48.5	15.3	61.3	61.3	1.0	21.1	21.1	7.0	17.8	19.3
Max Simulated Queue (ft)	72.8	213.1	215.7	80.7	287.0	287.0	33.8	215.7	215.7	81.9	277.6	282.9
						Intersection Delay (sec/veh)					13.3	B

Table 7: Node Results - 7: 1st Ave & Blacklidge Dr

7: 1st Ave & Blacklidge Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	3	4	18	18	4	29	10	1187	26	36	1033	12

Existing PM Peak Hour - Vissim Traffic Operations Results

Movement Delay (sec/veh)	14.3	24.1	6.9	19.1	25.8	10.4	5.2	0.3	0.7	4.5	0.3	0.8
Movement LOS	B	C	A	C	D	B	A	A	A	A	A	A
Approach Delay (sec/veh)	10.5			14.7			0.3			0.4		
Approach LOS	B			B			A			A		
Average Queue (ft)	1.0	1.2	1.0	3.7	3.3	3.2	0.3	0.0	1.6	0.6	0.3	0.1
Max Simulated Queue (ft)	41.4	46.4	39.8	54.4	54.1	53.6	15.2	5.8	72.7	26.8	26.2	12.1
							Intersection Delay (sec/veh)			0.8	A	

Table 8: Node Results - 8: 1st Ave & Fort Lowell Rd

8: 1st Ave & Fort Lowell Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	88	574	50	128	717	261	70	1025	100	205	920	75
Movement Delay (sec/veh)	45.4	35.6	30.1	49.5	37.3	9.7	33.0	14.8	11.5	50.0	13.1	13.2
Movement LOS	D	D	C	D	D	A	C	B	B	D	B	B
Approach Delay (sec/veh)	36.4			32.2			15.6			19.4		

Existing PM Peak Hour - Vissim Traffic Operations Results

Approach LOS	D			C			B			B		
Average Queue (ft)	20.7	76.0	76.0	37.6	96.5	1.1	8.5	64.1	65.2	65.4	53.2	53.2
Max Simulated Queue (ft)	113.5	283.1	283.1	156.3	353.5	62.8	82.0	502.2	504.1	261.9	462.8	462.8
						Intersection Delay (sec/veh)				24.6	C	

Table 9: Node Results - 9: 1st Ave & Graybill Dr

9: 1st Ave & Graybill Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	1	--	6	--	1377	32	7	1284	--
Movement Delay (sec/veh)	--	--	--	26.5	--	10.1	--	4.6	4.2	9.5	1.4	--
Movement LOS	--	--	--	C	--	B	--	A	A	A	A	--
Approach Delay (sec/veh)	--			12.4			4.6			1.4		
Approach LOS	--			B			A			A		
Average Queue (ft)	--	--	--	0.3	--	0.3	--	25.4	26.4	8.2	9.3	--
Max Simulated Queue (ft)	--	--	--	20.2	--	19.8	--	357.4	364.6	148.0	151.0	--

Existing PM Peak Hour - Vissim Traffic Operations Results

Intersection Delay (sec/veh)	3.1	A

Table 10: Node Results - 10: 1 St Ave & Prince Rd

10: 1 St Ave & Prince Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	150	541	137	77	544	208	153	1184	73	177	1064	82
Movement Delay (sec/veh)	70.9	37.5	32.7	45.1	40.2	35.6	41.6	21.2	21.4	76.4	32.1	29.4
Movement LOS	E	D	C	D	D	D	D	C	C	E	C	C
Approach Delay (sec/veh)	42.8			39.5			23.4			37.9		
Approach LOS	D			D			C			D		
Average Queue (ft)	68.7	92.3	92.3	18.0	109.4	112.1	30.8	114.0	116.6	79.8	162.5	162.5
Max Simulated Queue (ft)	207.8	320.4	320.4	96.8	349.0	352.2	162.7	612.7	616.7	323.0	609.4	609.4
						Intersection Delay (sec/veh)					34.5	C

Table 11: Node Results - 11: 1st Ave & Halcyon Rd

11: 1st Ave & Halcyon Rd	E/W Road Name					N/S Road Name			
	Eastbound		Westbound			Northbound		Southbound	

Existing PM Peak Hour - Vissim Traffic Operations Results

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	1	0	10	4	0	13	8	1385	11	16	1337	8
Movement Delay (sec/veh)	18.8	--	9.6	21.4	25.4	8.8	5.9	0.2	0.6	6.0	0.6	1.2
Movement LOS	C	--	A	C	D	A	A	A	A	A	A	A
Approach Delay (sec/veh)	10.4			11.8			0.2			0.7		
Approach LOS	B			B			A			A		
Average Queue (ft)	0.4	0.6	0.4	0.9	0.8	0.8	0.2	0.0	0.1	0.4	0.3	0.5
Max Simulated Queue (ft)	20.1	27.5	19.9	32.5	43.1	32.3	15.8	1.9	14.1	23.1	23.3	42.8
							Intersection Delay (sec/veh)				0.6	A

Table 12: Node Results - 12: 1st Ave & Roger Rd

12: 1st Ave & Roger Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	57	225	93	81	260	95	101	1249	123	82	1175	37
Movement Delay (sec/veh)	107.6	54.7	42.2	168.8	81.7	72.6	16.7	5.5	5.4	35.2	11.8	7.3

Existing PM Peak Hour - Vissim Traffic Operations Results

Movement LOS	F	D	D	F	F	E	B	A	A	D	B	A
Approach Delay (sec/veh)	59.6			95.9			6.3			13.2		
Approach LOS	E			F			A			B		
Average Queue (ft)	33.6	106.4	108.2	104.6	207.0	207.7	6.0	20.5	21.7	12.7	56.8	56.3
Max Simulated Queue (ft)	110.3	376.7	379.1	258.2	490.0	490.7	94.8	270.1	274.6	96.6	353.5	352.2
							Intersection Delay (sec/veh)				25.3	C

Table 13: Node Results - 13: 1st Ave & Limberlost Dr

13: 1st Ave & Limberlost Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	41	93	68	98	149	201	64	1246	44	173	1159	40
Movement Delay (sec/veh)	46.1	41.2	41.5	46.0	37.8	10.4	21.1	14.4	14.4	28.7	10.8	10.7
Movement LOS	D	D	D	D	D	B	C	B	B	C	B	B
Approach Delay (sec/veh)	42.3			27.3			14.7			13.1		
Approach LOS	D			C			B			B		

Existing PM Peak Hour - Vissim Traffic Operations Results

Average Queue (ft)	9.7	39.1	39.1	26.5	32.7	0.0	4.4	73.2	73.2	25.5	49.0	49.0
Max Simulated Queue (ft)	63.4	185.4	185.4	125.6	158.7	9.0	61.1	526.6	526.6	155.0	352.8	352.8
						Intersection Delay (sec/veh)				17.4	B	

Table 14: Node Results - 14: 1st Ave & Fry's DWY

14: 1st Ave & Fry's DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	4	--	59	--	1299	101	94	1281	--
Movement Delay (sec/veh)	--	--	--	36.2	--	9.5	--	0.8	1.0	14.2	2.1	--
Movement LOS	--	--	--	E	--	A	--	A	A	B	A	--
Approach Delay (sec/veh)	--			11.2			0.8			2.9		
Approach LOS	--			B			A			A		
Average Queue (ft)	--	--	--	3.0	--	3.2	--	0.3	0.5	7.7	1.9	--
Max Simulated Queue (ft)	--	--	--	58.0	--	56.9	--	27.7	53.6	101.4	87.7	--
						Intersection Delay (sec/veh)				2.1	A	

Existing PM Peak Hour - Vissim Traffic Operations Results

Table 15: Node Results - 15: 1st Ave & Wetmore Rd

15: 1st Ave & Wetmore Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	340	81	426	53	79	32	278	1038	68	36	954	249
Movement Delay (sec/veh)	50.7	45.8	11.3	31.3	49.6	25.3	28.7	9.1	11.2	22.8	14.5	0.2
Movement LOS	D	D	B	C	D	C	C	A	B	C	B	A
Approach Delay (sec/veh)	30.4			38.9			13.1			11.9		
Approach LOS	C			D			B			B		
Average Queue (ft)	120.7	19.8	23.5	8.7	28.0	28.0	75.5	53.1	53.1	2.2	75.8	0.2
Max Simulated Queue (ft)	415.9	118.2	179.2	63.5	149.8	149.8	304.1	309.7	309.7	37.8	282.1	31.2
						Intersection Delay (sec/veh)					17.9	B

Table 16: Node Results - 16: 1st Ave & Bromley St

16: 1st Ave & Bromley St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR

Existing PM Peak Hour - Vissim Traffic Operations Results

Volume (veh)	19	1	33	5	0	19	49	1350	8	13	1182	48
Movement Delay (sec/veh)	16.4	16.3	8.6	13.3	--	9.4	5.9	0.2	0.6	9.7	0.6	1.3
Movement LOS	C	C	A	B	--	A	A	A	A	A	A	A
Approach Delay (sec/veh)	11.5			10.2			0.4			0.7		
Approach LOS	B			B			A			A		
Average Queue (ft)	3.5	3.5	3.9	0.1	0.1	0.1	1.2	0.1	0.1	0.7	0.6	0.6
Max Simulated Queue (ft)	63.6	71.2	74.1	25.3	25.3	25.3	37.1	8.2	9.6	25.4	38.8	41.7
							Intersection Delay (sec/veh)			0.9	A	

Table 17: Node Results - 17: 1st Ave & E River Rd

17: 1st Ave & E River Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	133	754	260	362	986	541	315	780	322	300	581	101
Movement Delay (sec/veh)	43.0	26.8	7.3	45.5	30.0	17.1	56.3	56.9	13.4	61.9	46.4	8.4
Movement LOS	D	C	A	D	C	B	E	E	B	E	D	A

Existing PM Peak Hour - Vissim Traffic Operations Results

Approach Delay (sec/veh)	24.3			29.3			46.9			47.2		
Approach LOS	C			C			D			D		
Average Queue (ft)	11.7	71.8	0.3	38.9	114.6	11.3	45.8	184.5	46.6	43.1	94.0	0.6
Max Simulated Queue (ft)	72.8	324.5	36.7	150.3	577.1	240.9	168.2	490.8	255.8	159.8	329.4	21.7
						Intersection Delay (sec/veh)					36.1	D

Table 18: Node Results - 18: 1st Ave & LA Fitness DWY

18: 1st Ave & LA Fitness DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	1	0	13	7	0	30	38	1357	94	16	1365	24
Movement Delay (sec/veh)	19.0	--	10.6	22.2	--	10.2	11.1	0.6	1.9	8.0	0.8	0.9
Movement LOS	C	--	B	C	--	B	B	A	A	A	A	A
Approach Delay (sec/veh)	11.2			12.5			1.0			0.9		
Approach LOS	B			B			A			A		
Average Queue (ft)	0.6	0.7	0.6	0.3	0.3	1.0	2.1	1.7	1.8	0.6	0.1	1.7

Existing PM Peak Hour - Vissim Traffic Operations Results

Max Simulated Queue (ft)	30.1	30.3	29.5	20.9	20.9	31.6	36.1	76.1	69.2	23.9	11.0	81.0
						Intersection Delay (sec/veh)					1.1	A

Table 19: Node Results - 19: 1st Ave & Walmart DWY

19: 1st Ave & Walmart DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	23	--	64	--	--	--	38	1406	--	--	1178	72
Movement Delay (sec/veh)	18.5	--	8.8	--	--	--	8.4	0.1	--	--	2.7	1.0
Movement LOS	C	--	A	--	--	--	A	A	--	--	A	A
Approach Delay (sec/veh)	11.4			--			0.3			2.6		
Approach LOS	B			--			A			A		
Average Queue (ft)	4.8	--	3.6	--	--	--	1.8	0.1	--	--	0.7	0.8
Max Simulated Queue (ft)	63.9	--	58.6	--	--	--	45.3	58.4	--	--	29.7	35.1
						Intersection Delay (sec/veh)					1.7	A

Table 20: Node Results - 20: 1st Ave & DWY

Existing PM Peak Hour - Vissim Traffic Operations Results

20: 1st Ave & DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	1	--	12	--	--	--	3	1391	--	--	1428	0
Movement Delay (sec/veh)	23.2	--	8.5	--	--	--	14.9	1.5	--	--	0.1	--
Movement LOS	C	--	A	--	--	--	B	A	--	--	A	--
Approach Delay (sec/veh)	9.6			--			1.5			0.1		
Approach LOS	A			--			A			A		
Average Queue (ft)	0.4	--	0.4	--	--	--	0.2	2.5	--	--	0.0	0.0
Max Simulated Queue (ft)	27.0	--	26.8	--	--	--	8.1	66.5	--	--	0.7	2.0
						Intersection Delay (sec/veh)					0.8	A

Table 21: Node Results - 21: 1st Ave & Sprouts DWY

21: 1st Ave & Sprouts DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	23	--	54	--	1340	48	60	1381	--

Existing PM Peak Hour - Vissim Traffic Operations Results

Movement Delay (sec/veh)	--	--	--	25.9	--	12.3	--	0.6	1.0	8.5	0.2	--
Movement LOS	--	--	--	D	--	B	--	A	A	A	A	--
Approach Delay (sec/veh)	--			16.4			0.6			0.5		
Approach LOS	--			C			A			A		
Average Queue (ft)	--	--	--	6.1	--	5.5	--	1.3	1.1	2.6	0.1	--
Max Simulated Queue (ft)	--	--	--	67.8	--	67.6	--	96.5	77.3	55.1	13.0	--
							Intersection Delay (sec/veh)				1.0	A

Table 22: Node Results - 22: 1st Ave & Fry's DWY 2

22: 1st Ave & Fry's DWY 2	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	2	--	94	--	1338	8	--	1361	--
Movement Delay (sec/veh)	--	--	--	15.1	--	11.4	--	0.3	0.7	--	0.4	--
Movement LOS	--	--	--	C	--	B	--	A	A	--	A	--
Approach Delay (sec/veh)	--			11.5			0.3			0.4		

Existing PM Peak Hour - Vissim Traffic Operations Results

Approach LOS	--			B			A			A		
Average Queue (ft)	--	--	--	4.5	--	5.4	--	0.0	0.0	--	0.3	--
Max Simulated Queue (ft)	--	--	--	63.2	--	63.8	--	5.4	6.1	--	22.2	--
							Intersection Delay (sec/veh)			0.7	A	

Table 23: Node Results - 23: 1st Ave & Campana Dr

23: 1st Ave & Campana Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	40	--	--	36	--	1387	0	--	1206	0
Movement Delay (sec/veh)	--	--	10.3	--	--	27.0	--	6.3	--	--	0.2	--
Movement LOS	--	--	B	--	--	D	--	A	--	--	A	--
Approach Delay (sec/veh)	10.3			27.0			6.3			0.2		
Approach LOS	B			D			A			A		
Average Queue (ft)	--	--	2.3	--	--	6.2	--	21.7	24.6	--	0.0	0.0
Max Simulated Queue (ft)	--	--	49.1	--	--	61.4	--	296.1	316.5	--	0.0	0.0

Existing PM Peak Hour - Vissim Traffic Operations Results

Intersection Delay (sec/veh)	3.9	A

Table 24: Node Results - 24: 1st Ave & Croydon Park Rd

24: 1st Ave & Croydon Park Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	--	31	--	--	--	35	1405	--	--	1220	0
Movement Delay (sec/veh)	--	--	9.5	--	--	--	8.4	0.1	--	--	0.1	--
Movement LOS	--	--	A	--	--	--	A	A	--	--	A	--
Approach Delay (sec/veh)	9.5			--			0.3			0.1		
Approach LOS	A			--			A			A		
Average Queue (ft)	1.1	--	1.9	--	--	--	1.3	0.2	--	--	0.0	0.0
Max Simulated Queue (ft)	46.0	--	51.4	--	--	--	36.4	16.7	--	--	0.0	0.0
						Intersection Delay (sec/veh)					0.3	A

Table 25: Node Results - 25: 1st Ave & Calle Arizona

25: 1st Ave & Calle Arizona	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		

Existing PM Peak Hour - Vissim Traffic Operations Results

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	33	0	0	0	0	1364	57	2	1325	0
Movement Delay (sec/veh)	15.0	11.7	9.9	--	--	--	--	0.7	0.5	18.4	0.3	1.8
Movement LOS	C	B	A	--	--	--	--	A	A	C	A	A
Approach Delay (sec/veh)	9.9			--			0.7			0.3		
Approach LOS	A			--			A			A		
Average Queue (ft)	1.3	1.4	1.8	0.0	0.0	0.0	0.0	0.2	1.5	0.1	0.0	0.0
Max Simulated Queue (ft)	45.8	46.6	44.5	0.0	0.0	0.0	0.0	21.4	83.7	4.5	0.0	0.0
							Intersection Delay (sec/veh)			0.6	A	

Table 26: Node Results - 26: 1st Ave & Miraflores Apartments North DWY

26: 1st Ave & Miraflores Apartments North DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	6	--	--	--	9	1349	--	--	1365	0
Movement Delay (sec/veh)	--	--	14.6	--	--	--	3.3	0.1	--	--	0.8	0.0

Existing PM Peak Hour - Vissim Traffic Operations Results

Movement LOS	--	--	B	--	--	--	A	A	--	--	A	A
Approach Delay (sec/veh)	14.6			--			0.1			0.8		
Approach LOS	B			--			A			A		
Average Queue (ft)	--	--	0.3	--	--	--	0.1	0.1	--	--	2.0	2.4
Max Simulated Queue (ft)	--	--	22.0	--	--	--	15.3	17.7	--	--	96.7	108.5
						Intersection Delay (sec/veh)					0.5	A

Table 27: Node Results - 27: 1st Ave & Pastime Rd

27: 1st Ave & Pastime Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	0	0	0	0	0	1475	84	0	1337	0
Movement Delay (sec/veh)	24.4	--	--	--	--	--	--	1.2	1.7	12.0	0.1	--
Movement LOS	C	--	--	--	--	--	--	A	A	B	A	--
Approach Delay (sec/veh)	--			--			1.2			0.1		
Approach LOS	--			--			A			A		

Existing PM Peak Hour - Vissim Traffic Operations Results

Average Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.1	0.0	0.0	0.0
Max Simulated Queue (ft)	0.7	0.8	0.7	0.0	0.0	0.0	0.0	9.2	123.9	0.6	0.0	0.0
							Intersection Delay (sec/veh)			0.7	A	

Table 28: Node Results - 28: 1 St Ave & Yavapai Rd

28: 1 St Ave & Yavapai Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	27	--	6	--	--	--	0	1383	--	--	1282	0
Movement Delay (sec/veh)	22.0	--	10.5	--	--	--	--	0.8	--	--	2.3	--
Movement LOS	C	--	B	--	--	--	--	A	--	--	A	--
Approach Delay (sec/veh)	19.9			--			0.8			2.3		
Approach LOS	C			--			A			A		
Average Queue (ft)	3.6	--	2.0	--	--	--	0.0	1.4	--	--	8.7	9.7
Max Simulated Queue (ft)	48.4	--	46.7	--	--	--	0.0	73.2	--	--	205.8	220.3
							Intersection Delay (sec/veh)			1.7	A	

Existing PM Peak Hour - Vissim Traffic Operations Results

Table 29: Node Results - 29: 1st Ave & Mohave Rd

29: 1st Ave & Mohave Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	12	--	67	--	--	--	0	1396	--	--	1291	0
Movement Delay (sec/veh)	20.4	--	11.5	--	--	--	--	0.3	--	--	0.2	--
Movement LOS	C	--	B	--	--	--	--	A	--	--	A	--
Approach Delay (sec/veh)	12.9			--			0.3			0.2		
Approach LOS	B			--			A			A		
Average Queue (ft)	5.1	--	5.5	--	--	--	0.0	0.0	--	--	0.0	0.1
Max Simulated Queue (ft)	64.2	--	63.1	--	--	--	0.0	2.3	--	--	4.5	6.8
						Intersection Delay (sec/veh)					0.6	A

Table 30: Node Results - 30: 1st Ave & Navajo Rd

30: 1st Ave & Navajo Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR

Existing PM Peak Hour - Vissim Traffic Operations Results

Volume (veh)	0	0	0	0	0	42	0	1365	0	97	1206	44
Movement Delay (sec/veh)	--	--	--	--	--	8.8	--	0.4	--	18.5	3.1	1.4
Movement LOS	--	--	--	--	--	A	--	A	--	C	A	A
Approach Delay (sec/veh)	--			8.8			0.4			4.2		
Approach LOS	--			A			A			A		
Average Queue (ft)	0.0	0.0	0.0	1.5	2.2	2.2	0.0	0.0	0.0	9.7	1.5	1.9
Max Simulated Queue (ft)	0.0	0.0	0.0	46.9	45.7	45.7	0.0	0.0	0.0	119.2	99.5	111.4
							Intersection Delay (sec/veh)			2.4	A	

Table 31: Node Results - 31: 1st Ave & Delano St/Buddy Ln

31: 1st Ave & Delano St/Buddy Ln	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	0	0	0	0	0	1199	26	0	1087	7
Movement Delay (sec/veh)	--	--	--	--	--	--	--	0.8	0.8	--	0.4	1.1
Movement LOS	--	--	--	--	--	--	--	A	A	--	A	A

Existing PM Peak Hour - Vissim Traffic Operations Results

Approach Delay (sec/veh)	--			--			0.8			0.4		
Approach LOS	--			--			A			A		
Average Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
Max Simulated Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	70.9	0.0	0.0	1.6
							Intersection Delay (sec/veh)			0.6	A	

Table 32: Node Results - 32: 1st Ave & Laguna St

32: 1st Ave & Laguna St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	--	0	--	--	--	0	1219	--	--	1064	2
Movement Delay (sec/veh)	--	--	--	--	--	--	0.3	0.1	--	--	0.1	0.5
Movement LOS	--	--	--	--	--	--	A	A	--	--	A	A
Approach Delay (sec/veh)	--			--			0.1			0.1		
Approach LOS	--			--			A			A		
Average Queue (ft)	0.0	--	0.0	--	--	--	0.0	0.0	--	--	0.0	0.0

Existing PM Peak Hour - Vissim Traffic Operations Results

Max Simulated Queue (ft)	0.0	--	0.0	--	--	--	0.0	0.0	--	--	0.9	2.2
						Intersection Delay (sec/veh)					0.1	A

Table 33: Node Results - 33: 1st Ave & QuikTrip DWY

33: 1st Ave & QuikTrip DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	0	--	19	--	1198	0	0	1063	--
Movement Delay (sec/veh)	--	--	--	23.1	--	8.6	--	0.3	--	33.0	0.7	--
Movement LOS	--	--	--	C	--	A	--	A	--	D	A	--
Approach Delay (sec/veh)	--			8.6			0.3			0.7		
Approach LOS	--			A			A			A		
Average Queue (ft)	--	--	--	0.0	--	0.7	--	0.0	0.0	0.0	0.2	--
Max Simulated Queue (ft)	--	--	--	0.6	--	33.3	--	0.0	0.0	0.6	11.6	--
						Intersection Delay (sec/veh)					0.6	A

Table 34: Node Results - 34: 1st Ave & Kelso St/Mitchell Dr

Existing PM Peak Hour - Vissim Traffic Operations Results

34: 1st Ave & Kelso St/Mitchell Dr	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	107	0	0	26	0	1149	0	0	1041	0
Movement Delay (sec/veh)	--	--	8.8	--	--	10.9	--	0.3	0.6	0.6	0.5	--
Movement LOS	--	--	A	--	--	B	--	A	A	A	A	--
Approach Delay (sec/veh)	8.8			10.9			0.3			0.5		
Approach LOS	A			B			A			A		
Average Queue (ft)	4.7	4.7	6.2	0.9	0.9	1.6	0.0	0.0	0.4	0.0	0.0	0.0
Max Simulated Queue (ft)	68.8	68.8	71.5	41.5	41.5	48.2	0.0	2.0	16.3	0.0	0.0	0.0
						Intersection Delay (sec/veh)					0.9	A

Table 35: Node Results - 35: 1st Ave & Alturas St

35: 1st Ave & Alturas St	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	64	0	0	58	0	1079	0	0	1169	0

Existing PM Peak Hour - Vissim Traffic Operations Results

Movement Delay (sec/veh)	--	--	9.2	--	--	11.4	1.2	0.2	--	4.1	0.5	0.4
Movement LOS	--	--	A	--	--	B	A	A	--	A	A	A
Approach Delay (sec/veh)	9.2			11.4			0.2			0.5		
Approach LOS	A			B			A			A		
Average Queue (ft)	2.8	3.0	3.6	2.6	2.8	3.6	0.0	0.0	0.0	0.0	0.0	0.4
Max Simulated Queue (ft)	55.7	58.0	54.6	58.1	60.4	57.6	0.0	0.0	0.0	0.7	0.8	24.1
							Intersection Delay (sec/veh)			0.9	A	

Table 36: Node Results - 36: Hampton St & Grant Rd

36: Hampton St & Grant Rd	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	1716	0	--	1665	0	--	--	48	--	--	--
Movement Delay (sec/veh)	--	0.1	--	--	0.3	--	--	--	14.1	--	--	--
Movement LOS	--	A	--	--	A	--	--	--	B	--	--	--
Approach Delay (sec/veh)	0.1			0.3			14.1			--		

Existing PM Peak Hour - Vissim Traffic Operations Results

Approach LOS	A			A			B			--		
Average Queue (ft)	--	0.0	0.0	--	0.0	0.0	--	--	2.6	--	--	--
Max Simulated Queue (ft)	--	0.0	0.0	--	0.0	0.0	--	--	61.5	--	--	--
						Intersection Delay (sec/veh)				0.4	A	

Table 37: Node Results - 37: Grant Rd & Fry's DWY

37: Grant Rd & Fry's DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	--	--	--	266	--	--	--	--	--	0
Movement Delay (sec/veh)	--	--	--	--	--	0.5	--	--	--	--	--	--
Movement LOS	--	--	--	--	--	A	--	--	--	--	--	--
Approach Delay (sec/veh)	--			0.5			--			--		
Approach LOS	--			A			--			--		
Average Queue (ft)	--	--	--	--	--	0.7	--	--	--	--	--	0.0
Max Simulated Queue (ft)	--	--	--	--	--	72.2	--	--	--	--	--	0.0

Existing PM Peak Hour - Vissim Traffic Operations Results

Intersection Delay (sec/veh)	0.5	A

Table 38: Node Results - 38: 1st Ave & Speedway DWY

38: 1st Ave & Speedway DWY	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	0	0	0	0	0	0	--	1385	0	--	1428	6
Movement Delay (sec/veh)	0.0	--	--	--	--	--	--	7.0	--	--	0.8	0.6
Movement LOS	A	--	--	--	--	--	--	A	--	--	A	A
Approach Delay (sec/veh)	--			--			7.0			0.8		
Approach LOS	--			--			A			A		
Average Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	--	8.6	14.8	--	2.0	0.6
Max Simulated Queue (ft)	0.0	0.0	0.0	0.0	0.0	0.0	--	158.7	255.5	--	101.1	134.2
						Intersection Delay (sec/veh)					3.8	A

Table 39: Node Results - 39: 1st Ave & KFC Dwy

39: 1st Ave & KFC Dwy	E/W Road Name						N/S Road Name					
	Eastbound			Westbound			Northbound			Southbound		

Existing PM Peak Hour - Vissim Traffic Operations Results

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh)	--	--	4	--	--	31	--	1409	0	--	--	--
Movement Delay (sec/veh)	--	--	24.8	--	--	8.2	--	0.4	0.1	--	--	--
Movement LOS	--	--	C	--	--	A	--	A	A	--	--	--
Approach Delay (sec/veh)	24.8			8.2			0.4			--		
Approach LOS	C			A			A			--		
Average Queue (ft)	--	--	0.7	--	--	1.5	--	0.0	0.0	--	--	--
Max Simulated Queue (ft)	--	--	29.2	--	--	49.4	--	1.3	3.3	--	--	--
						Intersection Delay (sec/veh)				0.6	A	



Appendix D

Existing Conditions Operations Results

HCM Signalized Intersection Capacity Analysis

2: 1st Ave & Grant Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	0	1591	163	0	1055	191	92	504	39	257	731	129
Future Volume (vph)	0	1591	163	0	1055	191	92	504	39	257	731	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		5159	1581		5173	1570	3501	3596	1588	3465	3581	1586
Flt Permitted		1.00	1.00		1.00	1.00	0.14	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)		5159	1581		5173	1570	511	3596	1588	1100	3581	1586
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1640	168	0	1088	197	95	520	40	265	754	133
RTOR Reduction (vph)	0	0	76	0	0	89	0	0	29	0	0	98
Lane Group Flow (vph)	0	1640	92	0	1088	108	95	520	11	265	754	35
Confl. Peds. (#/hr)	16		9	9		16	6		5	5		6
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	2	0	0	2	0	0	4	0
Turn Type		NA	Perm		NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)		59.0	59.0		59.0	59.0	33.5	28.7	28.7	33.5	28.7	28.7
Effective Green, g (s)		59.0	59.0		59.0	59.0	35.5	28.7	28.7	35.5	28.7	28.7
Actuated g/C Ratio		0.55	0.55		0.55	0.55	0.33	0.27	0.27	0.33	0.27	0.27
Clearance Time (s)		6.5	6.5		6.5	6.5	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)		5.0	5.0		5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)		2818	863		2825	857	328	955	421	488	951	421
v/s Ratio Prot		c0.32			0.21		0.02	0.14		c0.03	c0.21	
v/s Ratio Perm			0.06			0.07	0.08		0.01	0.15		0.02
v/c Ratio		0.58	0.11		0.39	0.13	0.29	0.54	0.03	0.54	0.79	0.08
Uniform Delay, d1		16.3	11.8		14.1	11.9	41.2	34.0	29.3	37.6	36.9	29.8
Progression Factor		1.00	0.86		0.98	1.63	1.00	1.00	1.00	1.06	0.92	1.13
Incremental Delay, d2		0.8	0.2		0.4	0.3	0.2	0.6	0.0	0.6	4.3	0.1
Delay (s)		17.1	10.4		14.1	19.8	41.4	34.7	29.3	40.5	38.3	33.8
Level of Service		B	B		B	B	D	C	C	D	D	C
Approach Delay (s/veh)		16.5			15.0			35.3			38.3	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		23.7			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		67.5%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: 1st Ave & Glenn St

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	128	33	88	138	62	26	654	36	52	970	33
Future Volume (vph)	55	128	33	88	138	62	26	654	36	52	970	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1780	1834		1794	1792		1801	3547		1798	3560	
Flt Permitted	0.38	1.00		0.48	1.00		0.25	1.00		0.36	1.00	
Satd. Flow (perm)	706	1834		905	1792		469	3547		687	3560	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	57	133	34	92	144	65	27	681	38	54	1010	34
RTOR Reduction (vph)	0	11	0	0	19	0	0	2	0	0	1	0
Lane Group Flow (vph)	57	156	0	92	190	0	27	717	0	54	1043	0
Confl. Peds. (#/hr)	16		6	6		16	4		4	4		4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	17.2	17.2		17.2	17.2		79.3	79.3		79.3	79.3	
Effective Green, g (s)	19.2	19.2		19.2	19.2		80.8	80.8		80.8	80.8	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.75	0.75		0.75	0.75	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	125	326		160	318		350	2653		513	2663	
v/s Ratio Prot		0.09			c0.11			0.20			c0.29	
v/s Ratio Perm	0.08			0.10			0.06			0.08		
v/c Ratio	0.46	0.48		0.57	0.60		0.08	0.27		0.11	0.39	
Uniform Delay, d1	39.7	39.9		40.7	40.8		3.6	4.3		3.7	4.8	
Progression Factor	1.00	1.00		1.00	1.00		0.27	0.25		0.21	0.18	
Incremental Delay, d2	2.6	1.1		4.9	3.0		0.4	0.2		0.3	0.3	
Delay (s)	42.4	41.0		45.6	43.9		1.4	1.3		1.1	1.2	
Level of Service	D	D		D	D		A	A		A	A	
Approach Delay (s/veh)		41.4			44.4			1.3			1.2	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		10.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.43										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		76.2%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: 1st Ave & Fort Lowell Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	594	42	128	540	189	54	671	105	267	901	60
Future Volume (vph)	77	594	42	128	540	189	54	671	105	267	901	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1784	3547		1803	3610	1553	1805	3511		1801	3538	
Flt Permitted	0.23	1.00		0.16	1.00	1.00	0.16	1.00		0.24	1.00	
Satd. Flow (perm)	430	3547		294	3610	1553	304	3511		455	3538	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	80	619	44	133	562	197	56	699	109	278	939	62
RTOR Reduction (vph)	0	5	0	0	0	152	0	11	0	0	5	0
Lane Group Flow (vph)	80	658	0	133	563	45	56	797	0	278	997	0
Confl. Peds. (#/hr)	19		31	31		19	7		37	37		7
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	31.8	24.8		31.8	24.8	24.8	58.2	47.2		58.2	47.2	
Effective Green, g (s)	33.8	24.8		33.8	24.8	24.8	60.2	47.2		60.2	47.2	
Actuated g/C Ratio	0.31	0.23		0.31	0.23	0.23	0.56	0.44		0.56	0.44	
Clearance Time (s)	5.0	4.0		5.0	4.0	4.0	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	234	814		203	828	356	336	1534		403	1546	
v/s Ratio Prot	0.03	c0.19		c0.05	0.16		0.02	0.23		c0.08	0.28	
v/s Ratio Perm	0.08			0.16		0.03	0.07			c0.31		
v/c Ratio	0.34	0.81		0.66	0.68	0.13	0.17	0.52		0.69	0.65	
Uniform Delay, d1	38.4	39.4		42.5	38.0	33.0	24.6	22.1		28.2	23.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.11	0.86		1.20	0.88	
Incremental Delay, d2	0.3	6.0		5.7	2.2	0.2	0.1	1.2		3.2	1.7	
Delay (s)	38.8	45.3		48.2	40.2	33.2	27.5	20.3		37.1	22.7	
Level of Service	D	D		D	D	C	C	C		D	C	
Approach Delay (s/veh)		44.6			39.8			20.8			25.8	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			31.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			77.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: 1st Ave & Prince Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	482	114	69	337	135	106	715	73	187	1026	91
Future Volume (vph)	83	482	114	69	337	135	106	715	73	187	1026	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1784	3481		1769	3414		1787	3511		1786	3520	
Flt Permitted	0.28	1.00		0.17	1.00		0.15	1.00		0.27	1.00	
Satd. Flow (perm)	528	3481		318	3414		279	3511		509	3520	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	86	497	118	71	347	139	109	737	75	193	1058	94
RTOR Reduction (vph)	0	20	0	0	41	0	0	6	0	0	5	0
Lane Group Flow (vph)	86	595	0	71	445	0	109	806	0	193	1147	0
Confl. Peds. (#/hr)	11		3	3		11			7	7		
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%	1%	0%	0%	1%	0%	1%
Bus Blockages (#/hr)	0	2	0	0	2	0	0	6	0	0	6	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	27.5	23.5		27.5	23.5		62.5	55.7		62.5	55.7	
Effective Green, g (s)	29.5	23.5		29.5	23.5		64.5	55.7		64.5	55.7	
Actuated g/C Ratio	0.27	0.22		0.27	0.22		0.60	0.52		0.60	0.52	
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	202	757		154	742		275	1810		396	1815	
v/s Ratio Prot	0.02	c0.17		c0.02	0.13		0.03	0.23		c0.04	c0.33	
v/s Ratio Perm	0.10			0.10			0.21			0.26		
v/c Ratio	0.43	0.79		0.46	0.60		0.40	0.45		0.49	0.63	
Uniform Delay, d1	40.1	39.9		44.1	38.0		26.4	16.4		20.5	18.8	
Progression Factor	1.00	1.00		1.00	1.00		0.91	0.47		1.75	1.32	
Incremental Delay, d2	0.5	5.4		0.8	1.3		0.3	0.7		0.3	1.5	
Delay (s)	40.7	45.3		44.9	39.3		24.5	8.5		36.1	26.3	
Level of Service	D	D		D	D		C	A		D	C	
Approach Delay (s/veh)		44.7			40.0			10.4			27.7	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			28.5			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			71.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

12: 1st Ave & Roger Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	196	57	41	123	66	35	816	42	146	1158	21
Future Volume (vph)	40	196	57	41	123	66	35	816	42	146	1158	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1800	1798		1763	1790		1752	3502		1775	3599	
Flt Permitted	0.45	1.00		0.31	1.00		0.17	1.00		0.27	1.00	
Satd. Flow (perm)	855	1798		582	1790		308	3502		509	3599	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	41	202	59	42	127	68	36	841	43	151	1194	22
RTOR Reduction (vph)	0	10	0	0	19	0	0	3	0	0	1	0
Lane Group Flow (vph)	41	251	0	42	176	0	36	881	0	151	1215	0
Confl. Peds. (#/hr)	3		5	5		3	2		4	4		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	3%	1%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	6	4	4	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	20.2	20.2		20.2	20.2		72.8	66.8		72.8	66.8	
Effective Green, g (s)	22.2	22.2		22.2	22.2		74.8	66.8		74.8	66.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.69	0.62		0.69	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	175	369		119	367		306	2166		434	2226	
v/s Ratio Prot		c0.14			0.10		0.01	0.25		c0.02	c0.34	
v/s Ratio Perm	0.05			0.07			0.07			0.22		
v/c Ratio	0.23	0.68		0.35	0.48		0.12	0.41		0.35	0.55	
Uniform Delay, d1	35.8	39.6		36.7	37.8		13.6	10.5		11.7	11.9	
Progression Factor	1.00	1.00		1.00	1.00		0.69	0.42		1.89	1.60	
Incremental Delay, d2	0.7	4.9		1.8	1.0		0.1	0.5		0.2	0.8	
Delay (s)	36.5	44.5		38.6	38.8		9.5	4.9		22.3	19.8	
Level of Service	D	D		D	D		A	A		C	B	
Approach Delay (s/veh)		43.4			38.8			5.1			20.1	
Approach LOS		D			D			A			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			19.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			108.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			72.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	63	54	64	73	118	27	828	29	155	1214	13
Future Volume (vph)	32	63	54	64	73	118	27	828	29	155	1214	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1798	1769		1805	1900	1589	1805	3559		1804	3603	
Flt Permitted	0.70	1.00		0.55	1.00	1.00	0.16	1.00		0.28	1.00	
Satd. Flow (perm)	1317	1769		1038	1900	1589	305	3559		523	3603	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	34	67	57	68	78	126	29	881	31	165	1291	14
RTOR Reduction (vph)	0	34	0	0	0	109	0	1	0	0	0	0
Lane Group Flow (vph)	34	90	0	68	78	17	29	911	0	165	1305	0
Confl. Peds. (#/hr)	3					3	1		4	4		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	12.4	12.4		12.4	12.4	12.4	80.1	72.9		80.1	72.9	
Effective Green, g (s)	14.9	14.9		14.9	14.9	14.9	82.1	72.9		82.1	72.9	
Actuated g/C Ratio	0.14	0.14		0.14	0.14	0.14	0.76	0.68		0.76	0.68	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	181	244		143	262	219	345	2402		494	2432	
v/s Ratio Prot		0.05			0.04		0.01	0.26		c0.03	c0.36	
v/s Ratio Perm	0.03			c0.07		0.01	0.06			0.23		
v/c Ratio	0.19	0.37		0.48	0.30	0.08	0.08	0.38		0.33	0.54	
Uniform Delay, d1	41.2	42.3		42.9	41.8	40.6	9.5	7.7		7.7	8.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	2.25	1.67		0.96	1.47	
Incremental Delay, d2	0.5	1.0		2.5	0.6	0.2	0.0	0.4		0.1	0.7	
Delay (s)	41.7	43.2		45.4	42.5	40.7	21.3	13.2		7.5	13.9	
Level of Service	D	D		D	D	D	C	B		A	B	
Approach Delay (s/veh)		42.9			42.4			13.5			13.2	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.7										
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		58.4%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	36	204	113	64	43	210	701	45	20	1064	171
Future Volume (vph)	244	36	204	113	64	43	210	701	45	20	1064	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1802	1900	1531	1796	1774		1805	3555		1803	3567	1576
Flt Permitted	0.56	1.00	1.00	0.73	1.00		0.15	1.00		0.28	1.00	1.00
Satd. Flow (perm)	1054	1900	1531	1385	1774		284	3555		522	3567	1576
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	257	38	215	119	67	45	221	738	47	21	1120	180
RTOR Reduction (vph)	0	0	192	0	25	0	0	4	0	0	0	88
Lane Group Flow (vph)	257	38	23	119	87	0	221	781	0	21	1120	92
Confl. Peds. (#/hr)	3		5	5		3	2		9	9		2
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	2	0	0	6	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Actuated Green, G (s)	23.6	11.7	11.7	23.6	11.7		65.9	53.3		65.9	53.3	53.3
Effective Green, g (s)	25.6	11.7	11.7	25.6	11.7		67.9	53.8		67.9	53.8	53.8
Actuated g/C Ratio	0.24	0.11	0.11	0.24	0.11		0.63	0.50		0.63	0.50	0.50
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.5		5.0	4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	339	205	165	377	192		370	1770		489	1776	785
v/s Ratio Prot	c0.09	0.02		0.04	0.05		c0.08	0.22		0.01	c0.31	
v/s Ratio Perm	c0.09		0.02	0.04			0.30			0.02		0.06
v/c Ratio	0.76	0.19	0.14	0.32	0.45		0.60	0.44		0.04	0.63	0.12
Uniform Delay, d1	38.8	43.8	43.6	34.4	45.2		27.9	17.4		13.0	19.8	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.24	0.62		1.00	1.00	1.00
Incremental Delay, d2	8.3	0.4	0.4	0.2	1.7		1.7	0.8		0.0	1.7	0.3
Delay (s)	47.1	44.3	44.0	34.6	46.8		36.1	11.6		13.1	21.5	14.7
Level of Service	D	D	D	C	D		D	B		B	C	B
Approach Delay (s/veh)		45.6			40.5			17.0			20.5	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			108.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			71.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: 1st Ave & River Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	753	301	312	766	403	186	546	230	387	690	96
Future Volume (vph)	79	753	301	312	766	403	186	546	230	387	690	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3501	3610	1589	3501	3610	1589	3501	3610	1590	3500	3610	1590
Flt Permitted	0.24	1.00	1.00	0.25	1.00	1.00	0.12	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	896	3610	1589	920	3610	1589	454	3610	1590	844	3610	1590
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	82	784	314	325	798	420	194	569	240	403	719	100
RTOR Reduction (vph)	0	0	163	0	0	226	0	0	176	0	0	73
Lane Group Flow (vph)	82	784	151	325	798	194	194	569	64	403	719	27
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	74.7	63.1	63.1	74.7	63.1	63.1	44.3	34.8	34.8	44.3	34.8	34.8
Effective Green, g (s)	76.7	66.6	66.6	76.7	66.6	66.6	46.3	38.3	38.3	46.3	38.3	38.3
Actuated g/C Ratio	0.53	0.46	0.46	0.53	0.46	0.46	0.32	0.27	0.27	0.32	0.27	0.27
Clearance Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)	705	1669	734	715	1669	734	368	960	422	465	960	422
v/s Ratio Prot	0.01	0.22		c0.04	c0.22		0.04	0.16		c0.06	0.20	
v/s Ratio Perm	0.05		0.09	0.20		0.12	0.13		0.04	c0.22		0.02
v/c Ratio	0.12	0.47	0.21	0.45	0.48	0.26	0.53	0.59	0.15	0.87	0.75	0.06
Uniform Delay, d1	28.0	26.6	23.0	34.4	26.7	23.7	57.0	46.1	40.4	54.8	48.4	39.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	1.0	0.6	0.2	1.0	0.9	0.6	1.0	0.2	15.0	3.2	0.1
Delay (s)	28.0	27.5	23.6	34.6	27.7	24.6	57.7	47.0	40.6	69.9	51.7	39.5
Level of Service	C	C	C	C	C	C	E	D	D	E	D	D
Approach Delay (s/veh)		26.5			28.3			47.5			56.7	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			38.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			144.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			77.4%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: 1st Ave & Grant Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	0	1317	164	0	1541	278	303	803	90	316	747	166
Future Volume (vph)	0	1317	164	0	1541	278	303	803	90	316	747	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.95	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		5159	1581		5173	1532	3500	3596	1559	3500	3581	1568
Flt Permitted		1.00	1.00		1.00	1.00	0.15	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)		5159	1581		5173	1532	541	3596	1559	477	3581	1568
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1344	167	0	1572	284	309	819	92	322	762	169
RTOR Reduction (vph)	0	0	85	0	0	145	0	0	62	0	0	62
Lane Group Flow (vph)	0	1344	82	0	1572	139	309	819	30	322	762	107
Confl. Peds. (#/hr)	40		9	9		40	17		23	23		17
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	2	0	0	2	0	0	4	0
Turn Type		NA	Perm		NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)		52.9	52.9		52.9	52.9	39.6	29.9	29.9	39.6	29.9	29.9
Effective Green, g (s)		52.9	52.9		52.9	52.9	41.6	29.9	29.9	41.6	29.9	29.9
Actuated g/C Ratio		0.49	0.49		0.49	0.49	0.39	0.28	0.28	0.39	0.28	0.28
Clearance Time (s)		6.5	6.5		6.5	6.5	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)		5.0	5.0		5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)		2526	774		2533	750	501	995	431	483	991	434
v/s Ratio Prot		0.26			c0.30		0.06	c0.23		c0.07	0.21	
v/s Ratio Perm			0.05			0.09	0.18		0.02	0.19		0.07
v/c Ratio		0.53	0.11		0.62	0.19	0.62	0.82	0.07	0.67	0.77	0.25
Uniform Delay, d1		19.0	14.8		20.2	15.5	39.1	36.6	28.8	40.5	35.9	30.3
Progression Factor		1.00	1.05		0.64	2.36	1.00	1.00	1.00	1.08	0.87	0.68
Incremental Delay, d2		0.8	0.3		1.1	0.5	1.6	5.6	0.1	2.6	3.5	0.3
Delay (s)		19.8	15.9		13.9	37.1	40.7	42.2	28.9	46.3	34.6	20.9
Level of Service		B	B		B	D	D	D	C	D	C	C
Approach Delay (s/veh)		19.3			17.5			40.8			35.8	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		26.7			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.69										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		75.5%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: 1st Ave & Glenn St

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	179	36	67	198	79	43	1066	61	79	953	52
Future Volume (vph)	51	179	36	67	198	79	43	1066	61	79	953	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1786	1845		1793	1802		1802	3546		1802	3547	
Flt Permitted	0.30	1.00		0.42	1.00		0.24	1.00		0.20	1.00	
Satd. Flow (perm)	559	1845		788	1802		456	3546		387	3547	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	53	185	37	69	204	81	44	1099	63	81	982	54
RTOR Reduction (vph)	0	8	0	0	16	0	0	3	0	0	3	0
Lane Group Flow (vph)	53	214	0	69	269	0	44	1159	0	81	1033	0
Confl. Peds. (#/hr)	15		8	8		15	4		5	5		4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		74.5	74.5		74.5	74.5	
Effective Green, g (s)	24.0	24.0		24.0	24.0		76.0	76.0		76.0	76.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.70	0.70		0.70	0.70	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	124	410		175	400		320	2495		272	2496	
v/s Ratio Prot		0.12			c0.15			c0.33			0.29	
v/s Ratio Perm	0.09			0.09			0.10			0.21		
v/c Ratio	0.43	0.52		0.39	0.67		0.14	0.46		0.30	0.41	
Uniform Delay, d1	36.1	37.0		35.8	38.4		5.2	7.0		6.0	6.7	
Progression Factor	1.00	1.00		1.00	1.00		0.29	0.33		0.39	0.36	
Incremental Delay, d2	2.4	1.2		1.5	4.4		0.7	0.5		2.2	0.4	
Delay (s)	38.5	38.2		37.3	42.9		2.3	2.8		4.5	2.8	
Level of Service	D	D		D	D		A	A		A	A	
Approach Delay (s/veh)		38.2			41.8			2.8			2.9	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			10.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			82.6%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: 1st Ave & Fort Lowell Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	593	49	132	727	265	67	1021	97	220	922	74
Future Volume (vph)	85	593	49	132	727	265	67	1021	97	220	922	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1804	3546		1804	3574	1549	1804	3547		1805	3533	
Flt Permitted	0.15	1.00		0.18	1.00	1.00	0.15	1.00		0.11	1.00	
Satd. Flow (perm)	277	3546		346	3574	1549	289	3547		207	3533	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	86	599	49	133	734	268	68	1031	98	222	931	75
RTOR Reduction (vph)	0	6	0	0	0	187	0	6	0	0	5	0
Lane Group Flow (vph)	86	642	0	133	734	81	68	1123	0	222	1001	0
Confl. Peds. (#/hr)	21		14	14		21	17		35	35		17
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	33.1	26.4		33.1	26.4	26.4	56.9	45.9		56.9	45.9	
Effective Green, g (s)	35.1	26.4		35.1	26.4	26.4	58.9	45.9		58.9	45.9	
Actuated g/C Ratio	0.33	0.24		0.33	0.24	0.24	0.55	0.43		0.55	0.43	
Clearance Time (s)	5.0	4.0		5.0	4.0	4.0	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	198	866		216	873	378	325	1507		290	1501	
v/s Ratio Prot	0.03	0.18		c0.04	c0.21		0.02	0.32		c0.08	0.28	
v/s Ratio Perm	0.11			0.16		0.05	0.09			c0.33		
v/c Ratio	0.43	0.74		0.62	0.84	0.22	0.21	0.74		0.77	0.67	
Uniform Delay, d1	42.4	37.6		41.2	38.8	32.5	26.7	26.1		35.5	24.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.11	0.83		1.01	0.55	
Incremental Delay, d2	0.6	3.4		3.6	7.3	0.3	0.1	3.1		7.5	1.7	
Delay (s)	43.0	41.1		44.9	46.1	32.8	29.7	24.8		43.2	15.4	
Level of Service	D	D		D	D	C	C	C		D	B	
Approach Delay (s/veh)		41.3			42.9			25.1			20.4	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			31.2									
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			108.0									
Intersection Capacity Utilization			82.9%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: 1st Ave & Prince Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	473	152	64	470	165	145	1196	74	174	1092	77
Future Volume (vph)	122	473	152	64	470	165	145	1196	74	174	1092	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1804	3441		1804	3435		1787	3526		1805	3528	
Flt Permitted	0.16	1.00		0.16	1.00		0.11	1.00		0.08	1.00	
Satd. Flow (perm)	301	3441		308	3435		214	3526		161	3528	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	124	483	155	65	480	168	148	1220	76	178	1114	79
RTOR Reduction (vph)	0	30	0	0	34	0	0	4	0	0	4	0
Lane Group Flow (vph)	124	608	0	65	614	0	148	1292	0	178	1189	0
Confl. Peds. (#/hr)	8		11	11		8	1		27	27		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	2	0	0	2	0	0	6	0	0	6	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	31.0	24.2		31.0	24.2		59.0	50.6		59.0	50.6	
Effective Green, g (s)	33.0	24.2		33.0	24.2		61.0	50.6		61.0	50.6	
Actuated g/C Ratio	0.31	0.22		0.31	0.22		0.56	0.47		0.56	0.47	
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	200	771		202	769		257	1651		234	1652	
v/s Ratio Prot	c0.04	0.18		0.02	c0.18		0.05	c0.37		c0.07	0.34	
v/s Ratio Perm	0.14			0.07			0.27			0.36		
v/c Ratio	0.62	0.79		0.32	0.80		0.58	0.78		0.76	0.72	
Uniform Delay, d1	42.6	39.5		41.1	39.6		34.0	24.1		37.1	23.0	
Progression Factor	1.00	1.00		1.00	1.00		0.92	0.60		1.24	1.02	
Incremental Delay, d2	4.2	5.4		0.3	5.8		1.5	2.9		9.8	2.1	
Delay (s)	46.8	44.8		41.5	45.4		32.9	17.4		55.8	25.5	
Level of Service	D	D		D	D		C	B		E	C	
Approach Delay (s/veh)		45.2			45.0			19.0			29.4	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		31.3			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		83.8%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

12: 1st Ave & Roger Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	228	96	84	256	103	100	1243	51	89	1170	35
Future Volume (vph)	59	228	96	84	256	103	100	1243	51	89	1170	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1793	1775		1797	1803		1805	3535		1776	3590	
Flt Permitted	0.21	1.00		0.27	1.00		0.14	1.00		0.11	1.00	
Satd. Flow (perm)	394	1775		503	1803		261	3535		213	3590	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	61	238	100	88	267	107	104	1295	53	93	1219	36
RTOR Reduction (vph)	0	14	0	0	13	0	0	2	0	0	2	0
Lane Group Flow (vph)	61	324	0	88	361	0	104	1346	0	93	1253	0
Confl. Peds. (#/hr)	13		7	7		13	8		19	19		8
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	6	4	4	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	25.8	25.8		25.8	25.8		67.2	60.6		67.2	60.6	
Effective Green, g (s)	27.8	27.8		27.8	27.8		69.2	60.6		69.2	60.6	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.64	0.56		0.64	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	101	456		129	464		275	1983		246	2014	
v/s Ratio Prot		0.18			c0.20		0.03	c0.38		c0.03	0.35	
v/s Ratio Perm	0.15			0.17			0.21			0.21		
v/c Ratio	0.60	0.71		0.68	0.78		0.38	0.68		0.38	0.62	
Uniform Delay, d1	35.3	36.4		36.1	37.2		23.8	16.8		26.5	16.0	
Progression Factor	1.00	1.00		1.00	1.00		0.75	0.36		1.72	1.43	
Incremental Delay, d2	9.8	5.2		13.9	8.0		0.2	1.2		0.3	1.3	
Delay (s)	45.0	41.6		50.0	45.2		18.2	7.3		45.8	24.1	
Level of Service	D	D		D	D		B	A		D	C	
Approach Delay (s/veh)		42.1			46.1			8.0			25.6	
Approach LOS		D			D			A			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			23.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			108.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			82.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	92	70	100	153	207	61	1263	47	174	1163	40
Future Volume (vph)	46	92	70	100	153	207	61	1263	47	174	1163	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1767		1803	1900	1584	1805	3556		1805	3589	
Flt Permitted	0.50	1.00		0.48	1.00	1.00	0.16	1.00		0.13	1.00	
Satd. Flow (perm)	944	1767		904	1900	1584	300	3556		248	3589	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	94	71	102	156	211	62	1289	48	178	1187	41
RTOR Reduction (vph)	0	28	0	0	0	175	0	2	0	0	2	0
Lane Group Flow (vph)	47	137	0	102	156	36	62	1335	0	178	1226	0
Confl. Peds. (#/hr)	5		1	1		5	3		9	9		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	16.1	16.1		16.1	16.1	16.1	76.4	64.8		76.4	64.8	
Effective Green, g (s)	18.6	18.6		18.6	18.6	18.6	78.4	64.8		78.4	64.8	
Actuated g/C Ratio	0.17	0.17		0.17	0.17	0.17	0.73	0.60		0.73	0.60	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	162	304		155	327	272	393	2133		361	2153	
v/s Ratio Prot		0.08			0.08		0.02	c0.38		c0.06	0.34	
v/s Ratio Perm	0.05			c0.11		0.02	0.10			0.30		
v/c Ratio	0.29	0.45		0.66	0.48	0.13	0.16	0.63		0.49	0.57	
Uniform Delay, d1	38.9	40.1		41.7	40.3	37.9	13.4	13.8		23.8	13.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.66	1.06		0.42	1.27	
Incremental Delay, d2	1.0	1.1		9.7	1.1	0.2	0.1	1.1		0.3	0.9	
Delay (s)	39.9	41.2		51.4	41.4	38.1	22.3	15.7		10.2	17.6	
Level of Service	D	D		D	D	D	C	B		B	B	
Approach Delay (s/veh)		40.9			42.1			16.0			16.7	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		21.3										
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		77.7%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	343	80	424	56	80	34	281	1063	73	37	960	251
Future Volume (vph)	343	80	424	56	80	34	281	1063	73	37	960	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1795	1900	1533	1789	1801		1804	3556		1805	3567	1559
Flt Permitted	0.56	1.00	1.00	0.68	1.00		0.16	1.00		0.10	1.00	1.00
Satd. Flow (perm)	1058	1900	1533	1278	1801		301	3556		183	3567	1559
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	354	82	437	58	82	35	290	1096	75	38	990	259
RTOR Reduction (vph)	0	0	371	0	16	0	0	4	0	0	0	148
Lane Group Flow (vph)	354	82	66	58	101	0	290	1167	0	38	990	111
Confl. Peds. (#/hr)	9		11	11		9	17		1	1		17
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	2	0	0	6	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Actuated Green, G (s)	29.2	13.4	13.4	29.2	13.4		60.3	45.8		60.3	45.8	45.8
Effective Green, g (s)	31.2	13.4	13.4	31.2	13.4		62.3	46.3		62.3	46.3	46.3
Actuated g/C Ratio	0.29	0.12	0.12	0.29	0.12		0.58	0.43		0.58	0.43	0.43
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.5		5.0	4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	420	235	190	448	223		389	1524		338	1529	668
v/s Ratio Prot	c0.13	0.04		0.02	0.06		c0.11	c0.33		0.02	0.28	
v/s Ratio Perm	c0.11		0.04	0.02			0.32			0.05		0.07
v/c Ratio	0.84	0.35	0.35	0.13	0.45		0.75	0.77		0.11	0.65	0.17
Uniform Delay, d1	36.2	43.3	43.3	28.9	43.9		30.4	26.2		27.5	24.4	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.81	0.62		1.00	1.00	1.00
Incremental Delay, d2	13.7	0.9	1.1	0.0	1.5		5.8	3.2		0.1	2.1	0.5
Delay (s)	49.9	44.2	44.4	29.0	45.4		30.4	19.5		27.6	26.5	19.5
Level of Service	D	D	D	C	D		C	B		C	C	B
Approach Delay (s/veh)		46.6			39.9			21.6			25.1	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			29.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			108.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			77.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: 1st Ave & River Rd

08/07/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	755	254	357	989	542	307	789	326	292	599	104
Future Volume (vph)	135	755	254	357	989	542	307	789	326	292	599	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3610	1585	3500	3610	1591	3502	3610	1585	3501	3610	1615
Flt Permitted	0.11	1.00	1.00	0.22	1.00	1.00	0.22	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	424	3610	1585	800	3610	1591	797	3610	1585	369	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	142	795	267	376	1041	571	323	831	343	307	631	109
RTOR Reduction (vph)	0	0	157	0	0	201	0	0	181	0	0	77
Lane Group Flow (vph)	142	795	110	376	1041	370	323	831	162	307	631	32
Confl. Peds. (#/hr)	2		5	5		2			6	6		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	68.4	55.8	55.8	68.4	55.8	55.8	50.6	38.9	38.9	50.6	38.9	38.9
Effective Green, g (s)	70.4	59.3	59.3	70.4	59.3	59.3	52.6	42.4	42.4	52.6	42.4	42.4
Actuated g/C Ratio	0.49	0.41	0.41	0.49	0.41	0.41	0.37	0.29	0.29	0.37	0.29	0.29
Clearance Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)	497	1486	652	646	1486	655	529	1062	466	411	1062	475
v/s Ratio Prot	0.03	0.22		c0.05	c0.29		0.05	c0.23		c0.07	0.17	
v/s Ratio Perm	0.11		0.07	0.23		0.23	0.17		0.10	0.21		0.02
v/c Ratio	0.29	0.53	0.17	0.58	0.70	0.56	0.61	0.78	0.35	0.75	0.59	0.07
Uniform Delay, d1	45.9	31.9	26.8	43.3	35.0	32.5	50.8	46.6	39.9	57.1	43.4	36.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.4	0.6	0.9	2.8	3.5	1.5	3.8	0.5	6.4	0.9	0.1
Delay (s)	46.1	33.3	27.3	44.2	37.8	36.0	52.3	50.4	40.4	63.4	44.3	36.6
Level of Service	D	C	C	D	D	D	D	D	D	E	D	D
Approach Delay (s/veh)		33.5			38.5			48.5			49.1	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			42.0				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			144.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			82.9%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group



Appendix E Safety Data Analysis



1ST AVENUE RIVER RD TO GRANT RD SAFETY DATA ANALYSIS

December 2025



CITY OF
TUCSON

RTA



Words Matter

How we talk about safety events shapes how we think about them. The words we choose influence how we understand and respond to transportation safety. Referring to these events as accidents suggests they are random and unavoidable. In contrast, the term crash acknowledges that these incidents have causes—and therefore, potential solutions. Recognizing the impact of crashes on the community reinforces the importance of identifying contributing factors and implementing strategies to reduce serious injuries and fatalities.

CONTENTS

1.	Introduction.....	5
	Project Background.....	5
	Safety Analysis Purpose.....	5
	Safe System Approach.....	6
2.	Field Reviews.....	7
	Observations.....	9
3.	Crash Analysis.....	12
	Long-Term Pedestrian and Bicyclist Crash Trends.....	13
	Injury Severity by Crash Mode.....	15
	Crash Type.....	16
	Crash Locations.....	18
	VRU Crashes: User Movements and Violations.....	20
	Contributing Circumstances.....	22
	Environmental Conditions.....	23
	Crash Times.....	24
	Partial 2024 Crash Data Summary.....	25
4.	Near-Miss Video Analysis.....	27
	Quantifying Near-Miss Severity.....	28
	Near-miss Dataset Summary.....	30
	PET Distribution.....	31
	Time of Near-misses.....	37
	Road User Movement Matrices.....	39
	Critical Near-miss Rate.....	43
	Behavioral Video Analysis.....	46
5.	Stakeholder Interviews.....	48
	Key Themes.....	48
6.	Key Takeaways.....	49
	Crash Data.....	49
	Near-miss Video Data.....	49
	Behavioral Video Data.....	50

7. Recommendations..... 51

8. Appendix 54

 Tucson Police and Fire Department Interview..... 54

 Sun Tran Interview 56

1. Introduction

PROJECT BACKGROUND

The City of Tucson Department of Transportation and Mobility (DTM), in partnership with the Regional Transportation Authority (RTA), is advancing a project to improve the 1st Avenue corridor from River Road to Grant Road. This project will modernize the corridor using a **Complete Streets** approach to improve safety for all users, increase transportation options, upgrade existing infrastructure, support mobility, and improve the visual character, all while minimizing impacts to adjacent property and business.

The 1st Avenue improvements include:

- Continuous, accessible sidewalk
- Physically separated bicycle facilities from motor vehicles
- Frequent pedestrian and bicycle crossings
- Upgraded traffic signals with adaptive signal technology
- Raised medians and/or pedestrian islands
- Adequate and continuous street lighting
- Upgraded transit stops
- Drainage improvements to accommodate common storm events
- Pavement reconstruction
- New bridge over the Rillito River
- Green Stormwater Infrastructure

The study corridor was first identified for improvement in the 2006 RTA plan, which called for widening of 1st Avenue from four to six lanes, with the addition of bike lanes and sidewalks. However, by 2021, DTM conducted a **Needs Assessment Study** that re-evaluated mobility and complete streets needs through 2045. The study concluded that traffic projections had changed significantly since 2006, justifying an updated project scope.

Instead of widening the roadway, the revised scope maintains the existing two travel lanes in each direction and focuses on incorporating complete streets to enhance safety and optimize traffic operations.

What are complete streets?

Complete streets are roadways designed to provide safe access for all users: pedestrians, cyclists, motorists, and transit riders of all ages and abilities.

SAFETY ANALYSIS PURPOSE

This safety analysis takes a data-driven approach to evaluating safety conditions along the 1st Avenue corridor between Grant Road and River Road in Tucson, AZ. Drawing on multiple data sources, the analysis identifies crash patterns and trends that may indicate safety concerns. The findings will guide the development of safety improvements for all road users—drivers, pedestrians, cyclists, and transit riders—along the 3-mile-long corridor. The study will also serve as a foundation for future planning and design decisions aimed at creating a safer and more comfortable transportation

environment. The data sources used to perform the existing safety analysis are field reviews, state and local crash data, near-miss video data, and stakeholder interviews.

SAFE SYSTEM APPROACH

The United States adopted the Safe System Approach in late 2022 as part of the National Roadway Safety Strategy. This approach to transportation safety is comprised of six principles and five elements. This approach to transportation safety differs from the traditional approach in that it focuses on reducing fatal and serious injury crashes and aims to do so through a holistic and proactive approach.

As the 1st Avenue Design Concept Report (DCR) is a Complete Streets project, the goal is to design a corridor that applies the Safe System Approach to all road users, regardless of who they are, where they live, and how they choose to travel. This can be achieved through safer roadway design, speed management, and educating road users on how to use the transportation network safely. The role of these elements in the existing system will be examined throughout this report.



2. Field Reviews

Two rounds of field reviews were conducted to assess the existing safety conditions at five locations along the corridor as shown in Figure 1. These locations were selected based on a preliminary review of the crash data. Additionally, the Wetmore Road intersection has a unique geometry with the southbound channelized right turn lane. The HAWK (High-Intensity Activated Crosswalk) crossing at Yavapai Road and Graybill Drive was revisited to observe peak bicyclist activity during a second visit and the initial assessment. Reviews were conducted during peak PM periods and determined using traffic count data. Later, a nighttime assessment reviewed existing lighting conditions. Table 1 and Figure 1 provide field observation details. During the field reviews, observations were documented for the following:

- Road user behaviors and trends (all transportation modes).
- Multimodal facilities (location, type, level of use).
- Roadway design.
- Traffic operations.
- Lighting levels (measured using a light meter).

Table 1. Field Review Locations and Times

1 st Avenue Intersection	Review Date	Peak Volume Timeframe	Afternoon Review Time	Nighttime Review Time
Fort Lowell Road	Wednesday, May 1, 2024	4:00 PM to 5:00 PM	4:00 PM to 5:30 PM	7:00 PM to 8:00 PM
Wetmore Road	Wednesday, May 1, 2024	4:30 PM to 5:30 PM	4:00 PM to 5:30 PM	7:00 PM to 8:00 PM
Yavapai Road/Graybill Drive HAWK crossing (pedestrian)	Tuesday, November 12, 2024	2:30 PM to 4:00 PM	3:30 PM to 5:30 PM	6:30 PM to 7:45 PM
Glenn Street	Tuesday, November 12, 2024	4:00 PM to 5:00 PM	3:30 PM to 5:30 PM	6:30 PM to 7:45 PM
Yavapai Road/Graybill Drive HAWK (Bike)	Tuesday, November 12, 2024	4:45 PM to 6:00 PM	3:30 PM to 5:30 PM	6:30 PM to 7:45 PM
North of the Wetmore Road intersection	Tuesday, November 12, 2024	4:30 PM to 5:30 PM	3:30 PM to 5:30 PM	6:30 PM to 7:45 PM

Figure 1. Field Observation Locations on the First Avenue Corridor



OBSERVATIONS

During the field reviews, several opportunities for safety enhancements were identified along the corridor. The observations are described below.

Frequent Midblock Crossing and Signal Noncompliance.

Several instances of pedestrians crossing midblock were observed. This occurred most frequently on the north leg of the Fort Lowell Road intersection. Additionally, it was noted that several pedestrians crossed at the intersections during the 'Don't Walk' phase. These observations were made during both afternoon and evening reviews.

Safety Opportunity: These behaviors place pedestrians in the roadway at times and/or locations where drivers might not expect to see them.

Slower-Moving Pedestrians.

The pedestrian population using the corridor generally moves at a slower pace. This includes elderly individuals, people traveling with children, those using assistive mobility devices, and pedestrians carrying belongings, such as those in the unhoused population.

Safety Opportunity: Slower-moving pedestrians may not be able to cross the roadway within the time allotted during the 'Walk' and 'Flashing Don't Walk' signal phases.

Insufficient Lighting Levels and Inconsistent Activation.

During field reviews, lighting levels at observed crosswalk locations were below the FHWA recommended lighting level of 2 foot-candles along crosswalks. Additionally, not all lighting was activated along the corridor at the same time and/or when natural lighting levels decreased.

Safety Opportunity: Reduced visibility due to darkness could lead to pedestrian crashes at night. Not providing adequate lighting when natural lighting levels are compromised may contribute to greater crash frequency.

Figure 2. Midblock Crossing Near North Leg Transit Stop (Fort Lowell)



Figure 3. Crossing During 'Don't Walk' Phase and Low Lighting Levels (Fort Lowell)

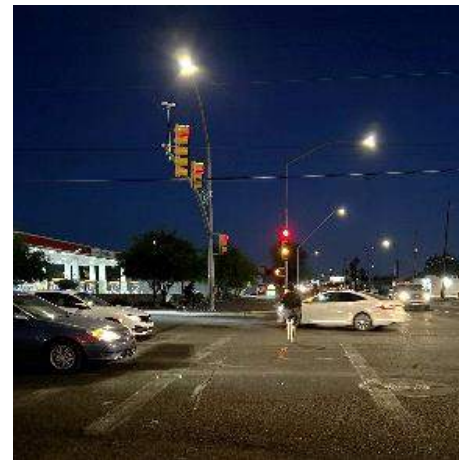


Figure 4. High Stress Bike Facilities and Low Lighting Levels (Fort Lowell)



Figure 5. Missing Truncated Domes and Degraded Curb Ramp (Glenn Street)



Figure 6. Limited Crosswalk Visibility (Fort Lowell)



High-Stress Bike Facilities.

The bike lanes provided are shoulder bike lanes, with only a painted white line separating bicyclists from drivers. This creates a high-stress environment for bicyclists and drivers, who may experience an increased cognitive load when trying to monitor their environment.

Safety Opportunity: There is limited space separating the users of the two different travel modes, increasing the chance for conflicts, particularly in areas with turning movements, driveways, or high traffic volumes.

Missing Accessibility Features.

Currently, most of the pedestrian push buttons along the corridor are an older model requiring physical force to depress the button, instead of the newer, touch-sensitive models. Additionally, not every curb ramp is equipped with truncated domes, and some locations only have one curb ramp leading to both crosswalks.

Safety Opportunity: Pedestrians unable to press the pedestrian push button may lead the pedestrian to attempt to cross without signal protection, increasing the possibility of crashes.

Truncated domes are important for providing tactile cues to people with visual impairments to alert them that they are about to enter the roadway, which may cause them to enter the roadway unknowingly.

The absence of two curb ramps at a crosswalk may force those using mobility aids to cross into oncoming traffic to access the ramps and increase the potential of crashes.

Faded Pavement Markings.

Several pavement markings along the corridor, including crosswalk markings and turn radius markings, are faded.

Safety Opportunity: Faded markings make it more difficult for road users to identify where they and other road users may be located. For example, a faded crosswalk may reduce driver awareness that a pedestrian could enter the roadway.

Limited Crosswalk Visibility.

A pole on the southeast corner of the 1st Avenue & Fort Lowell Road intersection limits drivers' visibility of the crosswalk.

Safety Opportunity: The pole reduces the ability of drivers to identify if pedestrians are in the crosswalk.

Reduced Number of Signal Heads.

Different locations along the corridor are equipped with varying numbers of signal heads.

Safety Opportunity: In cases where only one overhead signal head is provided, driver visibility of the signal heads may be limited. This could result in undesirable behaviors, such as running red lights.

Transit Stop Locations.

The transit stops on the north and west legs of the 1st Avenue & Fort Lowell Road intersection are located further from the intersection than those on the south and east legs.

Safety Opportunity: Offset transit stops increase the likelihood of pedestrians crossing midblock, as riders may opt for the most direct route to or from a stop instead of using a designated crosswalk, increasing the possibility of conflicts.

Vehicle Queues Not Clearing.

Sometimes, not all vehicles waiting at an intersection have the chance to make their movement before the signal cycle ends. For example, the eastbound left-turning vehicles queue did not always clear during the signal cycle.

Safety Opportunity: Signal cycle lengths shorter than the time needed for a vehicle queue to safely clear the intersection may influence drivers to take inappropriate actions in an attempt to make their movement, such as speeding and/or running a red light.

Red Light Running.

At the Glenn Street intersection, several vehicles entered the intersection and/or were within the intersection upon the onset of the red-light phase. This pattern was also reflected in the Glenn Street intersection crash data.

Safety Opportunity: Red light running significantly increases the likelihood of collisions caused by conflicting vehicle movements, particularly within the intersection.

Strong HAWK Compliance (Positive).

A notable positive behavior of pedestrians and vehicles was the strong compliance with the HAWK crossings at the 1st Avenue intersection with Yavapai Road and Graybill Drive. During both peak and off-peak pedestrian and vehicle periods, road users generally complied with the HAWK control. Pedestrians waited for the walk signal before crossing the road, and vehicles stopped a safe distance from the crosswalk to allow pedestrians to cross safely.

Figure 7. Transit Stop Locations (Fort Lowell)



Figure 8. Red Light Running (Glenn)



Figure 9. Pedestrian and Vehicle HAWK Compliance (Yavapai/Graybill)



3. Crash Analysis

In addition to field reviews and on-site observations, the project team used five years (2019 through 2023) of crash data from the Arizona Department of Transportation (ADOT) to identify crash trends along the project corridor, from River Road to Grant Road.

A total of 765 crashes were reported during this period, with 6.2% (48) resulting in at least one fatal or serious injury (FSI) (see Table 2). Vehicle-only crashes were the most common. Pedestrian crashes comprise 5% to 9% of the annual crashes (Figure 10).

The 1st Avenue corridor has one of the City's highest incidences of FSI pedestrian crashes. Over the five years analyzed, pedestrian crashes comprised 34% of serious injury and 69% of fatal injury crashes.

As noted in the previous field reviews, several safety concerns also affect bicyclists, including the prevalence of unprotected bike lanes along the corridor. In the five years of data, there were three FSI bicyclist crashes, which comprised 6% of the FSI crashes.

Table 2. Crashes on 1st Avenue by Crash Mode and Injury Severity (2019 - 2023)

Crash Mode	Fatal	Serious Injury	Minor Injury	Possible Injury	No Injury (PDO)	Total
Vehicle	4	19	132	125	414	694
<i>Single Vehicle</i>	1	3	10	12	25	51
<i>Multi-Vehicle</i>	3	16	122	113	389	643
Pedestrian	11	11	22	12	0	56
Bicyclist	1	2	6	6	0	15
Total Crashes	16	32	160	143	414	765

1ST AVE PEDESTRIAN CRASHES MADE UP



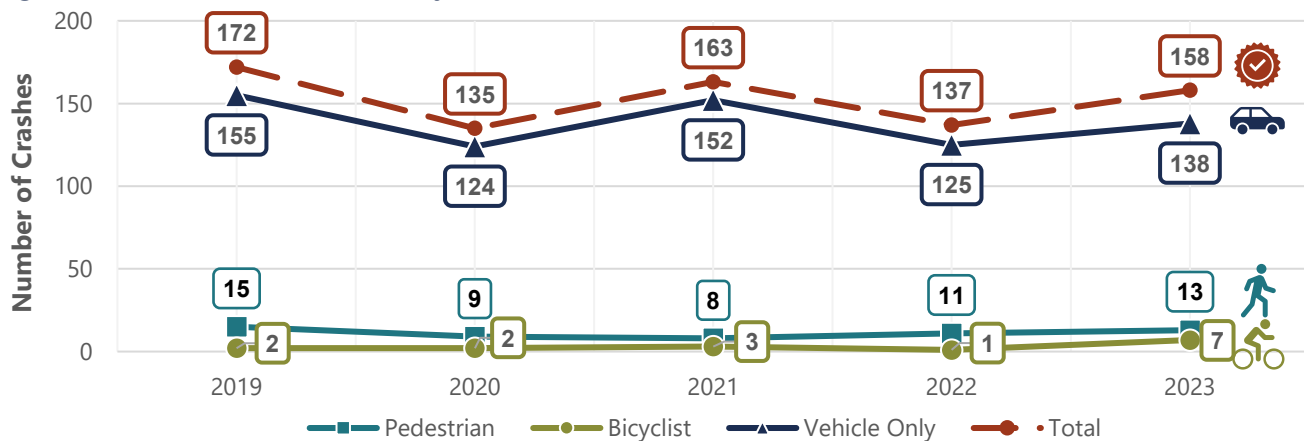
34% of serious
injury crashes



69% of fatal injury
crashes

Note: Not all crashes are reported, particularly those of lower severity. The percentages shown in this report are based only on reported crashes and may overestimate the true proportions, especially for property damage only (no injury) crashes.

Figure 10. Crashes on 1st Avenue by Mode and Year (2019 - 2023)

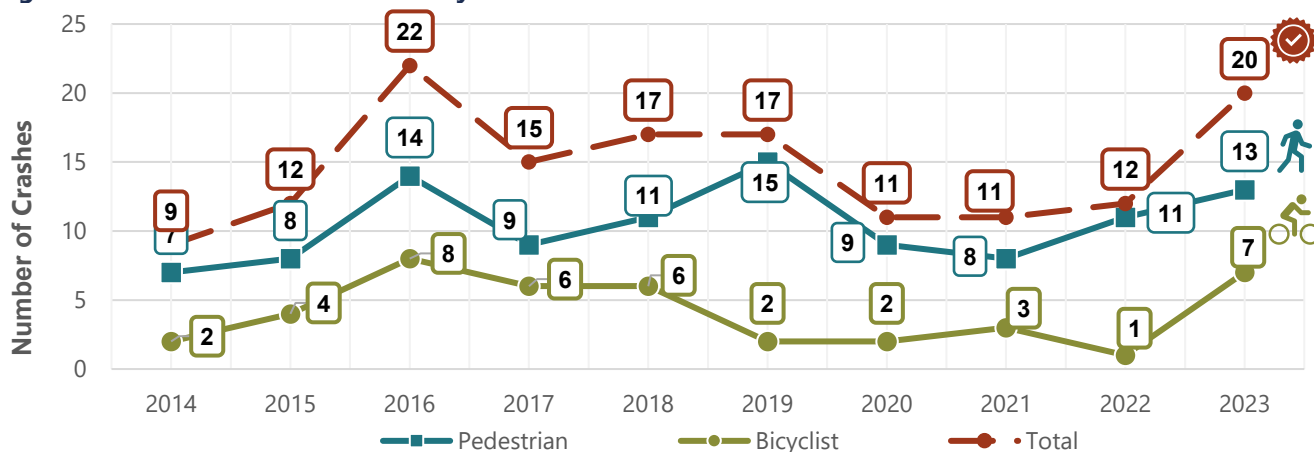


LONG-TERM PEDESTRIAN AND BICYCLIST CRASH TRENDS

Due to the heightened concern around vulnerable road user (VRU) crashes along the 1st Avenue corridor, an analysis of ten years of crash data was conducted to examine the long-term pedestrian and bicycle crash trends. Using a longer span of data helps to visualize a more comprehensive overview of crash frequency. However, it is important to note that using older data means the data does not reflect any recent changes in roadway geometry or road user facilities.

From 2016 to 2019, the number of bicyclist crashes decreased yearly; however, they have since increased in frequency. Despite only one bicyclist crash in 2022, there were seven in 2023, more than the previous three years combined. Similarly, pedestrian crash frequency has increased annually since 2021 and is approaching the last maximum annual number of pedestrian crashes observed in 2019.

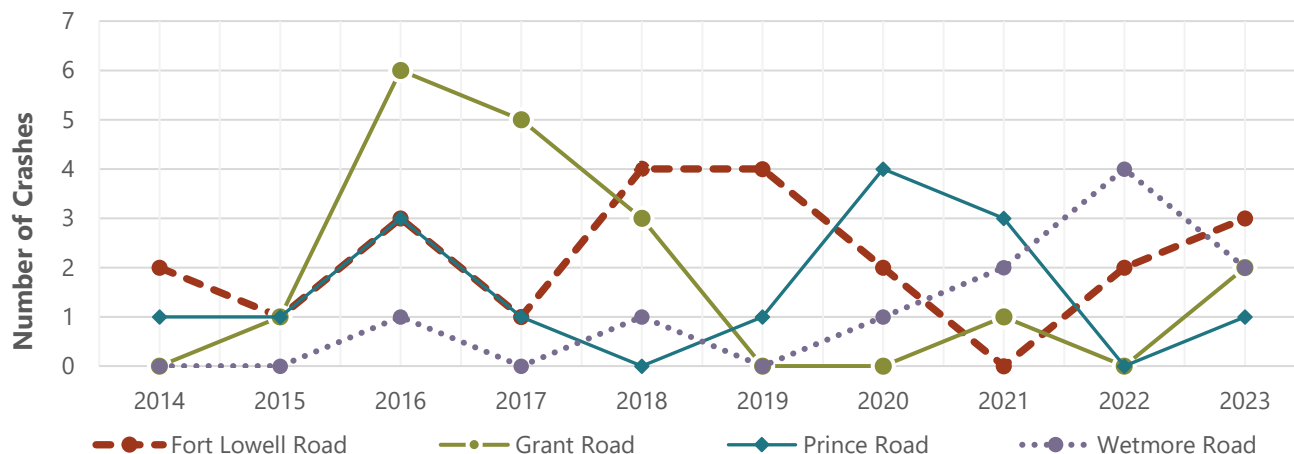
Figure 11. Annual Pedestrian and Bicyclist Crashes from 2014 to 2023



Cross streets with at least ten crashes in the 10-year span were plotted to determine trends in location frequency (Figure 12). The following observations are associated with this data:

- **Grant Road** had its highest number of pedestrian crashes three years in a row, from 2016-2018. In 2018, bike lanes and raised median refuge islands were added. These improvements were followed by a consistent reduction in the total number of pedestrian and bicyclist crashes.
- The number of crashes at the **Wetmore Road** intersection increased from 2020 to 2022, which could potentially be due to COVID-19 travel trends, followed by a decrease in 2023.
- The frequency of pedestrian and bicyclist crashes at the **Fort Lowell Road** intersection has remained constant over the decade, ranging from 1 to 4 crashes every year.
- Most often, there was one pedestrian or bicyclist crash at the **Prince Road** intersection every year. However, a peak number of crashes occurred in 2020, which may be related to the changes in travel patterns due to COVID-19.

Figure 12. Annual Pedestrian and Bicyclist Crashes by Intersection Cross Street From 2014 to 2023



INJURY SEVERITY BY CRASH MODE

Pedestrian and bicyclist crashes often result in much higher injury and fatality rates, due to the increased vulnerability of these road users. This was reflected in the data as 52% of FSI crashes involved a pedestrian or bicyclist.

Furthermore, all the pedestrian and bicyclist crashes resulted in at least a possible injury, with 20% of pedestrian crashes and 7% of bicyclist crashes resulting in a fatality (Figure 13). This is a sharp contrast when compared to trends seen in the vehicle-only crash population. 60% of vehicle-only crashes were classified as property damage only (PDO) crashes, while only 1% resulted in fatalities. The relationship between pedestrian and bicyclist crashes and high severity injuries means that if these crash types continue to occur, so will roadway fatalities.

52% of FSI crashes involved a pedestrian or bicyclist

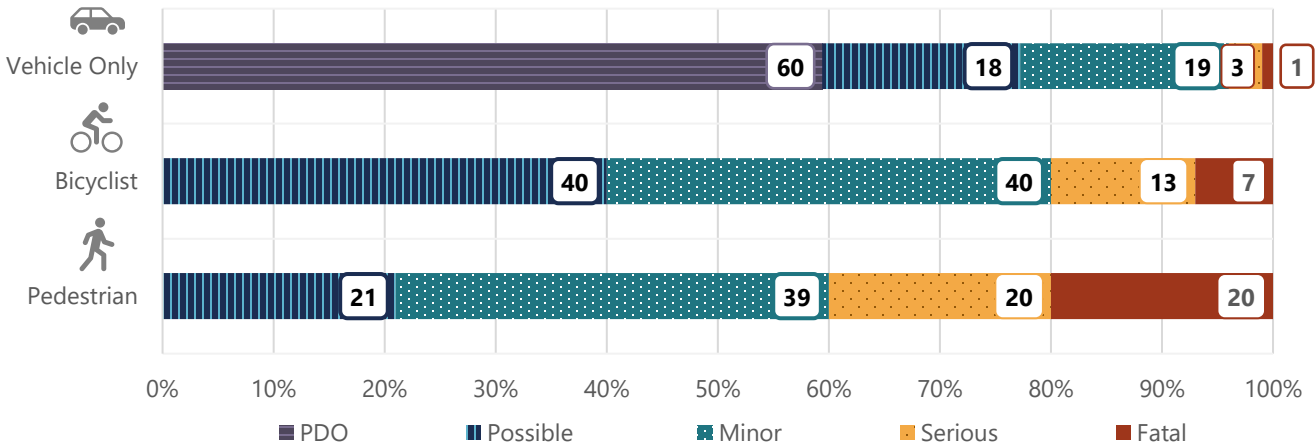
CRASHES RESULTING IN A FATALITY


20% of pedestrian crashes


7% of bicyclist crashes


1% of vehicle-only crashes

Figure 13. Crashes on 1st Avenue by Crash Mode and Highest Injury Severity (2019 - 2023)



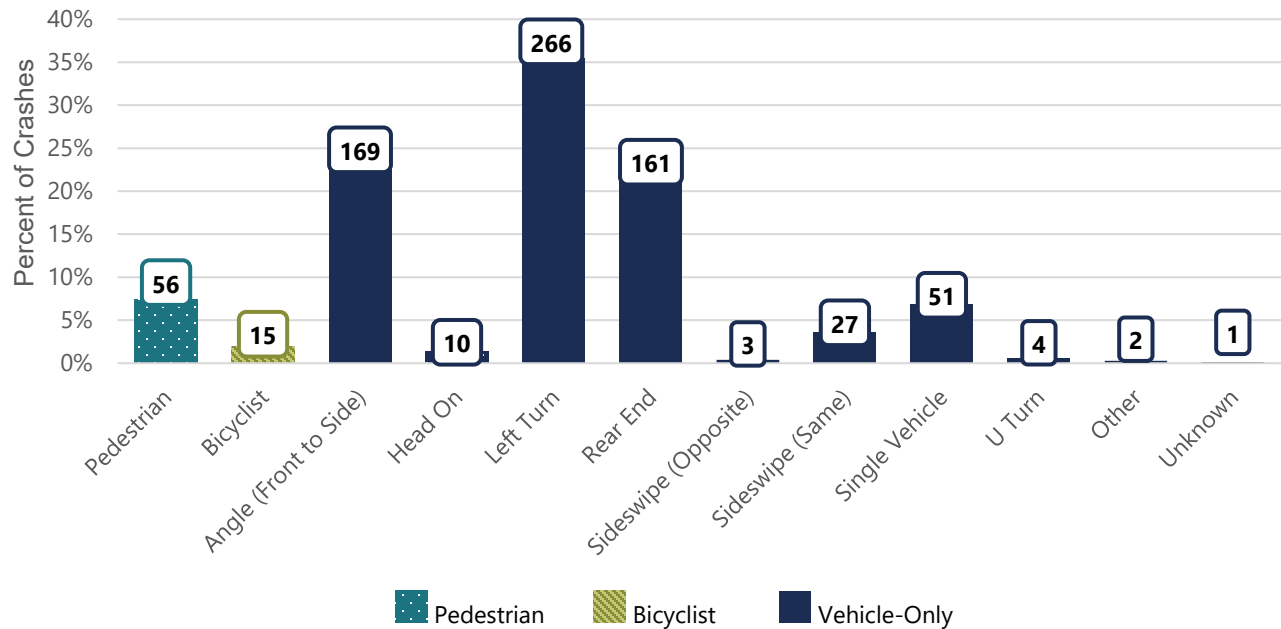
CRASH TYPE

In this analysis, pedestrian crashes and bicyclist crashes both describe who was involved in the crash or the *mode*, and how the crash happened or the crash *type*. While 'vehicle-only' describes a crash mode, several crash types fall under the 'vehicle-only' crash category, which describes how the vehicles collided. Some of these configurations are historically more dangerous than others.

The most common crash type was left turn crashes, followed by angle and rear end crashes. These are all common intersection crash types. While rear-end crashes typically occur between vehicles approaching the intersection, left turn and angle crashes occur within the intersection. These two latter crash types indicate one or more vehicles were in the intersection when they should not have been (e.g., they should have been yielding to another vehicle's movement or it was not their appropriate phase to enter or be in the intersection).

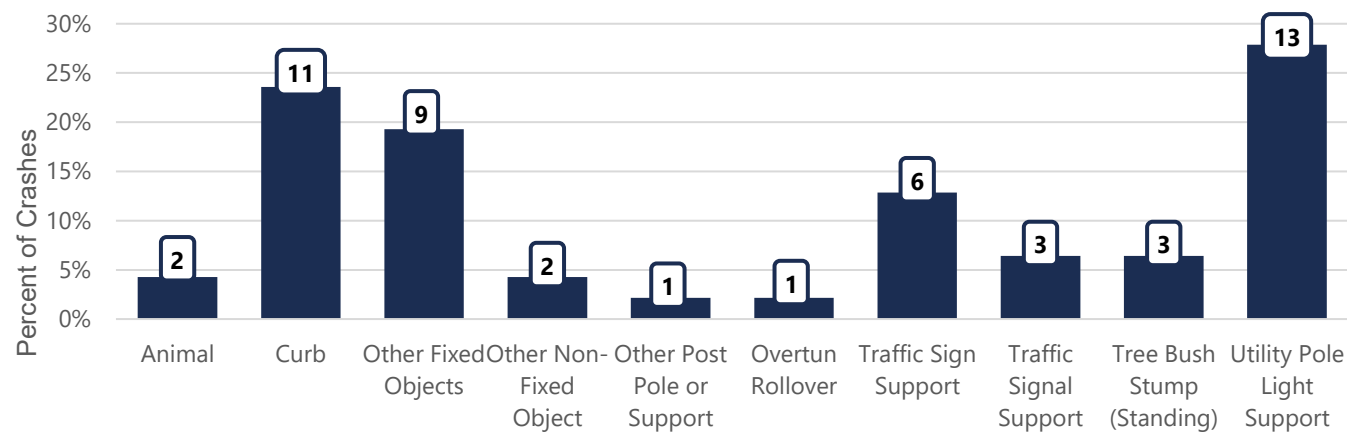
A left turn crash involves at least one vehicle making a left turn when the crash occurred. This can result in various crash orientations, depending on the relative directions of the crash-involved vehicles and which vehicle(s) was turning left. On the other hand, angle crashes involve two straight-traveling vehicles. This results in a front-to-side, or perpendicular, crash orientation.

Figure 14. Crash Type of Crashes on 1st Avenue (2019 - 2023)



The 51 single-vehicle crashes were classified by the first object struck (Figure 15). The most common initial collision involved a curb or a utility pole light support. The one fatal single-vehicle crash was a collision with a utility pole light support. No additional crash events were recorded beyond the vehicle striking the curb. The three serious injury single-vehicle crashes were collisions with an animal, a traffic sign support, and a rollover crash.

Figure 15. Object Struck for Single Vehicle Crashes on 1st Avenue (2019 - 2023)



When considering roadway treatments to improve safety, it is important to consider **both crash frequency and severity** (the rate at which fatal and serious injuries occur for a given crash type). For example, the most common crash type in the 1stAvenue corridor is a vehicle-only left turn crash (Figure 14). Despite being a relatively common crash type, less than 2% of the left-turn crashes resulted in a fatality or serious injury (Table 3). On the other hand, although there were only 56 pedestrian crashes, 39% (22) of them resulted in a fatality or serious injury.

When considering **both frequency and severity**, pedestrian, bicyclist, and head-on crashes were among the most severe crash types. This is because pedestrian and bicyclist crashes involve a VRU, and head-on crashes involve a high quantity of kinetic energy, placing intolerable forces on the human body.

Table 3. Crash Frequency and Rate by Type on 1st Avenue (2019 – 2023)

Crash Type	Crash Frequency	FSI Crash Frequency	FSI Crash Rate
Sideswipe (Opposite Direction)	3	2	66.7%
Pedestrian	56	22	39.3%
Bicycle	15	3	20.0%
Head-On	10	2	20.0%
Single Vehicle	51	4	7.8%
Angle	169	9	5.3%
Left Turn	266	5	1.9%
Rear-End	161	1	0.6%
Remaining Crash Types	34	0	0.0%

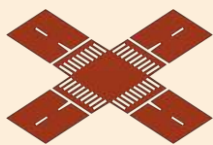
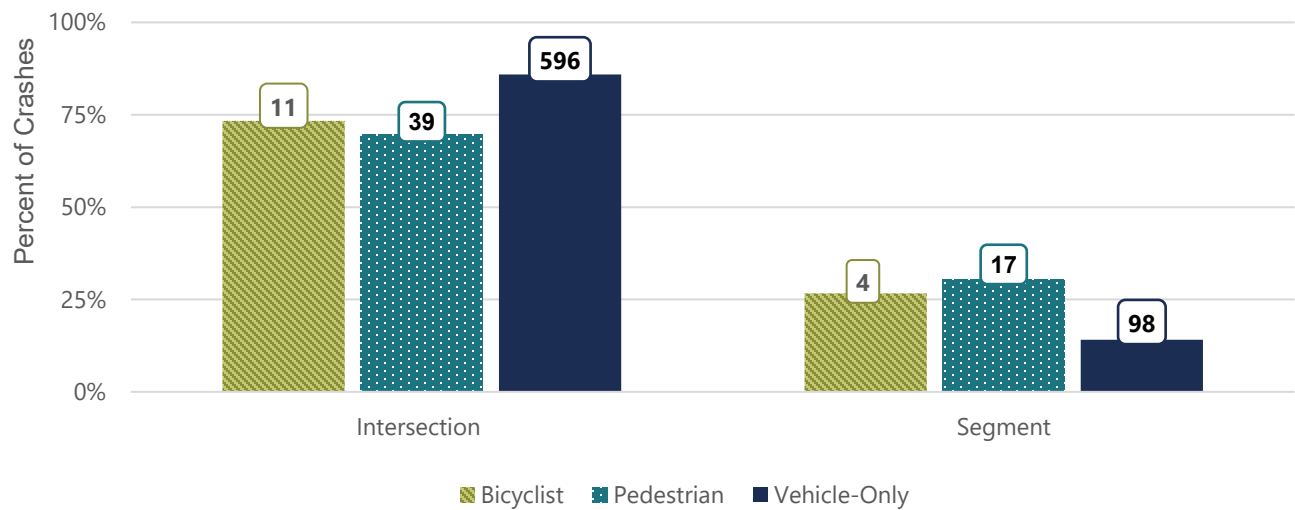
CRASH LOCATIONS

Approximately 75% of the crashes in each crash mode occurred within 250 feet of the following intersections (Figure 16): Blacklidge Drive, Fort Lowell Road, Glenn Street, Grant Road, Jacinto Street, Limberlost Drive, Mohave Road, Pastime Road, Prince Road, River Road, Roger Road, and Wetmore Road. The buffers to the north and south of these intersections total to 6,000 feet of corridor, or approximately one-third of the corridor.

When looking at crashes that happened along segments, there is a higher percentage of pedestrian crashes than other modes. While ADOT crash data includes a field for a description of the junction, it is often not specified and so is not included in this report.

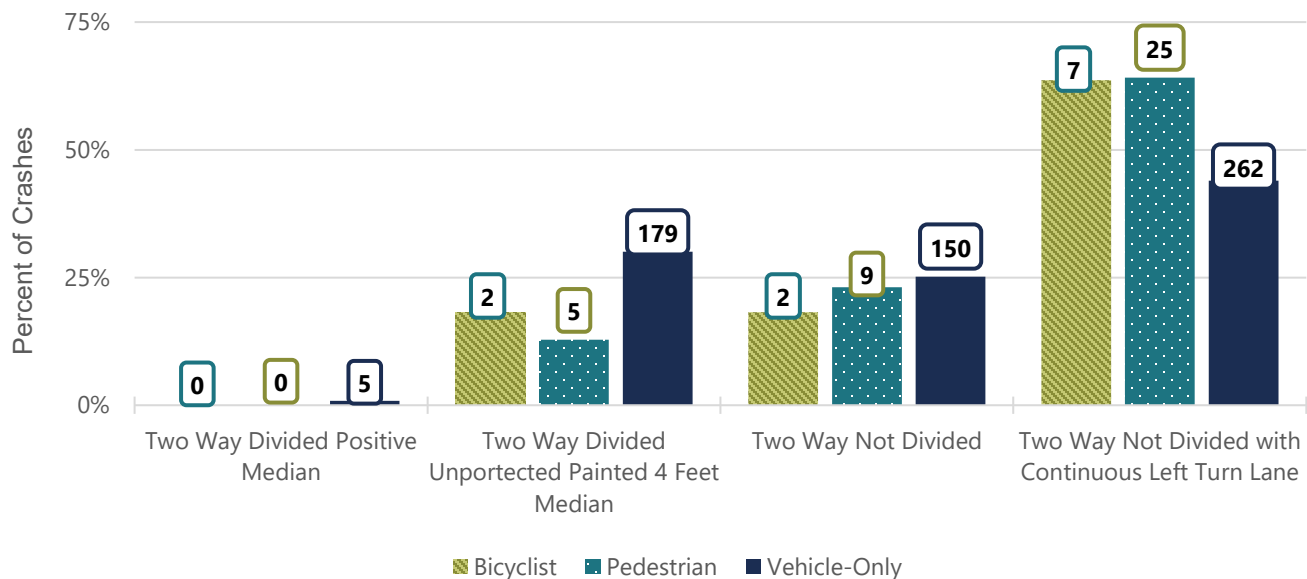
The trafficway type was most often a two-way, undivided roadway with a continuous center turn lane as shown in Figure 17. This is because most of the length of the corridor is designed this way.

Figure 16. Junction Relationship by Mode for Crashes on 1st Avenue (2019 – 2023)



Approximately 75% of crashes for each crash mode occurred at 12 intersections along the study corridor.

Figure 17. Trafficway Type by Mode for Crashes on 1st Avenue (2019 – 2023)



As previously discussed in the section on Crash Types, pedestrian, bicyclist, and head-on crashes were among the most dangerous crash types when considering both crash frequency and FSI crash rate. Table 4 identifies where the crashes in these three crash type categories occurred along the corridor. The following trends were observed:

- 60% of the pedestrian crashes occurred at intersections, with Fort Lowell Road being the most common location, followed by Wetmore Road. Both of these intersections were evaluated during the field review process.
- 75% of the bicyclist crashes occurred at an intersection, with Prince Road being the most common location.
- All 10 head-on crashes occurred at intersections, with Fort Lowell Road identified as the most frequent location. This intersection was reviewed during the field review process.

Table 4. Location of Crash Types with Highest Frequency and FSI Rate on 1st Avenue (2019 – 2023)

Intersection	Pedestrian	Bicycle	Head-On	Total
Corridor (not an intersection)	17	4	0	21
Blacklidge Drive	2	0	0	2
Fort Lowell Road	10	1	3	14
Glenn Street	3	1	1	5
Grant Road	3	0	0	3
Jacinto Street	2	0	1	3
Limberlost Drive	2	0	0	2
Pastime Road	3	1	0	4
Prince Road	5	4	2	11

Intersection	Pedestrian	Bicycle	Head-On	Total
River Road	1	2	1	4
Roger Road	1	0	0	1
Wetmore Road	7	2	2	11
Total	56	15	10	81

VRU CRASHES: USER MOVEMENTS AND VIOLATIONS

Note: This section of the report discusses crashes involving pedestrians who did not cross at the crosswalk. At times, pedestrians may be recorded as crossing not in a crosswalk when, in fact, they are crossing at an unmarked crosswalk. As such, it is important to keep in mind that the number of crashes involving a non-compliant crossing pedestrian may be altered, although it is unclear to what degree.

To further investigate the factors related to the pedestrian and bicyclist crashes, matrices were created to illustrate the frequency of various road user movement and traffic violation combinations. The movement matrix shows that a majority of the fatal crashes occurred when the vehicle was traveling straight as opposed to turning (Figure 18). This is likely due to vehicles traveling at slower speeds during turning maneuvers. Additionally, there was a high frequency of crashes (27) involving a straight-traveling vehicle and a VRU crossing the road. This is expected, as crossing the road increases the number of potential conflict points between the road user and vehicles.

Figure 18. VRU and Driver Movements for VRU Crashes on 1st Avenue (2019 – 2023)

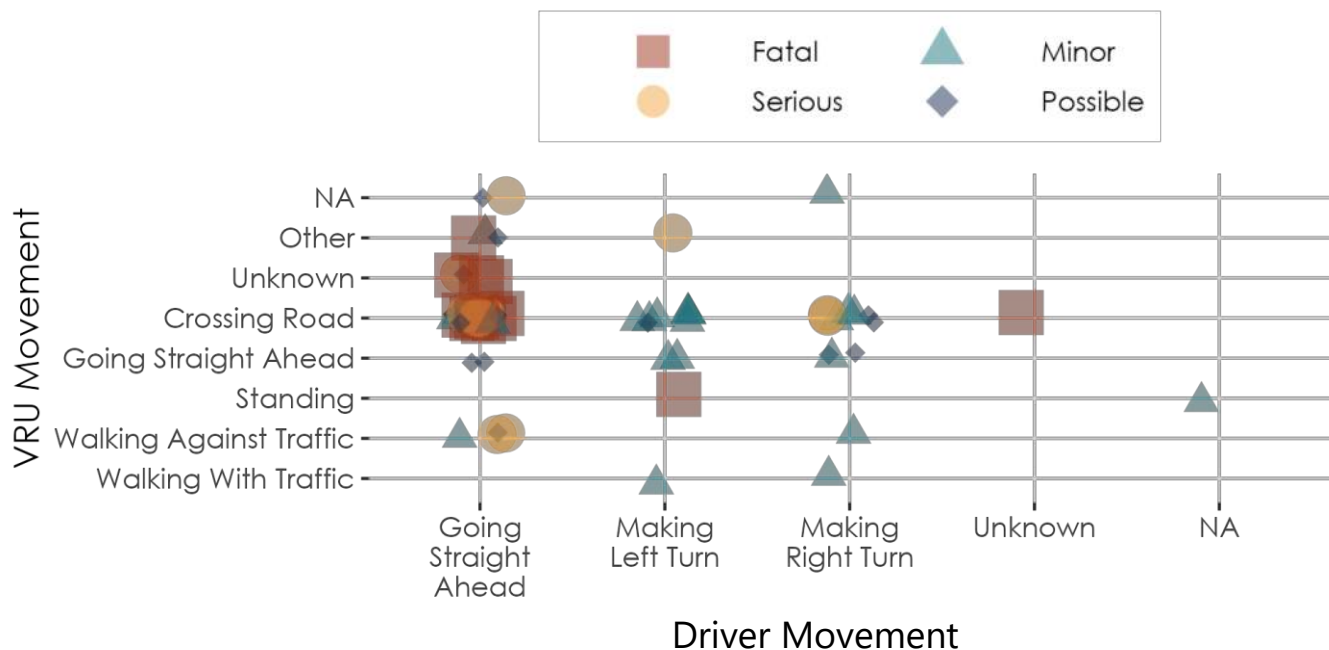
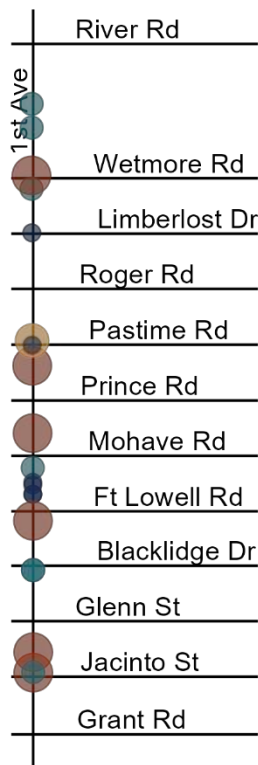


Figure 19. Locations of Crashes Involving a Road User Crossing at a Non-crosswalk Location



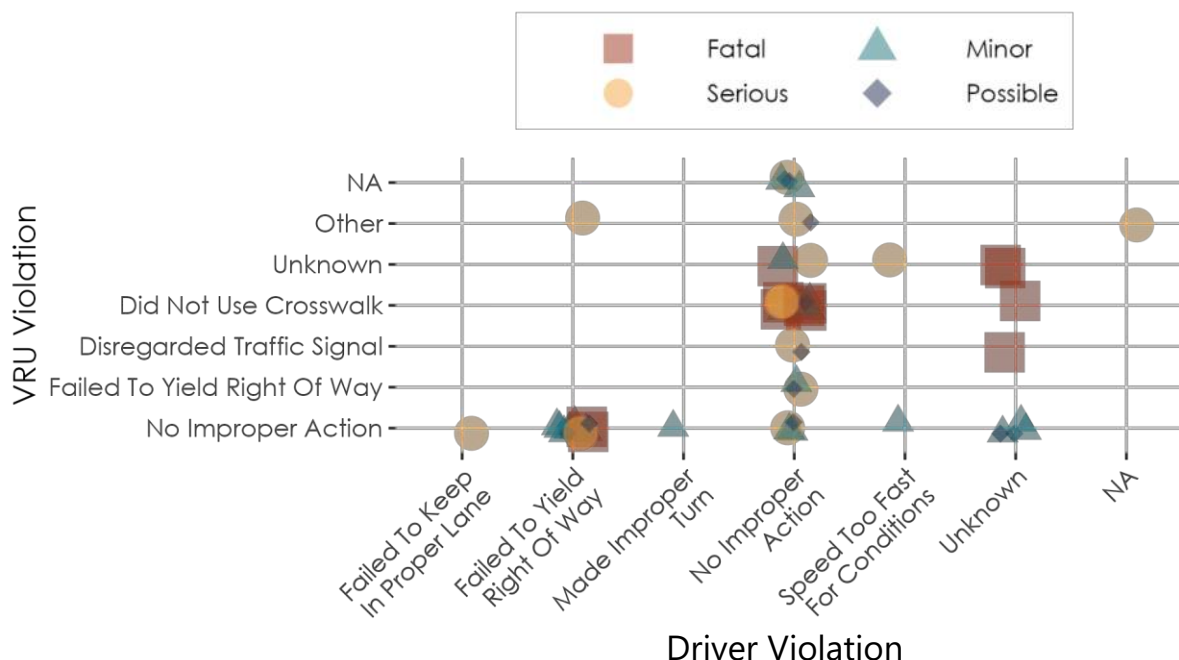
Further analysis revealed that 70% of crashes involved a VRU crossing at a non-crosswalk location (see Table 5). The crash locations were also mapped to identify where road users do not use crossing facilities. In addition to these 19 crashes, a crash involving a left-turning vehicle was mapped, as this crash also involved a pedestrian crossing at a non-crosswalk location. Approximately half of the 20 crashes occurred between Fort Lowell Road and Pastime Road. Additionally, one of the fatal crashes occurred at Wetmore Road. There were also three FSI crashes at Jacinto Street. One of these FSI crashes was in 2019, before the BikeHAWK was installed. The other two occurred in 2021 and 2022.

Table 5. VRU Traffic Violations for Crossing Road and Through Vehicle Crashes (2019 – 2023)

VRU Traffic Violation	Total
Did Not Use Crosswalk	19
No Improper Action	2
Failed to Yield to Right of Way	2
Unknown	2
Disregarded Traffic Signal	1
Unsafe Lane Change	1

Like the previous findings, the traffic violation matrix revealed the most common traffic violation for VRUs to be not using crosswalks. The most common traffic violation for vehicles was failing to yield to the VRU's right of way (see Figure 20).

Figure 20. VRU and Driver Traffic Violations for VRU Crashes on 1st Avenue (2019 - 2023)



Additionally, there was a high crash frequency (16) associated with drivers not yielding to VRUs. These crashes involved a mix of vehicle maneuvers, including seven left-turning vehicles, six right-turning vehicles, and three vehicles traveling straight ahead. Most of these crashes occurred in the vicinity of the Prince Road and Fort Lowell Road intersections (see Table 6). A fatal crash also occurred at the Limberlost Drive intersection.

Table 6. Non-Yielding Vehicle Crash Frequency by Intersection (2019 – 2023)

Intersection	Frequency
Fort Lowell Road	4
Prince Road	4
Wetmore Road	2
Pastime Road	1
Limberlost Drive	1
Grant Road	1
Glenn Street	1
Driveway Crashes	2

CONTRIBUTING CIRCUMSTANCES

Driving Behaviors

The two most common behaviors exhibited by drivers that led to a crash were the failure to yield to another road user’s right of way and speeding. It is worth noting that at the time of this analysis, the posted speed limit on 1st Avenue was 45 miles per hour (mph) during the day and 40 mph at night north of Wetmore Road, and 40 mph during the day and 35 mph at night south of Wetmore Road. An example of failing to yield is if a vehicle making a legal right turn on red struck a pedestrian crossing in the crosswalk during the walk phase. While failure to yield was more common than speeding in the total crash population, speeding was the more common factor when looking only at fatal and serious injury crashes.

The increase in speeding prevalence in FSI crashes indicates that speeding has more severe consequences than failing to yield.



FAILURE TO YIELD AS A CONTRIBUTING FACTOR

31% of all crashes
(235 total)

23% of FSI crashes
(11 total).



SPEEDING AS A CONTRIBUTING FACTOR

13% of all crashes
(102 total)

8% of FSI crashes
(4 total).

Impairment

Impairment can result in dampened awareness (distraction), reduced reaction time, and unpredictable behavior.

- Of the 1,613 road users involved in the 765 crashes, 4.7% of them were impaired at the time of the crash (Table 7).
- Pedestrians were more likely to be impaired at the time of a crash than bicyclists or drivers (Table 7).

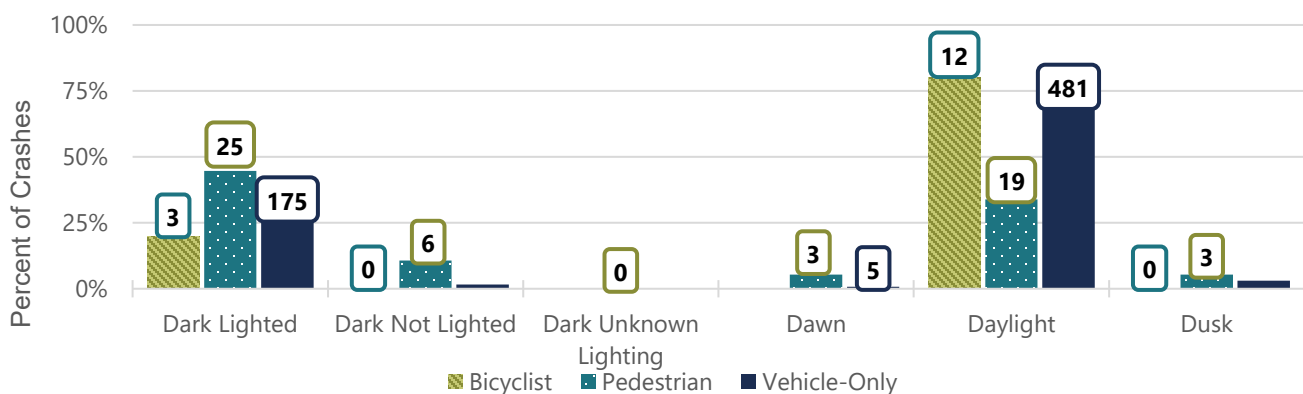
Table 7. Number of Road Users Impaired by Drugs and/or Alcohol (2019 – 2023)

Road User Type	Alcohol	Drug	Alcohol + Drug	Total Impaired	Total Road Users	% of Impaired Road Users
Driver	55	6	1	62	1,540	4.0%
Pedestrian	9	4	0	13	58	22.4%
Bicyclist	1	0	0	1	15	6.7%
Total	65	10	1	76	1,613	4.7%

ENVIRONMENTAL CONDITIONS

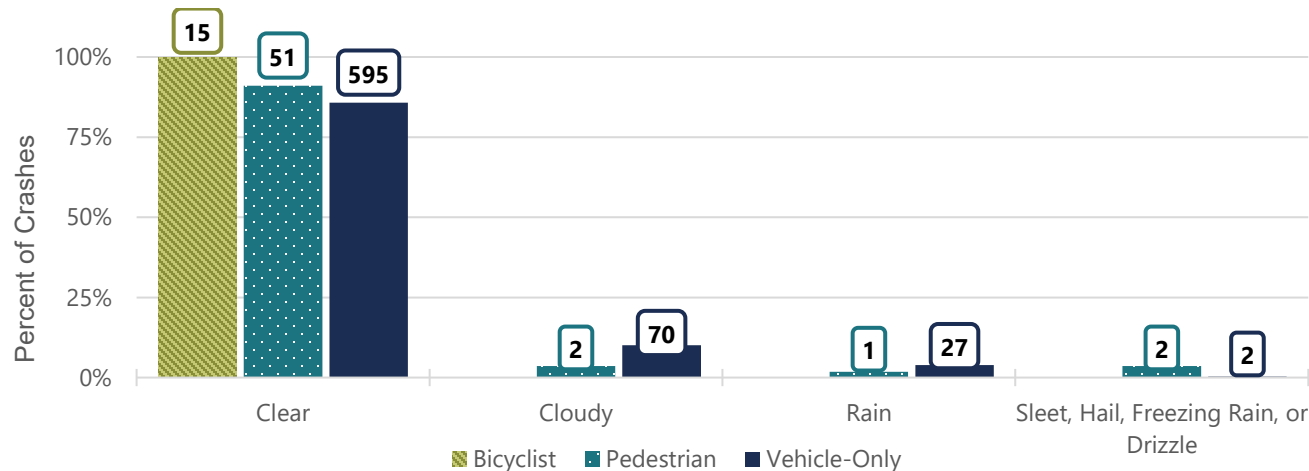
Pedestrian crashes are overrepresented in dark conditions (see Figure 21). This indicates that reduced lighting increases the vulnerability of the already vulnerable VRU population. This is a nationally recognized trend and highlights the support for enhanced pedestrian-grade lighting for the benefit of all road users. Additionally, these results reinforce the importance of implementing additional strategies, in conjunction with enhanced lighting, to improve the visibility of pedestrians to drivers.

Figure 21. Lighting Conditions by Mode for Crashes on 1st Avenue (2019 – 2023)



The majority of each crash mode occurred in clear weather conditions, as clear weather is the most common weather condition (Figure 22). This is especially true in the southern Arizona climate, where precipitation is far less frequent than in other weather conditions.

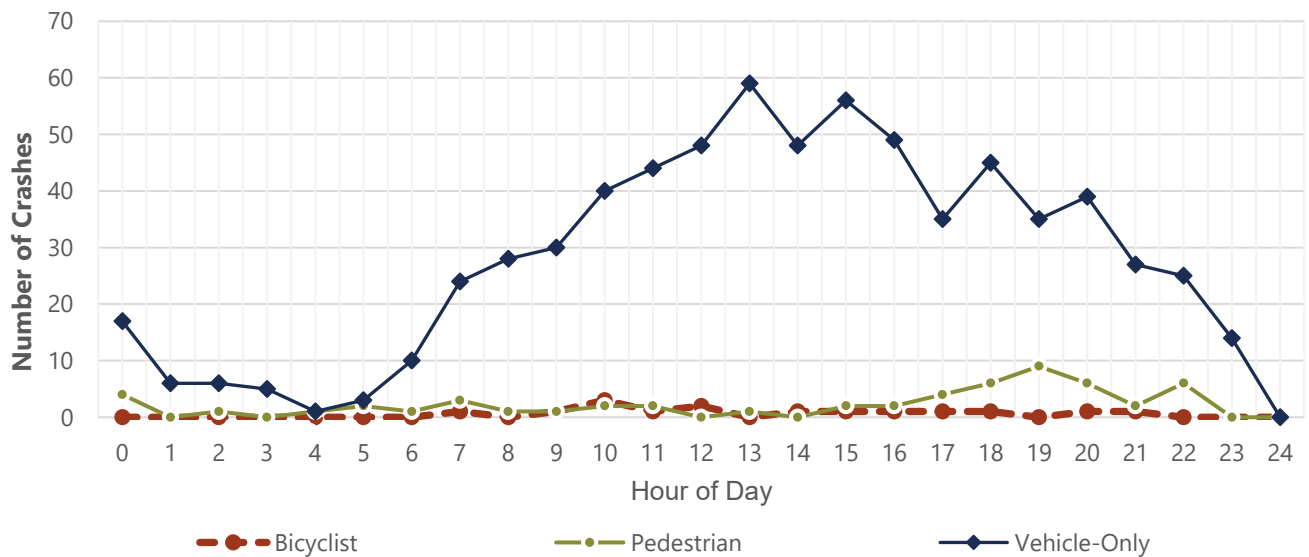
Figure 22. Weather Conditions by Mode for Crashes on 1st Avenue (2019 – 2023)



CRASH TIMES

Vehicle-only crashes in the project area peak between 1 PM and 4 PM. This could be related to traffic patterns, such as increased vehicle volumes during this period. Pedestrian crashes peak much later in the evening, between 7 PM and 8 PM (Figure 23). This later collision peak may be associated with after-sunset conditions, when reduced visibility can make it more difficult for drivers to detect pedestrians. While bicyclist crashes did peak between 10 AM and 11 AM, the reduced sample size makes it challenging to identify this as a reliable trend.

Figure 23. Crash Frequency by Hour of Day and Mode for Crashes on 1st Avenue (2019 – 2023)



PARTIAL 2024 CRASH DATA SUMMARY

Partial 2024 crash data was downloaded on July 3rd, 2024, from the Tucson Police Department Traffic Collisions dashboard. A summary of crash mode and crash severity for these 63 crashes is provided in Table 8.

Table 8. Crashes on 1st Avenue by Crash Mode and Injury Severity (2024 January – June)

Crash Mode	Fatal	Serious Injury	Minor Injury	Possible Injury	No Injury (PDO)	Unknown	Total
Vehicle	0	0	13	10	25	6	54
<i>Single Vehicle</i>	0	0	2	0	1	1	4
<i>Multi-Vehicle</i>	0	0	11	10	24	5	50
Pedestrian	1	1	2	2	1	0	7
Bicyclist	0	0	2	0	0	0	2
Total Crashes	1	1	17	22	26	6	63

The trends observed in the first half of 2024 were consistent with those identified in the 2019 through 2023 data.

Crash Severity and Type.

- The two fatal and serious injury crashes were both pedestrian crashes, underscoring the continued severity of vulnerable road user (VRU) crashes.
- Angle and left-turn crashes were the most common crash types, followed by rear-end crashes.
- More than half of left turn crashes (53%) resulted in at least a possible injury.
- 88% of pedestrian and bicyclist crashes resulted in at least a possible injury.
- 58% of rear-end crashes resulted in at least a possible injury.
- 40% of single-vehicle crashes resulted in at least a possible injury.

Intersection Crashes.

- Crash events were concentrated near intersections; 70% (44 of 63 crashes) happened within 250 feet of an intersection.
- The intersection with the most crashes was 1st Avenue & Fort Lowell Road; there were seven vehicle-only crashes (four minor injury crashes and three PDO crashes).

Contributing Factors.

- Failure to yield was the most common traffic violation and contributed to 37% of crashes.
- Speeding was a contributing factor in 6% of crashes but remains a critical opportunity for safety improvement due to its correlation with high crash severity.

Table 9. Trends Comparison Between 2019-2023 and 2024 (January – June) Data

Trend	2019-2023 Data	2024 (January – June) Data
Total fatal and serious injury crashes	48 FSI crashes, both involving pedestrians	2
Most common crash types	Angle and left-turn crashes, followed by rear-end crashes	Angle and left-turn crashes, followed by rear-end crashes
Left-turn crashes resulting in at least a possible injury	42%	53%
Pedestrian and bicyclist crashes resulting in at least a possible injury	100%	88%
Rear-end crashes resulting in at least a possible injury	32%	58%
Single-vehicle crashes resulting in at least a possible injury	51%	40%
Crashes within 250 feet of an intersection	85%	70%
Intersection with the most crashes	Grant Road (114 crashes) followed by Fort Lowell Road (92 crashes)	River Road (8 crashes) and Fort Lowell Road (8 crashes)
The most common contributing factor	Failure to yield (31% of crashes)	Failure to yield (37% of crashes)

4. Near-Miss Video Analysis

Although the number of crashes in the U.S. has the potential to represent a public health crisis, crashes are still considered relatively rare events when considering the total number of vehicles on the roadways and the overall vehicle miles traveled. Higher severity crashes, such as those resulting in serious or fatal injuries, are even less frequent, resulting in limited data availability. This scarcity of data creates challenges to the traditionally reactive approach to transportation safety, as it makes it difficult to extract patterns and identify potential contributing factors.

With the U.S. adopting the Safe System Approach, it is critical to take a proactive approach to safety. This means implementing safety measures based on potential future crashes rather than waiting for the crashes to occur to justify treatment. One way to address the problem of limited crash data and support a proactive approach to safety is to incorporate near-miss data in safety analyses. Near-misses describe events where a crash almost happened but did not happen. Near-miss events are more common than crashes and can offer valuable insight into where safety treatments and enhancements are most needed.

Near-miss data was collected and extracted by Street Simplified, a video analytics program. The results were then synthesized with historic crash data. While crashes can involve one or more road users, near-misses, in the context of this study, are always considered two-party events. Near-miss data was collected over a 24-hour period at two intersections:

- **Fort Lowell Road & 1st Avenue:** March 26th 9:45 PM to March 27th 9:00 PM.
- **Wetmore Road & 1st Avenue:** March 26th 9:00 PM to March 27th 8:15 PM.



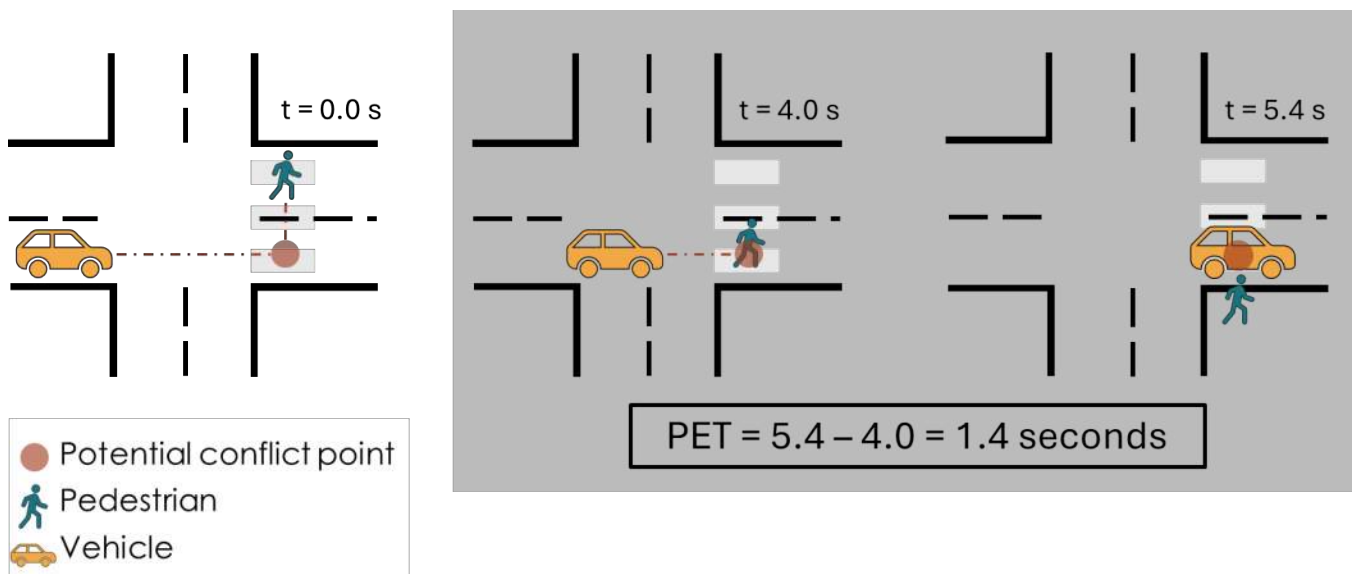
Near-misses can be considered events where crashes almost occurred. They are more frequent than crashes and provide valuable insights for identifying safety behaviors.

QUANTIFYING NEAR-MISS SEVERITY

The severity of near-miss events was quantified using the post-encroachment time (PET) metric. PET accounts for the travel speed of the involved road users and describes the time difference between one road user arriving at a specific point and a second road user passing through that same point (Figure 24). Only near-misses with a PET of 5 seconds or less were recorded during data collection. To differentiate between critical and potential near-misses, a threshold of 2 seconds was used based on the general assumption that a 2-second perception reaction time applies to most drivers under most conditions.

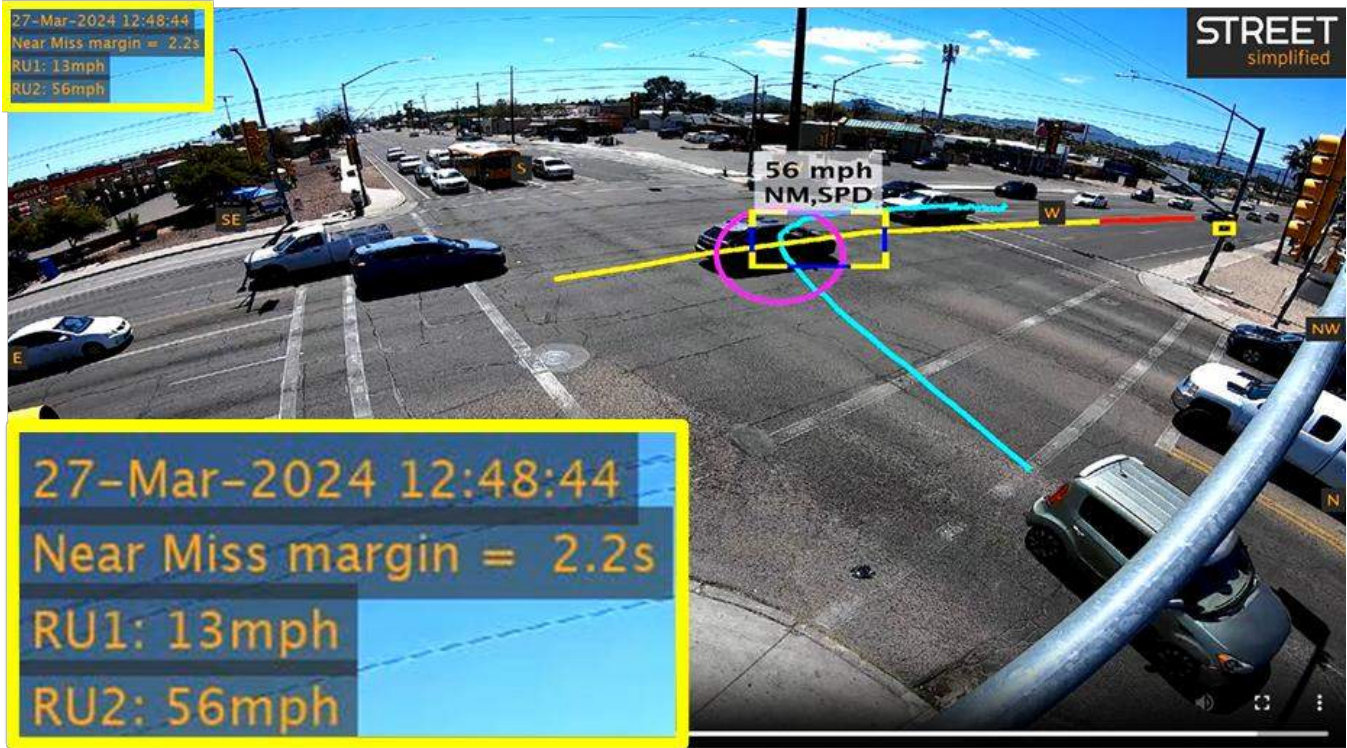
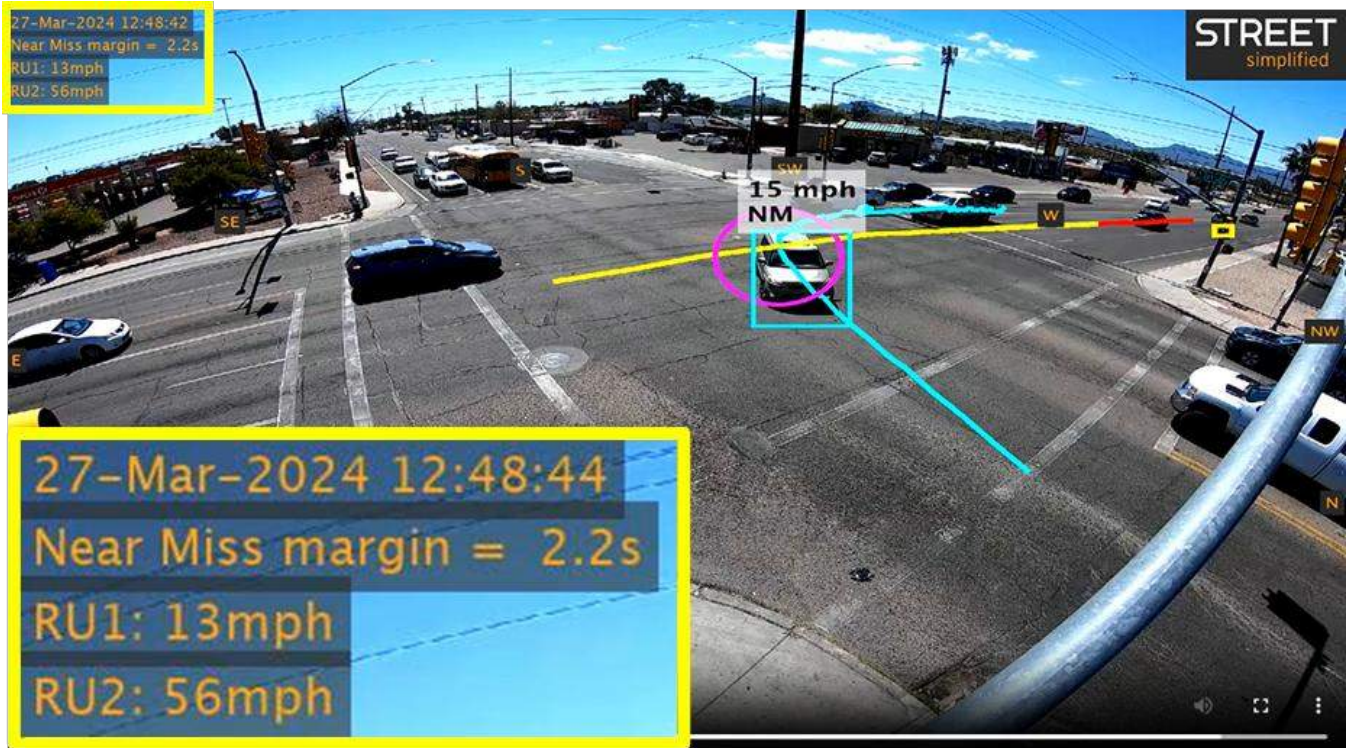
- **Critical near-miss:** events with a PET of less than 2 seconds.
- **Potential near-miss:** events with a PET of at least 2 seconds and less than seconds.

Figure 24. Near-Miss Post-Encroachment Time



Most of the recorded near-miss events have an accompanying video file to complement the quantitative data (Figure 25). These videos display key information, including the date and time, the PET (referred to as the near-miss margin by the program), and the speed of each road user as they passed through the potential conflict point. Figure 25 illustrates a near-miss event between two vehicles with a PET of 2.2 seconds. The first vehicle, making a left turn, passes through the potential conflict point at a speed of 15 MPH. The second vehicle, traveling straight through the intersection, passes through the same point at 56 MPH.

Figure 25. Street Simplified Near-Miss Event Video at 1st Avenue and Fort Lowell Road



NEAR-MISS DATASET SUMMARY

There were 1,984 near-misses (283 critical and 1,665 potential) recorded between the two intersections over the 24-hour period: 956 at the Fort Lowell intersection and 992 at the Wetmore intersection. Table 10 summarizes the near-misses by location, type of near-miss (critical or potential), and mode. Vehicle-only near-misses involved only traditional vehicles, motorbikes, and buses. Crashes involving a pedestrian or bicyclist were categorized separately. No near-misses included both a pedestrian and a bicyclist.

Two near-miss events involved a wheeled pedestrian or an individual using a wheeled transport other than a bicycle, for transportation within a pedestrian environment. One of these wheeled pedestrian crashes also involved a vehicle and was included in the bicyclist category. The other wheeled pedestrian event also involved a pedestrian on foot. This near-miss event was included in the pedestrian mode category, as the unwheeled pedestrian was the more vulnerable user.

Table 10. Total Near-Misses by Mode and Severity

Mode	Fort Lowell Critical	Wetmore Critical	Fort Lowell Potential	Wetmore Potential	Fort Lowell Total Misses	Wetmore Total Misses
Vehicle	101	147	689	784	790	931
Pedestrian	23	7	121	43	144	50
Bicyclist	3	2	19	9	22	11
Intersection Total	127	156	829	836	956	992
Total Entering Vehicles	53,782	40,304	53,782	40,304	53,782	40,304
Total Road Users	55,899	40,908	55,899	40,908	55,899	40,908
Near-Misses Per Vehicle	0.24%	0.39%	1.54%	2.07%	1.78%	2.46%
Near-Misses Per Road User	0.23%	0.38%	1.48%	2.04%	1.71%	2.42%

PET DISTRIBUTION

The PET distribution was examined based on location, mode, and vehicle speed to identify patterns in near-miss severity. Lower PET values indicate closer interactions between road users and a higher potential for conflict. Most PETs ranged from 0.2 to 4.9 seconds across both intersections, with **no significant difference in average PET by location or mode (vehicle, pedestrian, bicyclist)**. Additionally, several trends were identified:

- **VRU near-misses were generally less severe when the vehicle arrived at the conflict point first**, suggesting the VRUs adjusted their movement based on the vehicle's position.
- **Higher vehicle speeds were associated with lower PETs (indicating a greater potential for collisions)**, particularly for vehicle-only near-misses, when vehicles were traveling through the intersection, and when the VRU arrived at the potential conflict point second.
- **Critical near-misses** (PET < 2 seconds) were more likely to occur when left-turning vehicles used small gaps or when pedestrians crossed just before or after the vehicle arrival.

These PET trends highlight the importance of reducing vehicle speeds and improving separation at high-conflict locations. It is worth noting that at the time of the analysis, the posted speed limit on 1st Avenue was 45 mph during the day and 40 mph at night north of Wetmore Road, and 40 mph during the day and 35 mph at night south of Wetmore Road. The following subsections detail the PET analysis.

By Location

The PETs ranged from 0.2 seconds to 4.9 seconds. The average PET at each intersection is denoted with an open circle in Figure 26. The overlapping error bars indicate there is no statistically significant difference between the average PETs at each location. Figure 27 depicts the trajectories of all the road users involved in the near-misses by location. Blue and orange lines indicate the trajectories of the 1st and second road users, respectively.

Figure 26. Distribution of PET by Location for All Near-Misses

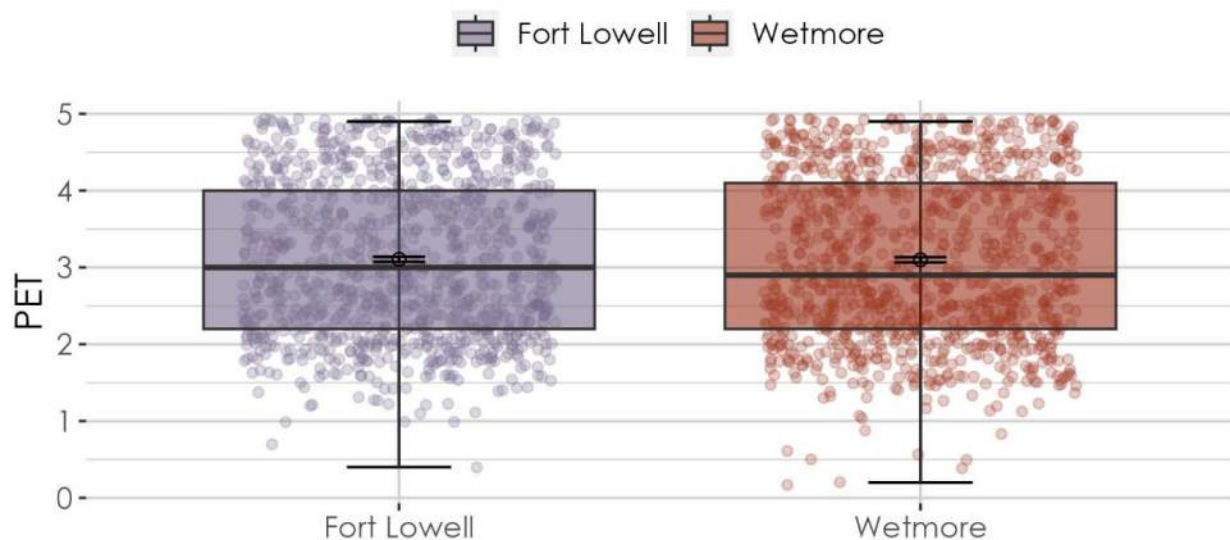
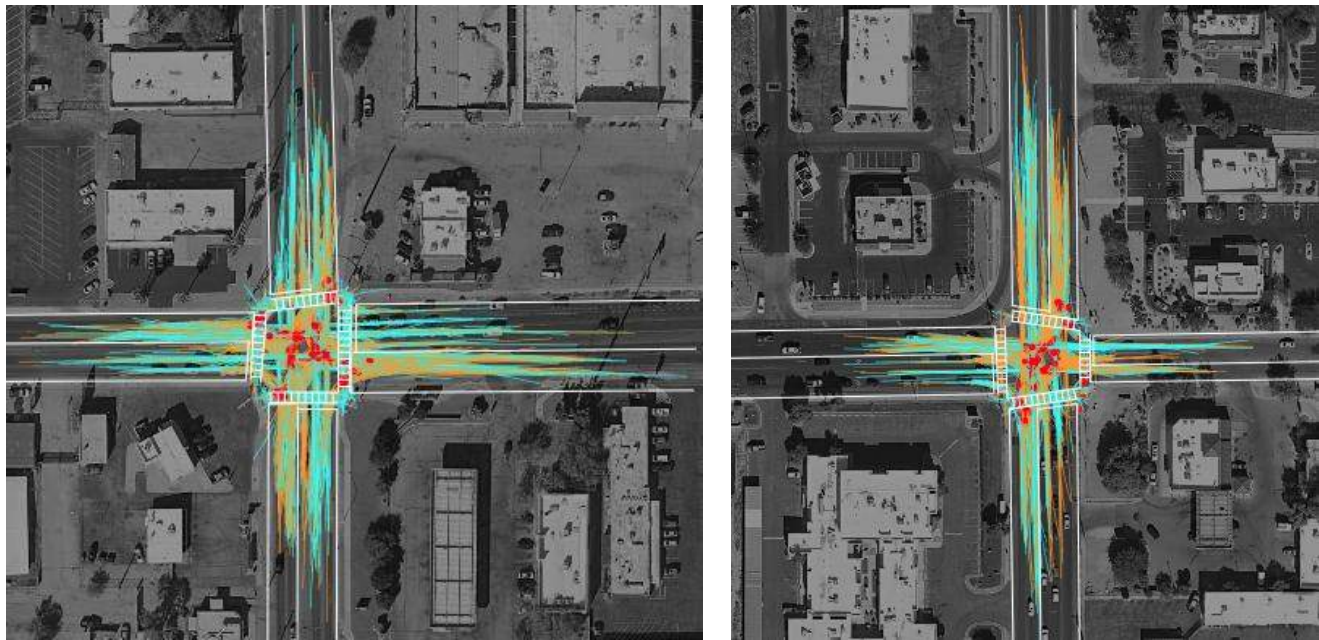


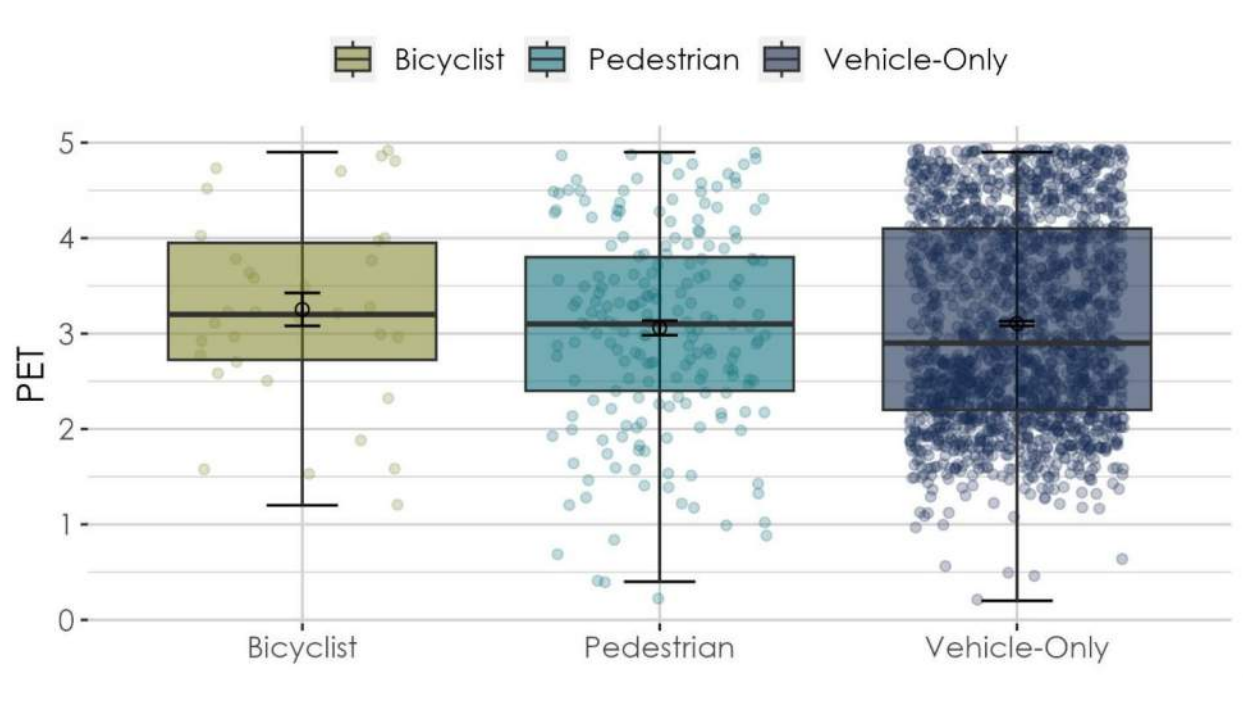
Figure 27. Near-Miss Trajectories and Potential Conflict Points at Fort Lowell (left) and Wetmore (right)



By Mode

The average PETs for bicyclist, vehicle-only, and pedestrian near-misses were 3.25 seconds, 3.11 seconds, and 3.06 seconds, respectively. These average values are denoted in Figure 28 with open circles. The error bars associated with both the average values and the range of PETs for each mode indicate there is no statistically significant difference across the modes.

Figure 28. Distribution of PET by Mode for All Near-Misses



Near-miss events involving a pedestrian or bicyclist, in addition to being characterized by PET, were characterized by whether the VRU or the vehicle arrived at the potential conflict point first. When the vehicle arrives at a potential conflict point first, followed by the VRU, the likelihood of a collision is generally lower, as the VRU can adjust their movement accordingly. Conversely, when the VRU arrives first at a potential conflict point, it is likely they did not intend for the vehicle to arrive at that same point so soon after their passing through.

These average PET for each group is denoted in Figure 29 with an open circle. In general, the PETs were slightly lower when the VRUs arrived at the potential conflict point after the vehicle passed through the point. The error bars associated with the average values indicate this lower PET is only statistically significant for pedestrian near-misses. This supports the hypothesis that pedestrians are intentionally timing their arrival after the vehicle passes through (an example of this behavior is shown in Figure 30).

Figure 29. Distribution of PET for VRU Near-misses

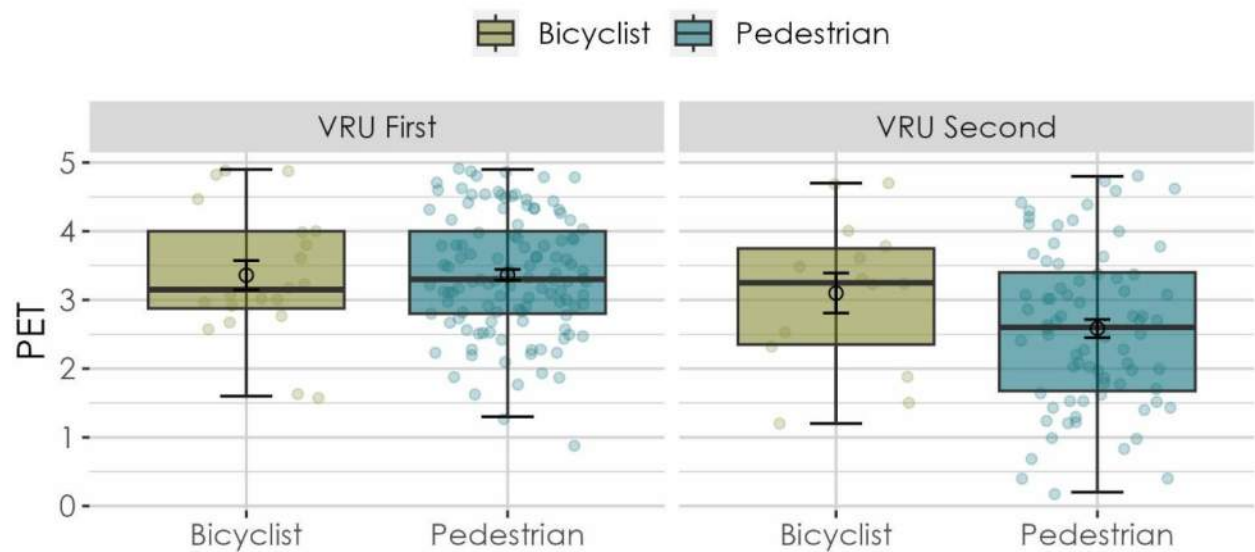
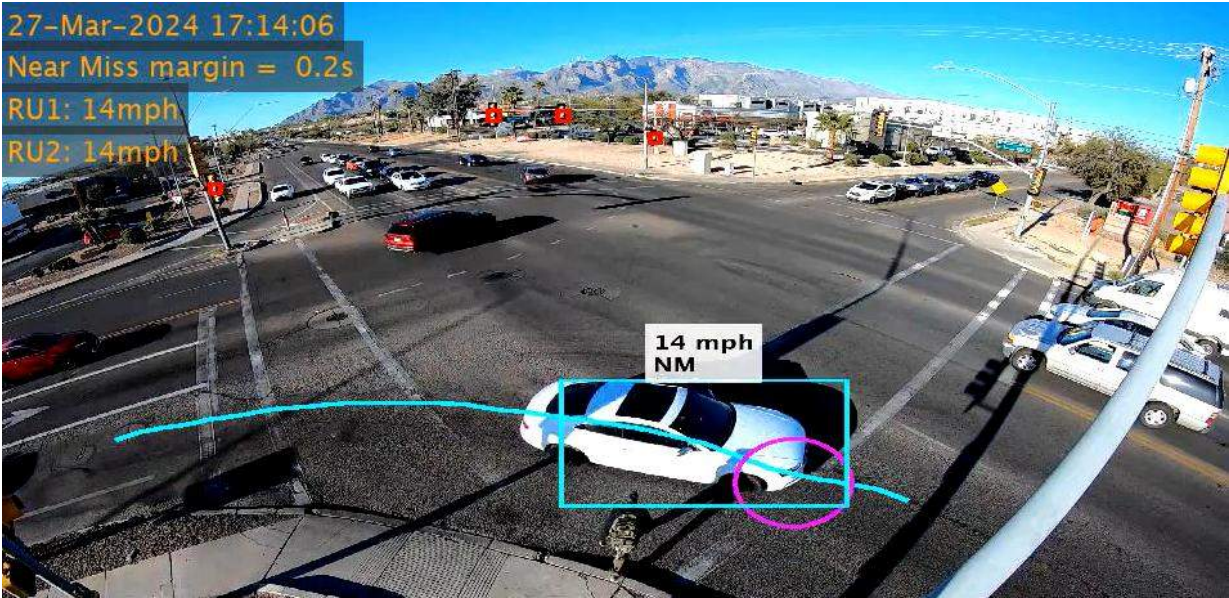


Figure 30. Vehicle-Pedestrian Near-miss at Wetmore Road



By Vehicle Speed

Figure 31 displays PET versus vehicle speed for all the near-misses involving a VRU. This figure organizes the data by both the intersection and the 1st-arriving road user. Vehicle speed, PET, and the 1st-arriving road user all have implications for the severity of the near-miss and the potential crash that could have occurred. The following observations were made:

- Higher vehicle speeds were generally associated with near-misses where the VRU arrived at the potential conflict point second.
- There were three near-misses at the Fort Lowell intersection where the VRU arrived 1st and the vehicle was traveling greater than 30 MPH.
- The Fort Lowell intersection had the highest VRU near-miss vehicle speed. The Wetmore intersection had the highest VRU critical near-miss vehicle speed.

Figure 31. Vehicle Speed and PET for VRU Near-Misses

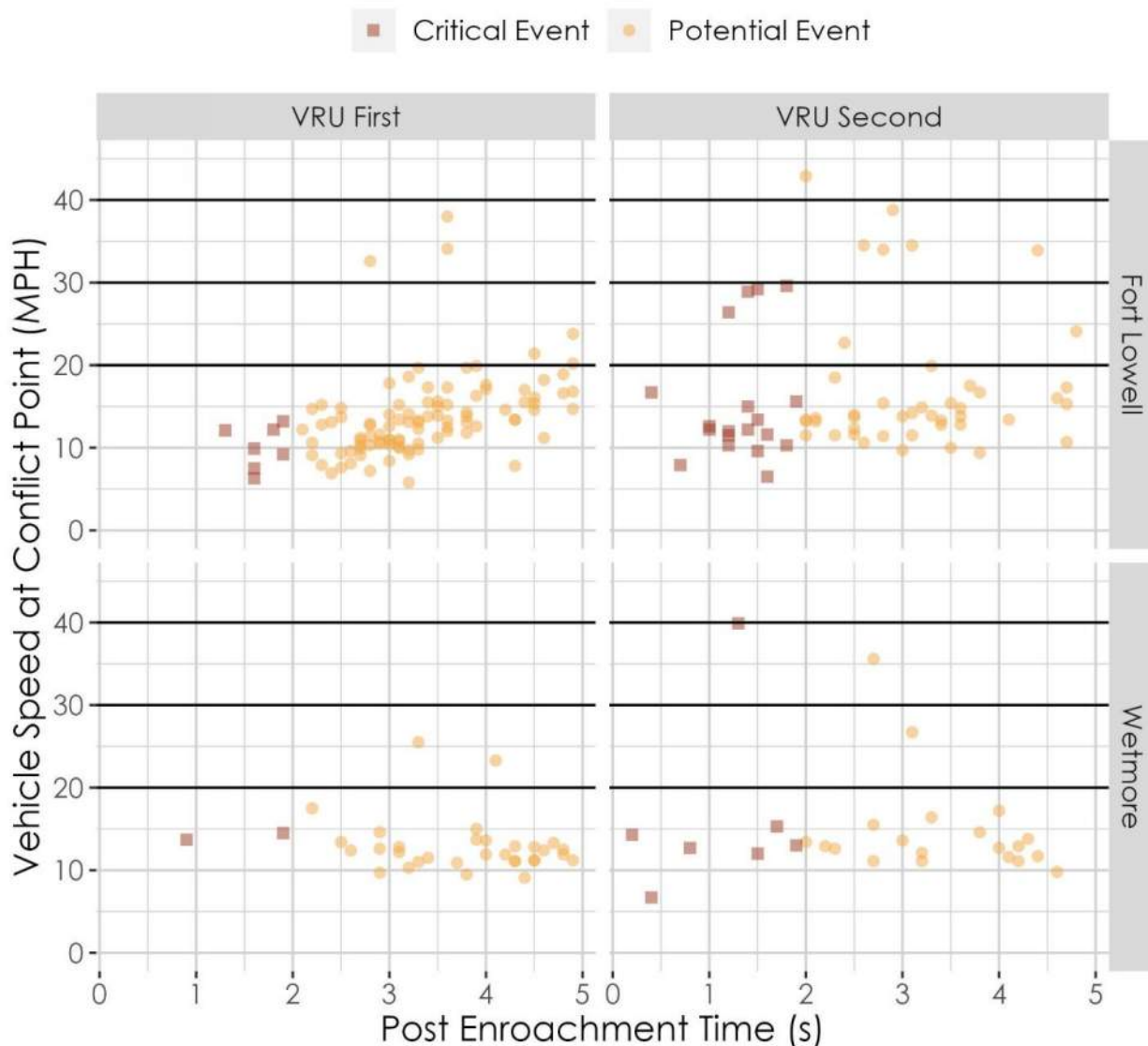
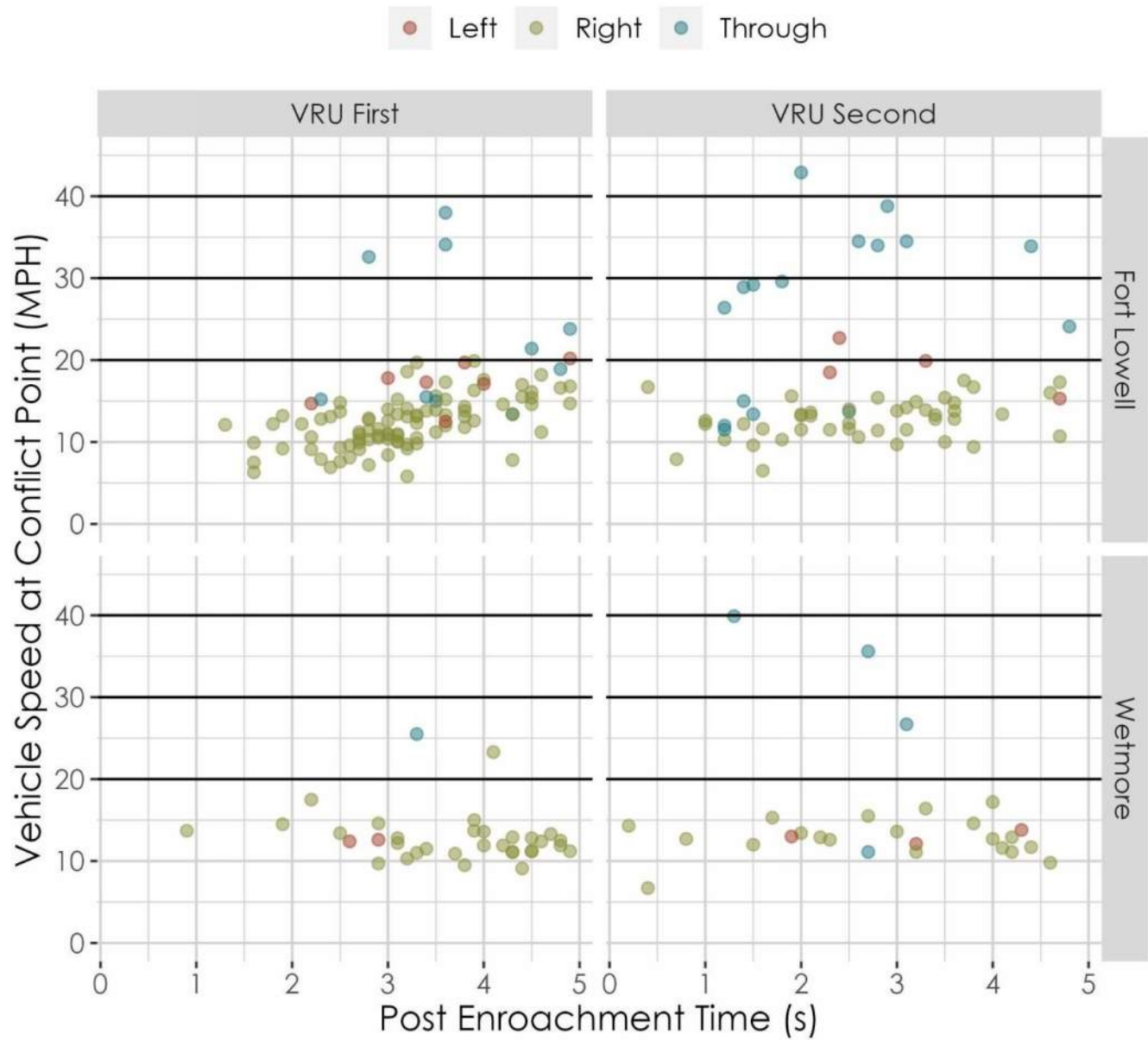


Figure 32. Vehicle Speed and PET for VRU Near-Misses by Vehicle Movement displays the same information as Figure 31, but with an added element: the points are color-coded by vehicle movement (through, left, or right). As anticipated, the higher-speed vehicles were traveling straight, compared to lower-speed vehicles, which were often turning.

Figure 32. Vehicle Speed and PET for VRU Near-Misses by Vehicle Movement

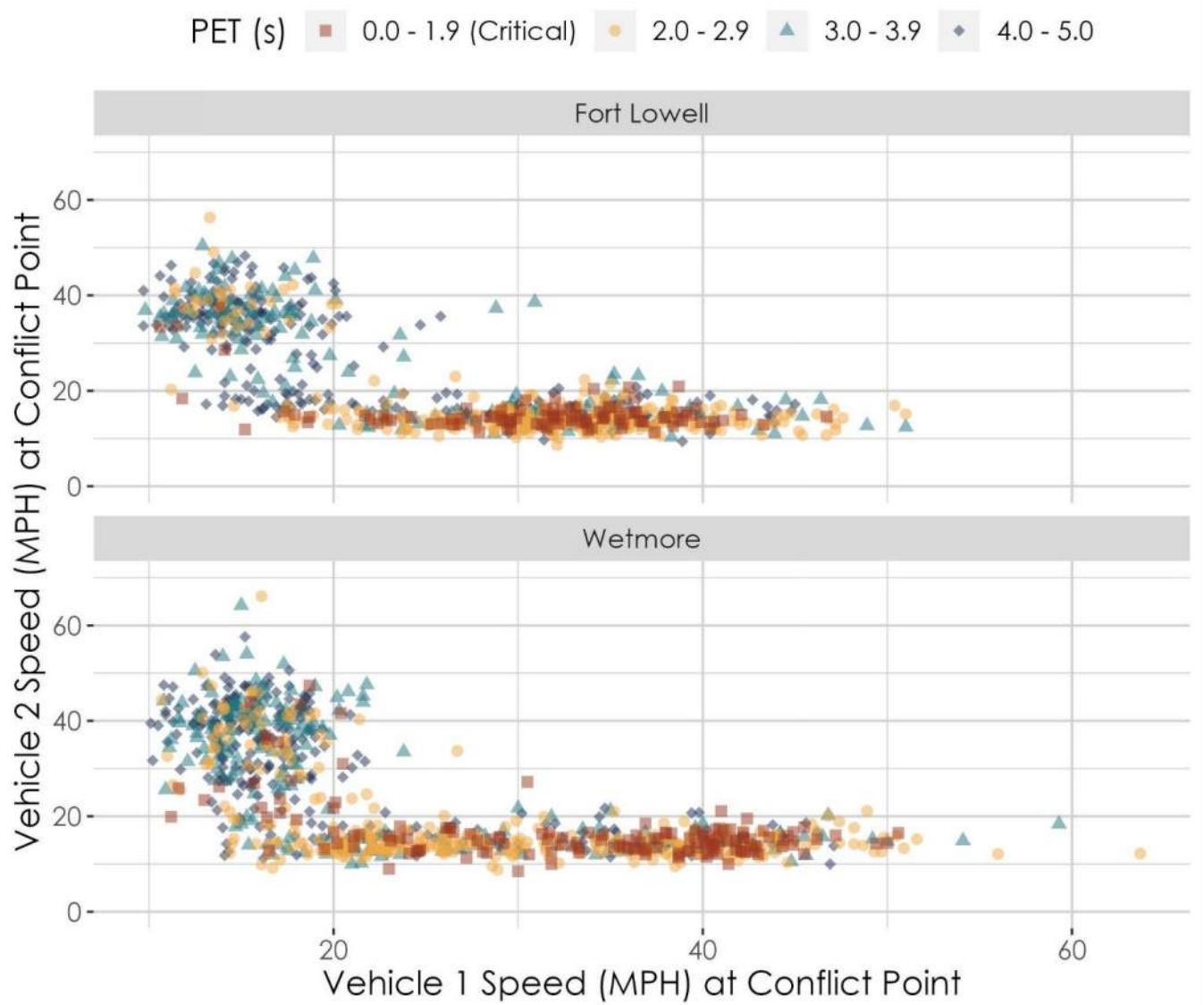


For vehicle-only near-misses, the speed of both vehicles was compared against the PETs (Figure 33). The following observations were made:

- The vehicle-only near-misses generally involve faster vehicle speeds than those involved in the VRU near-misses.
- There were more critical near-misses associated with higher vehicle speeds.
- There are several near-misses involving vehicles exceeding the posted speed, particularly at the Wetmore Road intersection.

These results highlight the importance of implementing safety enhancements that will reduce vehicle operating speeds.

Figure 33. Vehicle Speeds and PET for Vehicle-Only Near-Misses



TIME OF NEAR-MISSES

The distribution of the 15-minute interval near-miss count was similar at both intersections (Figure 34). Generally, there are more near-misses during times of day when there are more vehicles on the roadway. However, the near-miss peak periods did not overlap with the peak vehicle volume times. The only overlap between these two peaks was at the Wetmore Road intersection in the morning from 8:05 AM to 8:15 AM (see Table 11). The lack of overlap indicates that designing for roadway operations outside the peak vehicle hour times can help address safety concerns.

Table 11. Summary of Near-Miss and Vehicle Volume Peak Times

Intersection	Peak Near-miss Times	Peak Vehicle Volume
Fort Lowell Road AM	9:30 to 9:45 AM 11:15 to 11:30 AM	7:35 to 8:35
Fort Lowell Road PM	12:30 to 12:45 PM 1:15 to 1:30 PM	4:25 to 5:25
Wetmore Road AM	7:45 to 8:15 AM 9:45 to 10:00 AM	8:05 to 9:05
Wetmore Road PM	6:45 to 7:00 PM	4:35 to 5:35

Figure 34. Near-Miss Time of Day Distribution at Fort Lowell Road and 1st Avenue

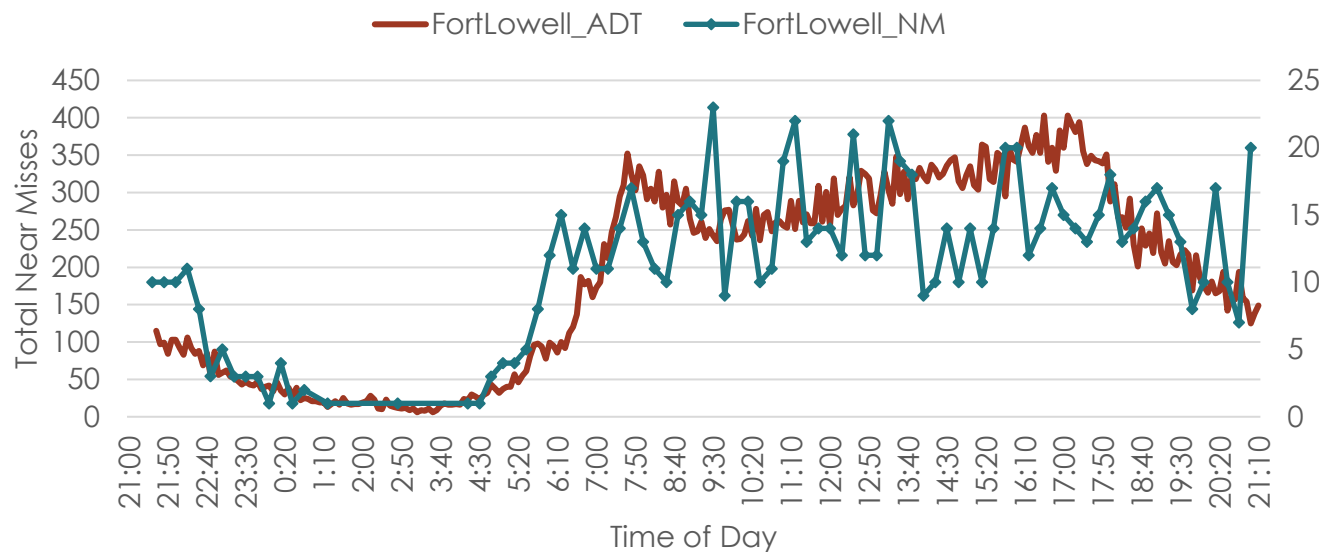
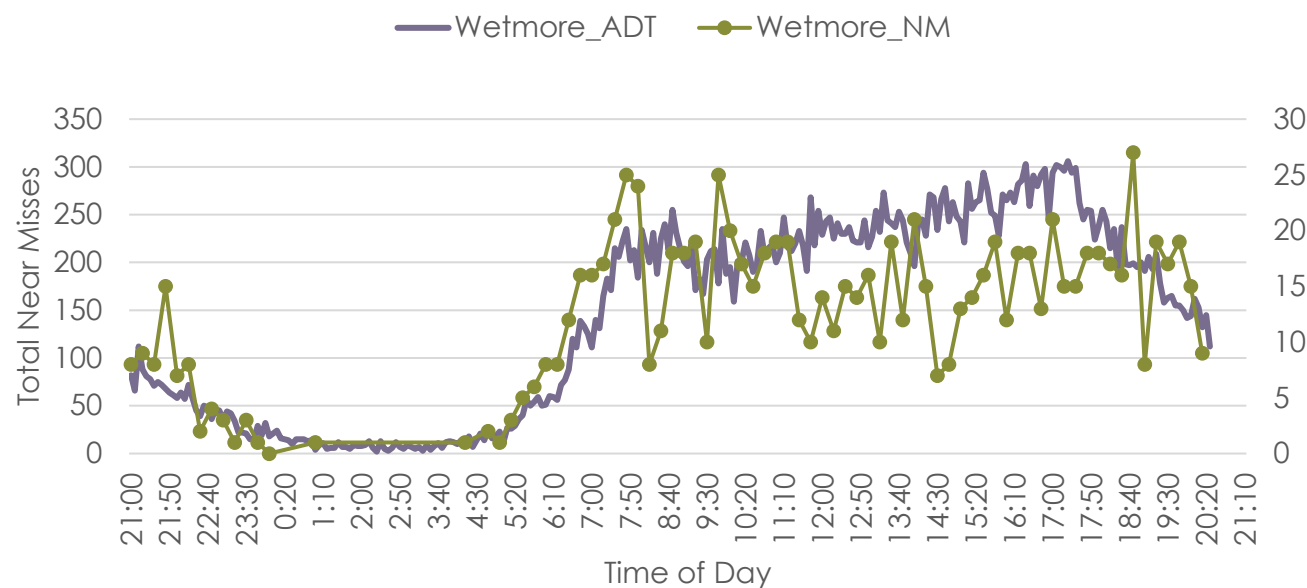


Figure 35. Near-Miss Time of Day Distribution at Wetmore Road and 1st Avenue



ROAD USER MOVEMENT MATRICES

Movement matrices help identify the most common and severe conflict pairings between road users, based on near-miss data.

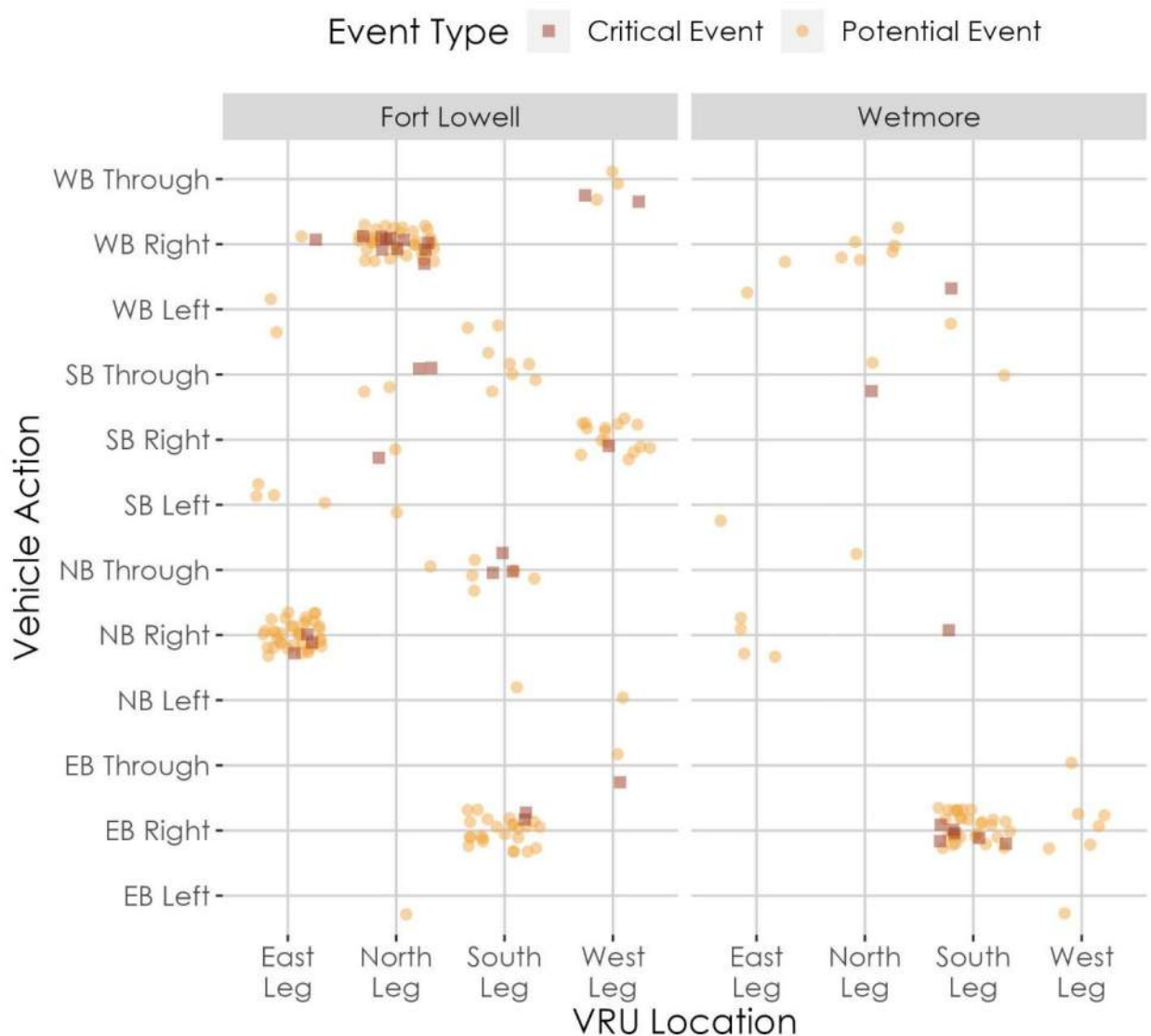
VRU Near-misses

Most of the near-misses involving a VRU at the Wetmore intersection occurred on the south leg crosswalk (Figure 36). Similarly, at the Fort Lowell intersection, most of the VRU near-misses occurred on the north and east leg crosswalks. Most of the near-misses in both locations involved vehicles making a right turn. The following section evaluates whether the large proportion of right-turning vehicles involved in near-misses is proportional to the total number of right-turning vehicles.



Right-turning vehicles are frequently involved in near-misses with VRUs at both the Wetmore and Fort Lowell intersections.

Figure 36. Road User Movement Matrix for VRU Near-Misses





Most critical near-miss events involve a through vehicle arriving first, followed by a left-turning vehicle.

Vehicle-Only Near-misses

Figure 37 visualizes the combination of movements made by each vehicle in the vehicle-only near-miss events. Vehicle one describes the vehicle that first arrives at the potential conflict point, while vehicle two refers to the second vehicle to arrive. Since the figure considers the order of arriving vehicles, there are two possible combinations for every movement pair.

For example, at Fort Lowell, there are several instances where vehicle one is making a southbound left and is in a near-miss with vehicle two making a northbound through movement. However, there are also cases where vehicle one is making a northbound through movement and vehicle two is making a southbound left. The data shows that the latter case resulted in several critical near-misses while the former did not.

The vehicle movement combinations with the most near-misses are identified in Table 12 and represent 64% of the recorded near-misses. Note that rows one and five for Fort Lowell Road are the same combination of vehicle movements, but in a different order. This is also the case for rows one and three for Wetmore Road. Movement combinations are listed in order of what percent of the near misses were critical events. The next section investigates whether the large proportion of these movement combinations is proportional to the total number of vehicles making these movements.

Each of the identified movement combinations involves a through vehicle and a left-turning vehicle. Most often, the through-traveling vehicle arrives at the potential conflict point 1st. As discussed previously, the through vehicles are also more likely to be the higher speed vehicle between the two. In these events, the left-turning vehicle is likely making a permissive movement after identifying a gap between through movement vehicles.

One of the less common vehicle movement combinations was near-misses involving two through vehicles. In these events, at least one of the vehicles is in the intersection when it shouldn't be. An example of this is provided in Figure 38, where the 1st vehicle to move through the potential conflict point is running a red light. The second vehicle moves through the potential conflict point once its green phase has begun.

Table 12. Most Common Vehicle Movement Combinations

Intersection	Vehicle 1 Movement	Vehicle 2 Movement	Total Near-misses	Total Critical Near-misses	Percent Critical Near-misses
Fort Lowell Road	NB Through	SB Left	201	43	21%
	SB Through	NB Left	123	24	20%
	EB Through	WB Left	109	21	19%
	WB Through	EB Left	100	12	12%
	SB Left	NB Through	97	0	0%
Wetmore Road	SB Through	NB Left	295	97	33%
	WB Through	EB Left	154	20	13%
	NB Left	SB Through	189	1	1%

Figure 37. Road User Movement Matrix for Vehicle-Only Near-Misses

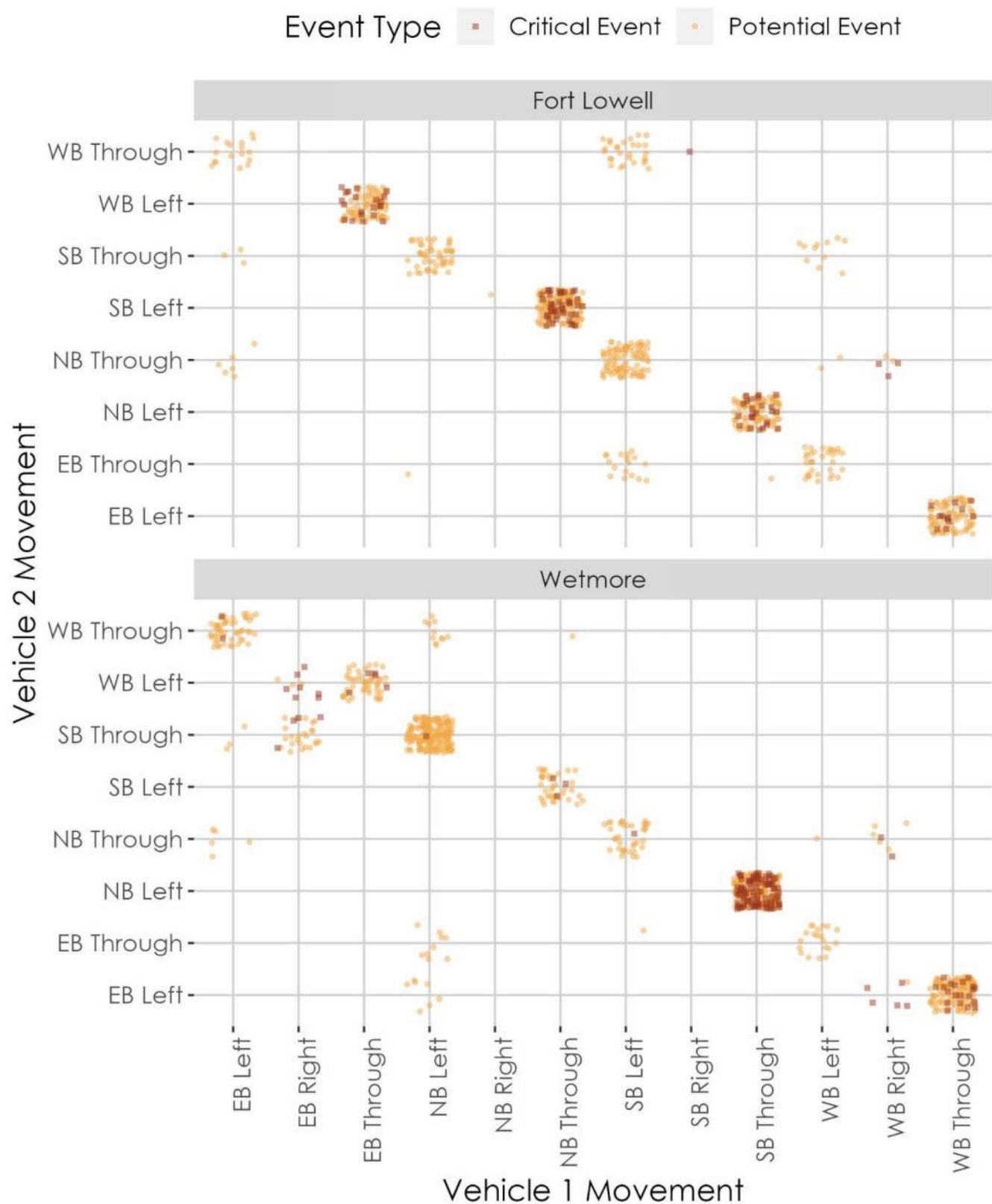
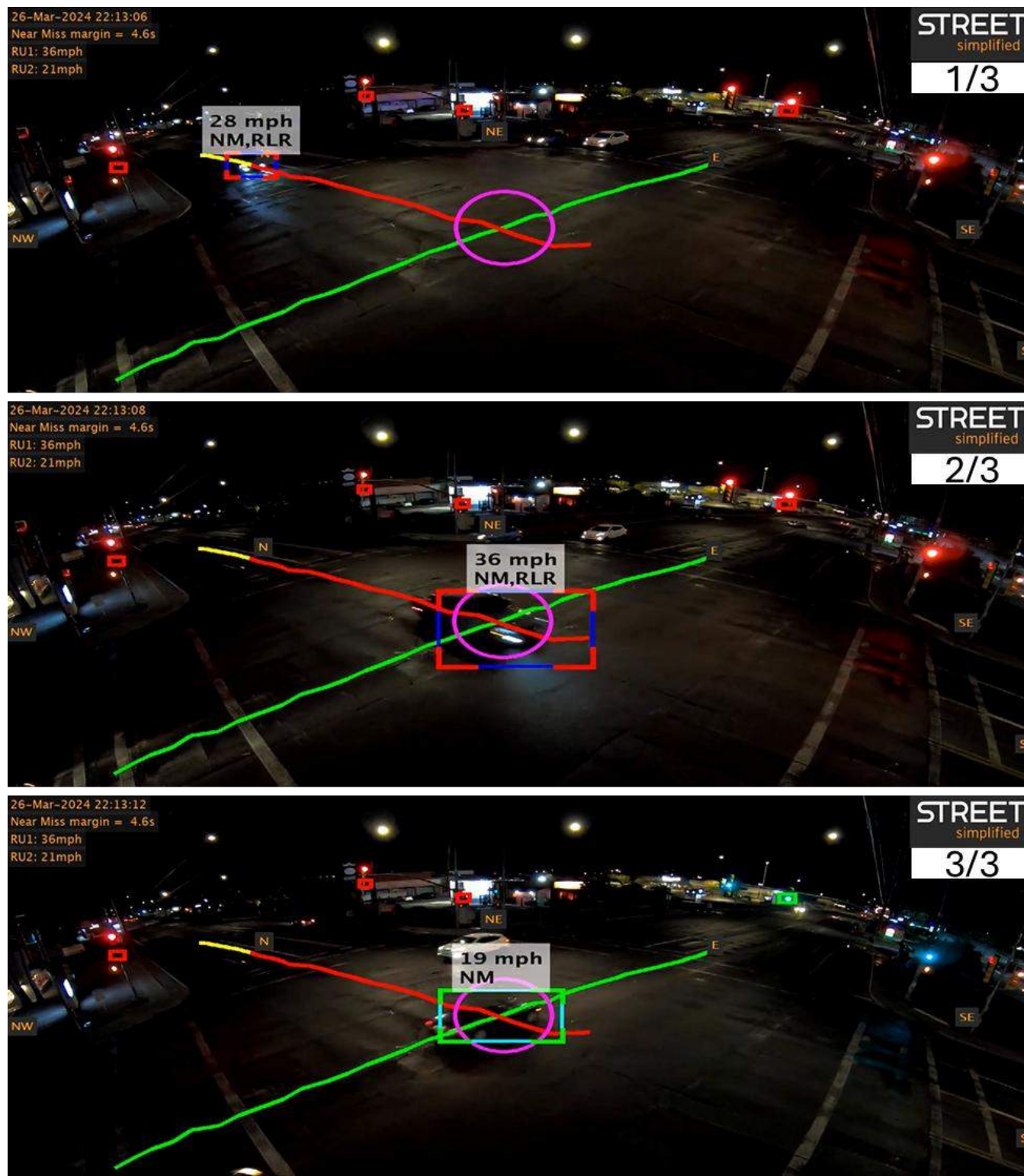


Figure 38. Fort Lowell Intersection Near-Miss Involving Two Through Vehicles



CRITICAL NEAR-MISS RATE

Critical near-miss rate describes the likelihood of a road user being involved in a near-miss event. These rates are normalized per 1,000,000 vehicles or per 1,000,000 road users. This means they account for road user movement volumes, which allows for comparison across different road user movements to determine which movements were more likely to result in a near-miss. Three different types of critical near-miss rates were calculated.

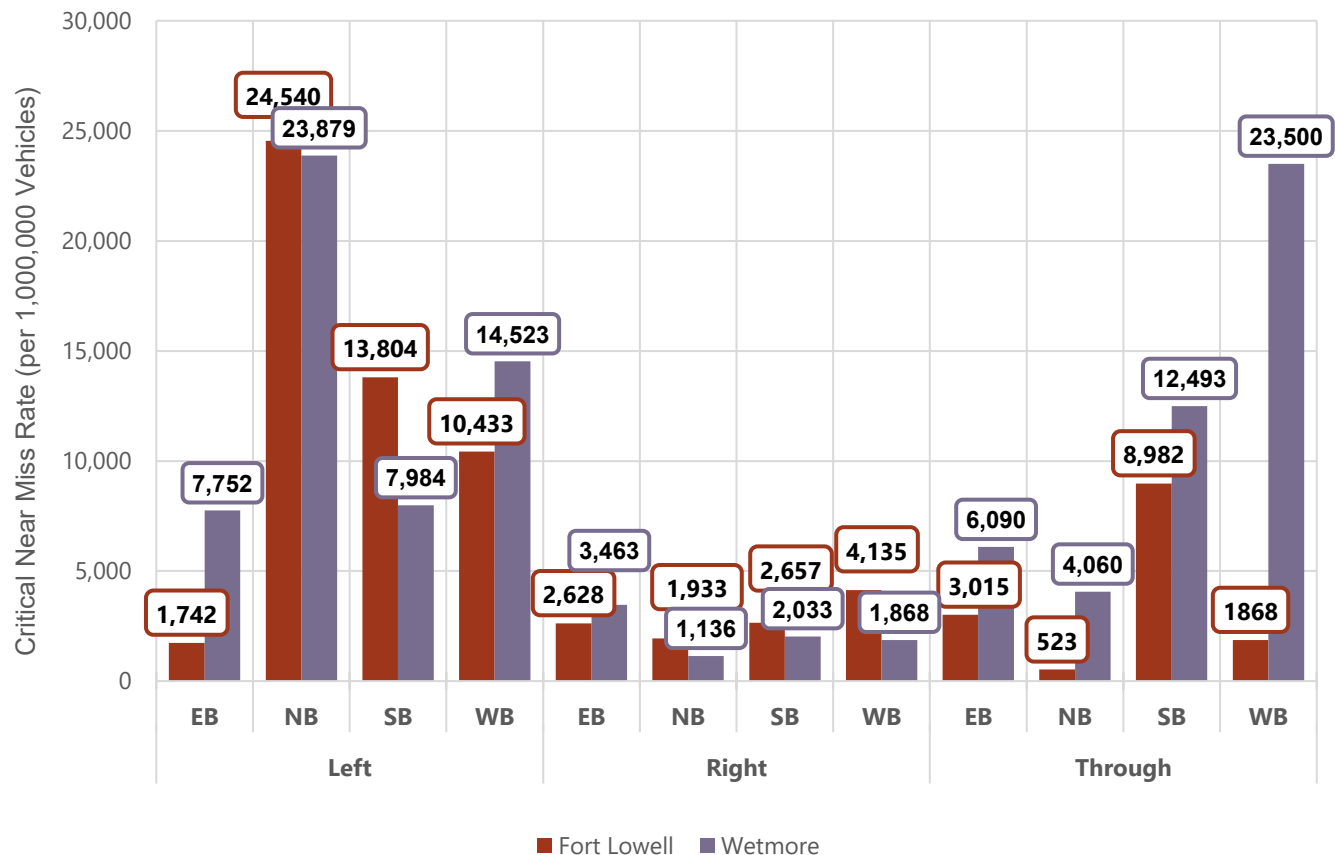
1. Vehicle-Only Critical Near-Miss Rate

This rate measures the number of vehicles per 1,000,000 vehicles making the same movement that will be involved in a critical near-miss.

The highest rates occurred for the northbound left movement at both locations and for the westbound through movement at the Wetmore Road intersection. This means that approximately 24,000 vehicles per 1,000,000 making those movements will be involved in a near-miss.

Left-turn movements are associated with the highest rate of vehicle conflicts, while right-turn movements have the highest rate of conflicts involving VRUs, highlighting the **value of context-sensitive countermeasures.**

Figure 39. Number of Vehicles (Per 1,000,000 Vehicles Making the Same Movement) That Will Be Involved in a Critical Near-Miss



2. VRU Critical Near-Miss Rate

This rate measures the number of vehicles per 1,000,000 vehicles making the same movement that are involved in a critical near-miss with a VRU.

All four right-turn movements at the Fort Lowell intersection resulted in a relatively high critical VRU near-miss rate. There were no left-turn VRU near-miss events at the Fort Lowell intersection, despite the high near-miss rates associated with left turns when considering the vehicle-only mode.

At the Wetmore Road intersection, the eastbound and northbound right turn movements were the highest rates. Contrary to the Fort Lowell section, the westbound left movement also had a relatively high rate.

The through movement rates are much lower, as through movement phases will not overlap with pedestrian walk phases. Near-misses in this category involved either a red-light-running vehicle or a pedestrian crossing during a don't walk phase. An example of the latter happening at the Fort Lowell intersection is shown in Figure 41.

The high right-turn movement rates for the entire near-miss population versus the high left-turn movement rates for the VRU near-miss population highlights that different treatments in different locations are necessary to provide safety to road users traveling by all modes.



Near-miss rates involving vehicles and VRUs demonstrate the importance of tailored safety measures to protect all road users.

Figure 40. Number Of Vehicles (Per 1,000,000 Vehicles Making the Same Movement) That Will Be Involved in A VRU Critical Near-Miss

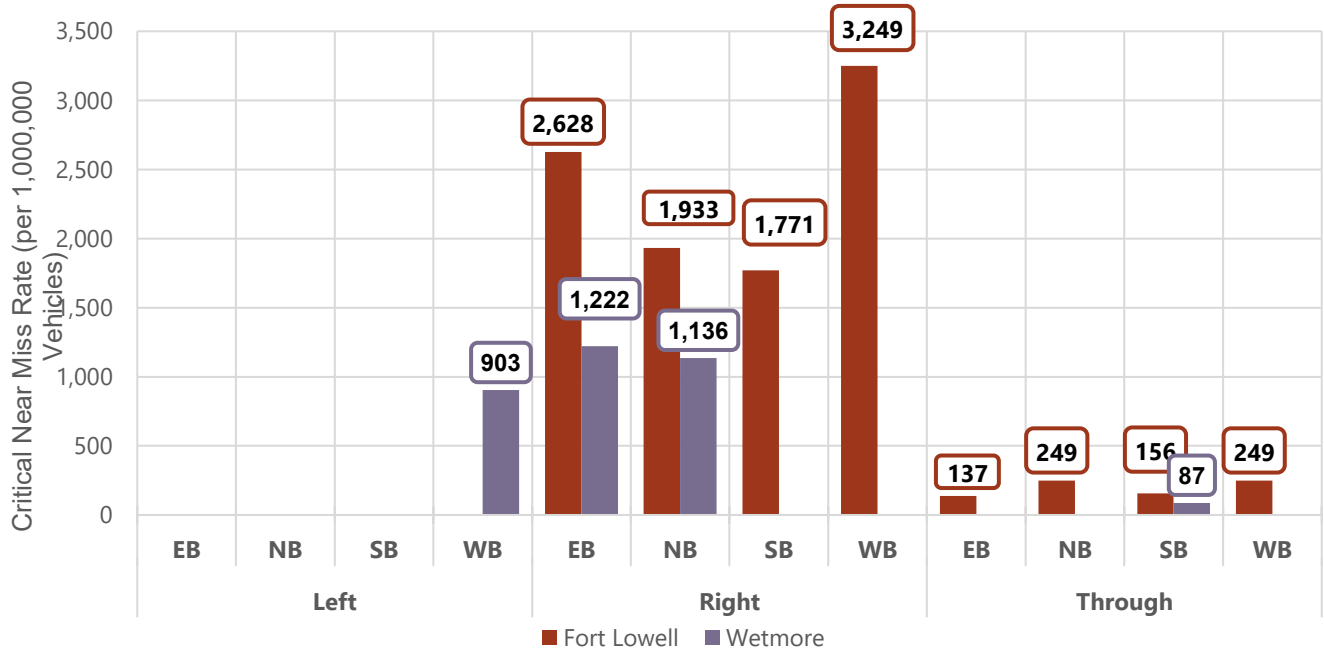


Figure 41. Fort Lowell intersection near-miss involving a pedestrian crossing during the don't walk phase



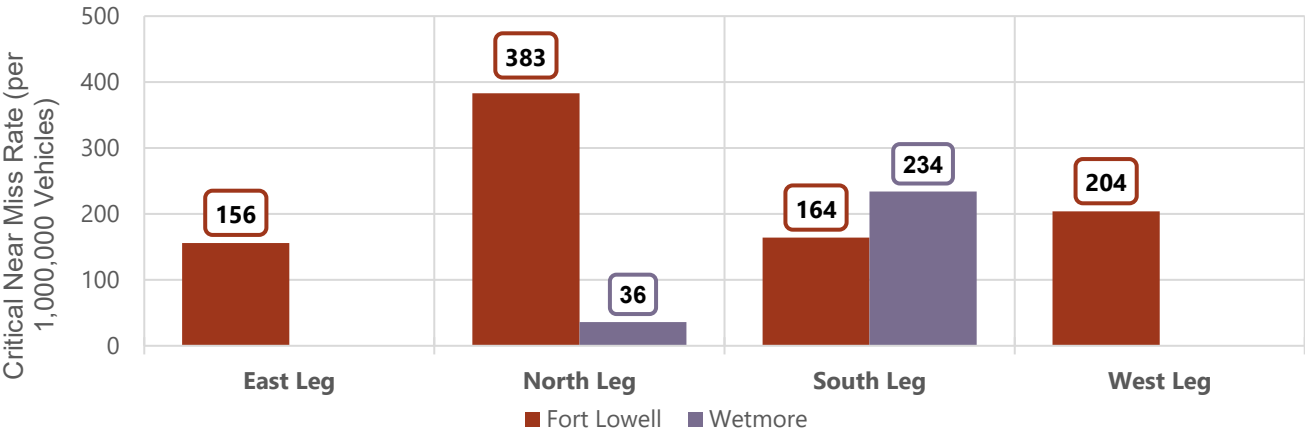
3. VRU Interaction Rate

This rate estimates the **number of VRUs per 1,000,000 vehicles making a conflicting movement that will be involved in a critical near-miss**. Conflicting movements describe any movement that would cause the vehicle to cross over the crosswalk where the VRU is located. For example, if a VRU is on the south leg crosswalk, the following vehicle movements would be considered conflicting: eastbound right, westbound left, southbound through, and all three northbound movements.

The north leg crosswalk at Fort Lowell and the south leg crosswalk at Wetmore yielded the highest critical near-miss rates for VRUs.

The second and third sets of critical near-miss rates are based on a consistent ratio of VRUs to vehicles. Any changes in the volume of either group could impact these rates. Therefore, the calculated rates represent the interactions under the current mix of vehicles and VRUs.

Figure 42. Number of VRUs (per 1,000,000 vehicles making conflicting movements) that will be involved in a critical near-miss



BEHAVIORAL VIDEO ANALYSIS

The video data collection by Street Simplified, in addition to identifying near-miss events, identifies certain behaviors, such as red light running. The road users who are captured engaging in these behaviors are not necessarily involved in a near-miss event. The following observations were made (Table 13):

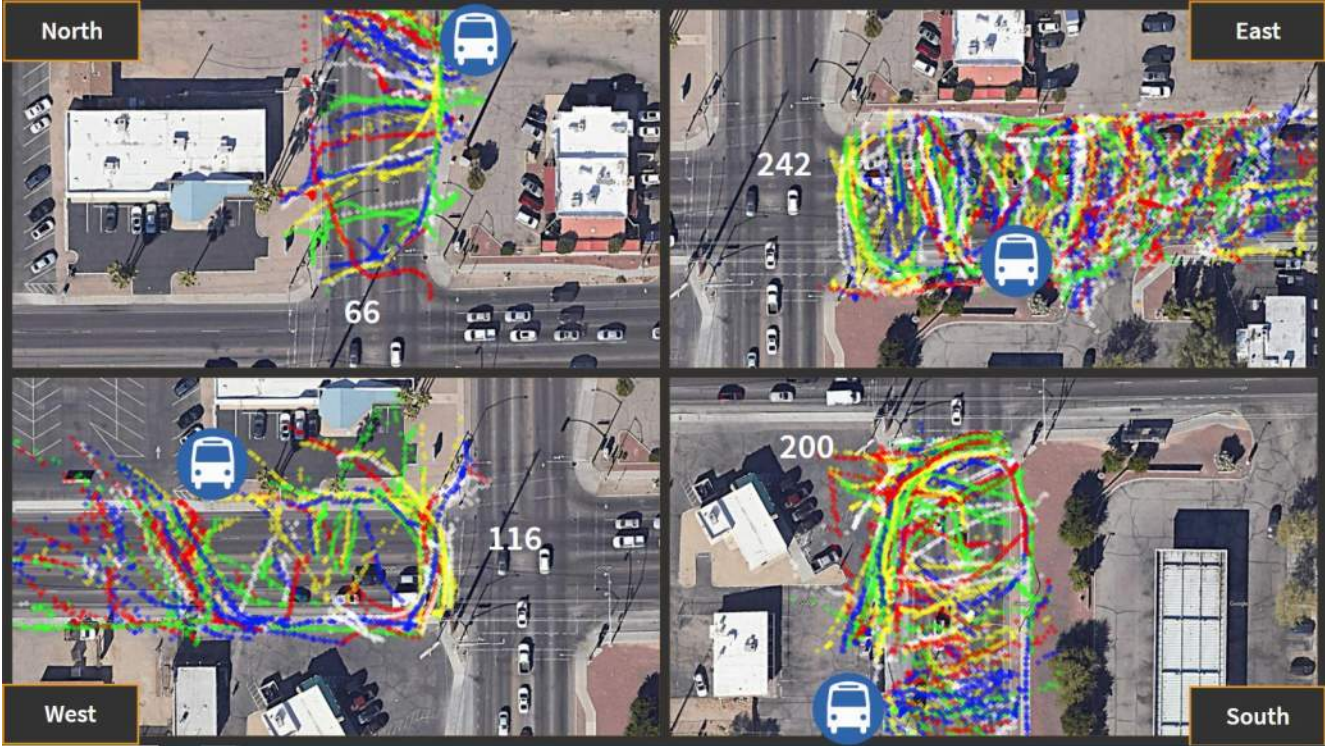
- Red light running had equal prevalence at both locations.
- Crossing on red was over 2X more common at Fort Lowell Road.

Table 13. Frequency and percentage of road users not following proactive safety behaviors

Proactive Safety Behavior	Fort Lowell	Wetmore
Vehicle and Crosswalk Volumes		
Entering Vehicles	53,782	40,304
Crosswalk Users	2,117	604
Raw Numbers		
Red Light Running	40	29
Pedestrian Crossing on Red	171	23
Percent of Vehicles or Crosswalk Users		
Red Light Running	0.07%	0.07%
Pedestrian Crossing on Red	8.1%	3.8%

In addition to the above data, a map of midblock crossing routes was provided for the Fort Lowell Road intersection (see Figure 43). A different set of cameras captured this data than those used to gather the near-miss data and behavioral data. These cameras were positioned to capture crossings further away from the intersection. While this data was not available in tabular form and therefore cannot be analyzed at a more detailed level, it is evident that the east and south legs experience the heaviest midblock crossing volumes.

Figure 43. Approach Study Data Trajectories of pedestrians crossing off the crosswalk at Fort Lowell



5. Stakeholder Interviews

In addition to the field reviews, crash data analysis, and video data analysis, targeted interviews were conducted with three key stakeholder groups to better understand the corridor conditions, operational challenges, and opportunities for improvement. Two interviews were conducted, the first with the Tucson Police Department and the Tucson Fire Department. The second interview was with Sun Tran, the organization that provides local transit, including the bus route (Route 6) running along the study segment of 1st Avenue.

These discussions provided valuable insight into real-world issues, user behavior, and operational constraints along the 1st Avenue corridor. The key themes that emerged are summarized below, and full details can be found in the Appendix.

KEY THEMES



Road Safety and Traffic Management:

- Speeding is more commonly perceived as an issue at night.
- Protected left turns at signalized intersections would improve safety.
- A signal at Rillito Park would improve safety for left-turning southbound vehicles.
- Some countermeasures that would enhance safety on the corridor include pedestrian-level lighting, protected left turns, far-side bus stops, and painted bus boxes.



Lighting and Visibility:

- Lighting the corridor up as much as possible could have a huge safety impact.
- Some countermeasures that would enhance safety on the corridor include pedestrian-level lighting.



Pedestrian and Cyclist Safety:

- Channelizing pedestrians and bicyclists will influence their behavior to be less unpredictable to drivers.
- High-quality, continuous sidewalks are necessary for individuals who walk and use assistive mobility devices.
- Dense concentration of businesses limits vehicle parking capacity, which encourages mid-block crossing and vehicles trying to back onto 1st Avenue.



Public Transportation:

- Bus pull-outs can result in complications for bus drivers. However, bus pullouts at signalized intersections may have minimal impact on bus operations.
- This project provides an opportunity to improve transit stop locations and spacing, particularly at signaled intersections and crossing locations.
- Some countermeasures that could enhance safety on the corridor include far-side bus stops and painted bus boxes.

6. Key Takeaways

This section provides a summary of the key takeaways discussed throughout this report for all the different data sources that were analyzed.

CRASH DATA

- **Fatal and Serious Injury Crashes.** A high number of road users are involved in fatal and injury crashes. Pedestrian and bicyclist collisions are 6-12 times more likely to result in a fatal or serious injury.
- **Crash Types.** Pedestrian, bicyclist, and head-on collisions are more likely to be more severe. Other common crash types, such as left turn and angle crashes, can still result in high-severity injuries.
 - Pedestrian crashes were most common at the Fort Lowell Road and Wetmore Road intersections.
 - 75% of bicyclist crashes occur at intersections, most commonly at Prince Road.
 - All 10 head-on crashes occurred at an intersection, most commonly at Prince Road.
- **Road User Contributing Factors.** Speeding, not yielding, and crossing at non-crosswalks or at unmarked crosswalks are common factors in high-severity crashes.
 - Drivers not yielding to VRUs was observed more frequently at the Prince Road and Fort Lowell Road intersections.
- **Impairment.** 4.7% of crash-involved road users were impaired. It was more common for crash-involved pedestrians to be impaired than crash-involved bicyclists or drivers.
- **Lighting.** Dark lighting conditions are contributing to pedestrian crashes.
 - A much higher percentage of pedestrian crashes happen in dark lighting conditions than bicyclist and vehicle-only crashes.
 - Unlike bicyclist and vehicle-only crashes, pedestrian crashes peak at nighttime.
- **Key Takeaway.** A comprehensive approach should be taken to enhance safety based on the Safety System Approach.,

NEAR-MISS VIDEO DATA

- Near-misses increase during daytime at **off-peak periods**.
- Pedestrian and bicyclist near-misses:
 - vary in PET depending on the **order of arrival**.
 - often occur at the **Fort Lowell Road north and east crosswalks** and the **Wetmore Road south crosswalk**.
 - often involve **right-turning vehicles**.
 - Should be addressed through a **variety of countermeasures**.
- Vehicle-only near-misses:
 - involve **higher speeds**.
 - often involve a **through vehicle and a left-turning vehicle**.
 - often involve a **Northbound left-turning vehicle**.

BEHAVIORAL VIDEO DATA

- **Red light running** had equal prevalence at both locations.
- **Crossing on red** and **crossing off the crosswalk** were over 2X more common at the Fort Lowell Road intersection than at the Wetmore Road intersection.
- The west leg and south leg of the Fort Lowell Road intersection have the highest volume of **pedestrian midblock crossings**.

7. Recommendations

Treatment Category	Treatment Type	Safety Impacts			Description	Justification	Priority
		Veh	Ped	Bike			
Speed Management	Reduce the Posted Speed Limit. At the time of this analysis, the posted speed limit was 45 mph during the day and 40 mph at night north of Wetmore Road, and 40 mph during the day and 35 mph at night south of Wetmore Road	✔	✔	✔	Reduce speeds to create a safe travel space for all road users. Should be complemented with design elements for speed management. Recently, the City of Tucson reduced the speed limit from 45 mph to 35 mph north of Wetmore Road and from 40 mph to 30 mph south of Wetmore Road.	Speeding is a factor in 8% of FSI crashes.	H
	Narrow Lanes	✔	n/a		Reduce travel lane widths to less than 11 feet to slow travel speeds.	Speeding is a factor in 8% of FSI crashes.	H
	Speed Feedback Signs	✔	n/a		Display a message to indicate how the driver's operating speed compares to the posted speed.	Speeding is a factor in 8% of FSI crashes.	L
	Narrow Curb Radii	✔	✔		Use concrete curb or paint to sharpen curb radii to slow down turning vehicles.	Speeding is a factor in 8% of FSI crashes.	M
	Raised Crosswalks at Channelized Right Turn Lanes		✔		Use raised crosswalks to slow the speeds of turning vehicles and enhance pedestrian visibility to provide a safe crossing facility for pedestrians at channelized right-turn lanes.	Speeding is a factor in 8% of FSI crashes.	H
Street Lighting	Continuous Lighting for High Pedestrian Activity	✔	✔	✔	Improve visibility of all road users to increase reaction time reduce crashes. Use City of Tucson and national guidance to provide adequate lighting for vehicles to see pedestrians.	Dark lighting contributes to 58% of FSI crashes.	H
Crossings at unsignalized intersections	HAWK/BikeHAWK		✔	✔	Use overhead pushbutton-activated beacons to provide crossing opportunities for pedestrian crossings between signalized intersections. HAWKs could be placed 600 feet from a signalized intersection.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	H
	TOUCAN Crossing		✔	✔	Use overhead beacons and pavement markings to provide a safe crossing facility for both pedestrians and bicyclists while diverting cross-street traffic.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	M
	Stop bars for Pedestrian Signage at Stop Approaches on Side Streets		✔	✔	Use pavement markings in addition to stop signs to indicate where vehicles should stop on side streets.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	L

Treatment Category	Treatment Type	Safety Impacts			Description	Justification	Priority
		Veh	Ped	Bike			
Separated Bike Lanes	Protected Bicycle Lanes		n/a	✔	Use vertical elements to separate the bike lanes from the vehicle travel lanes. Consider using concrete curb or a combination of K71 bollards and pre-cast curb within the bicycle buffers, providing space for vehicles to recover before reaching the vertical elements.	Bicyclist comfort and protection is low on the current facilities. There are no vertical elements or buffered space to separate bicyclists from vehicles.	H
	Buffered Bicycle Lanes		n/a	✔	Use a painted buffer to provide horizontal space between vehicle travel lanes and bike lanes.	Bicyclist comfort and protection is low on the current facilities. There are no vertical elements or buffered space to separate bicyclists from vehicles.	M
	Raised Bicycle Lanes		n/a	✔	Raise the bicycle lanes to sidewalk level or to a level between street and sidewalk height.	Bicyclist comfort and protection are low on the current facilities. There are no vertical elements or buffered space to separate bicyclists from vehicles.	M
Median Space	Raised Median and Refuge Island		✔		Provide a raised center median to separate opposite directions of traffic. This space will serve as a refuge for pedestrians, so they only have to cross one direction of traffic at a time.	Midblock crossing was observed frequently during field observations. Compliance at existing HAWK infrastructure was observed.	H
Transit Facilities	Far-side Bus Stops		✔		Place bus stops after the intersection so that buses do not block motorists' views of pedestrians on the near-side crosswalk. Stops should be within 100 feet of the intersection for single-bus storage.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	H
	Bus Pull-outs at Signalized Intersections	✔	✔		Provide space outside the vehicle travel lanes for buses to pull into while riders board and deboard.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	M
	Appropriately Spaced Bus Stops		✔	✔	Stops should be provided every ¼ mile and should be 50 feet from intersection corners.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	M
	Painted Bus Boxes	✔	n/a		Use pavement markings to mark where buses should stop at bus stops. This can improve driver awareness of where buses will stop.	Route 6 along 1 st Avenue is a high ridership route. Several stops experience a daily average ridership greater than 100 (includes riders getting on and off).	L
Pedestrian Infrastructure	Enhanced and Separated Sidewalk facilities		✔		Provide separate pathways to accommodate pedestrians in the corridor.	On average, there are 11 pedestrian crashes and 4 crashes that result in a pedestrian fatality or serious injury every year.	M
	Raised Pedestrian Paths Behind Driveways		✔		Provide level sidewalks, even where driveways are located, to provide a consistently accessible pedestrian network.	On average, there are 11 pedestrian crashes and 4 crashes that result in a pedestrian fatality or serious injury every year.	M
	Pedestrian Channelization		✔		Redirect pedestrians to signalized crossings to reduce the frequency of midblock crossings.	Excessive midblock crossing was observed in the field and in all data sources.	L
	ADA Compliant Curb Ramps		✔		Construct curb ramps with detectable warning surfaces that comply with ADA and PROWAG standards and guidelines to provide a pedestrian network accessible for all pedestrians.	Field observations indicated several pedestrians using assistive mobility devices, pushing carts, and older and younger pedestrians.	L

Treatment Category	Treatment Type	Safety Impacts			Description	Justification	Priority
		Veh	Ped	Bike			
Signalized Intersections	High Visibility Crosswalks		✓		Upgrade crosswalks at signalized intersections to high-visibility crosswalks to improve visibility and compliance.	High pedestrian activity was observed at major intersections.	H
	Protected Intersection		n/a	✓	Extend protected bicycle facilities to intersections (minor signalized intersections) to reduce potential conflict points between vehicles and bicyclists.	11 of the 15 bicyclist crashes occurred at intersections.	H
	Flashing Yellow Arrow (FYA) & Pedestrian Protected-Only Phasing	✓	✓		Implement protected-only left turn operations to allow vehicles to turn left without conflicting with opposing through traffic or pedestrians in the crosswalks. This simplifies driver decision-making by minimizing the task finding gaps between oncoming vehicles and pedestrian movements.	35% of the crashes were left turn crashes.	H
	Positive Offset	✓	n/a		Where protected only phasing is not feasible, shift opposing left turn lanes laterally toward each other to enhance sightlines for left turning drivers.	35% of the crashes were left turn crashes.	M
	Leading Pedestrian Interval		✓		Begin the pedestrian walk phase before the turning vehicle phase begins. This allows pedestrians time to become visible in the crosswalk.	63% of pedestrian crashes occurred at a signalized intersection.	H
	Update Yellow and All-Red Intervals Using Guidance from ITE or ADOT. The City of Tucson recently evaluated and updated the yellow change and red clearance intervals on the corridor	✓	✓		The yellow change interval alerts drivers that the current green signal has ended, and a red signal will immediately follow. An all-red interval, also known as a red clearance interval, is the timeframe during which all traffic signal phases at an intersection are red.	Appropriately timed yellow change intervals can reduce aggressive driving behaviors such as red-light running (by 36-50%) and reduce the occurrence of injury crashes (by 12%)¹ The red clearance interval allows vehicles to clear the intersection before conflicting movements begin. This is an important consideration in the future after changes have been made that influence speed and operations.	M
	Place Reflective Borders on Traffic Signals Heads	✓			Reflective borders increase the visibility of traffic signal heads by illuminating the border around the traffic lights.	Identified in FHWA's list of proven safety countermeasures, there is a 15% reduction in total crashes associated with reflective borders. ²	M

¹ Federal Highway Administration. "Yellow Change Intervals." *Proven Safety Countermeasures*. Last modified August 2022. <https://highways.dot.gov/safety/proven-safety-countermeasures/yellow-change-intervals>.

² Federal Highway Administration, *Backplates with Retroreflective Borders*, U.S. Department of Transportation, last updated October 13, 2022, accessed June 29, 2025, <https://highways.dot.gov/safety/proven-safety-countermeasures/backplates-retroreflective-borders>.

8. Appendix

Tucson Police and Fire Department Interview

Attendees

- Tucson – Patrick Hartley
- Kittelson – Morgan Dean, Felipe Ladron de Guevara; HDR – Brent Kirkman
- Tucson PD – Captain Lauren Pettey
- Tucson FD – Oscar Durazo

Key Takeaways

- **Speeding** seems to be an issue at night.
- **Lighting** the corridor up as much as possible is expected to have a huge safety impact.
- **Channelizing** pedestrians and bicyclists will influence their behavior to be less unpredictable to drivers.
- **Sidewalks** that are high-quality and continuous are needed for those who walk and use assistive mobility devices.
- **Protected left turns** at signalized intersections would improve safety.
- **Dense concentration of businesses limits vehicle parking capacity**, which encourages mid-block crossing and vehicles trying to go back onto 1st Avenue.
- **A signal** at Rillito Park would improve safety for left-turning southbound vehicles.

Discussion

WHAT ROAD USER BEHAVIORS HAVE YOU OBSERVED ALONG THE CORRIDOR?

- High pedestrian and bicyclist volumes and unpredictable behaviors add a layer of complexity for drivers. Unpredictable behaviors include:
 - Alternating between operating in the bike lane and in the roadway
 - Crossing the road where there are no crosswalks (pedestrians, bicyclists)
 - Not signaling to drivers where they will turn or cross (bicyclists)
- Road user impairment.
 - Impaired driving is often observed Thursday through Sunday. It is more common north of the intersection of 1st Avenue and Grant Road.
 - Pedestrian impairment is also observed.
- Limited parking for business access.
 - It causes people to park across the street from their destination and cross the road where there is no crossing facility.
 - Drivers are trying to back out of small parking lots onto 1st Avenue.
- Many pedestrians use assistive mobility devices (e.g., electric wheelchairs). Where there are no sidewalks, they will use the bike lanes.

WHAT TYPES OF INCIDENTS DO YOU TYPICALLY RESPOND TO ALONG THE CORRIDOR?

- Low severity rear-end crashes. Where there are no pull-offs for bus drivers, sometimes they try to quickly change lanes to avoid getting caught behind a stopped/slowng bus.
- Speeding-related crashes. Speeds are higher in the northern portion of the corridor, which is also where there are more vehicle crashes. Speeding crashes are typically at night when vehicle volumes are lower (some at Grant Road & 1st Avenue).
- The congestion between Prince and Grant keeps traffic slower.

WHAT ARE SOME CHANGES TO THE CORRIDOR YOU BELIEVE WOULD IMPROVE TRANSPORTATION SAFETY?

- PD does not have enough officers to actively conduct traffic enforcement.
- Keep the streetlights operational and turn up the lighting as much as possible.
- Add lighting to the north stretch of the corridor where there is currently no lighting.
- Provide protected left turn phases at the signalized intersections.
- HAWK/pedestrian hybrid beacon crossings are a good countermeasure. Near Navajo is where there are currently a lot of pedestrians jaywalking, but this location might not see great HAWK compliance. Vehicle volumes will likely continue to grow here since Walmart is being reconstructed as a Super Walmart.
- A signal at Rillito Park would improve safety for vehicles turning left to go south. This would be especially helpful for when there are events (e.g., horse races).
- Improvements to bus stations to improve the safety and experience of those using the transit system.

ARE THERE ANY SPECIFIC SAFETY TREATMENTS/ROAD DESIGNS THAT DISRUPT YOUR RESPONSE PROTOCOL / TIMES? FOR EXAMPLE, ARE THERE ANY RECENT ROADWAY RECONSTRUCTIONS IN THE CITY THAT IMPACT TRAVEL SPEED, ABILITY TO TURN, ETC.?

- Medians as a safety island are a great strategy, but they can also prevent first responder personnel from making left turns onto side streets. This can increase response time.
- Elevated bike lanes could cause issues for the fire department due to the fire truck's turn radius. It would be helpful if the trucks were able to drive over the bike lanes.
- No issues with channelized turn lanes.

SUN TRAN INTERVIEW

Attendees

- Tucson – Patrick Hartley
- Kittelson – Morgan Dean, Felipe Ladron de Guevara; HDR – Brent Kirkman
- Sun Tran –
 - Bob McGee – Scheduling Manager
 - Davita Mueller – Director of Service Planning and Development
 - Mackenzi Wintermoyer – Bus Stop Program Coordinator
 - Shamara Smith – Transit Planner

Key Takeaways

- **Bus pull-outs** can result in complications for bus drivers. However, bus pullouts at signalized intersections do not seem to have a major impact on bus operations.
- This project provides an opportunity to revise bus stop spacing so that stops are **appropriately spaced** from each other and from intersections or controlled crossing facilities.
- Some **countermeasures** that would enhance safety on the corridor include pedestrian-level lighting, protected left turns, far-side bus stops, and painted bus boxes.

Discussion

WHICH TRANSIT STOPS SEE THE MOST ACTIVITY? WHAT ABOUT NIGHTTIME ACTIVITY?

- FY 2024 data: Fort Lowell, Grant, Prince, Roger, and Wetmore are the most active stops.
- There is generally high ridership at all stops.

HAVE YOU RECEIVED ANY COMPLAINTS RELATED TO SAFETY AND/OR ACCESSIBILITY SPECIFIC TO CERTAIN STOP LOCATIONS?

- Complaints related to the visibility of the bus stops.
- Cleanliness, graffiti, vandalism, and loitering.
- Not enough places to sit.

DO YOUR DRIVERS EVER EXPRESS CONCERNS RELATED TO ROAD USER SAFETY?

- Drivers generally like Route 6.
- Drivers will speed around the bus to try to get in front of it.
- Left turns with no protected left turn phase are difficult for drivers.
- People will see their bus coming and cross the street where there are no crosswalks (this behavior is also observed by people not headed to the bus stops).
- Due to loitering, passengers will stand past the bus stop, and bus drivers will drive up to them rather than stopping at the approved bus stop location (typically 25-30 feet further).



Appendix F Year 2045 No-Build Conditions Synchro Worksheets

HCM Signalized Intersection Capacity Analysis

1: Los Altos Ave & Grant Rd

09/22/2025

	→	↘	↶	↙	←	↗	↘
Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↶	↑↑↑		↘
Traffic Volume (vph)	2145	5	45	5	1505	0	10
Future Volume (vph)	2145	5	45	5	1505	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0		3.0
Lane Util. Factor	0.91			1.00	0.91		1.00
Frt	1.00			1.00	1.00		0.87
Flt Protected	1.00			0.95	1.00		1.00
Satd. Flow (prot)	5185			1773	5187		1644
Flt Permitted	1.00			0.08	1.00		1.00
Satd. Flow (perm)	5185			143	5187		1644
Peak-hour factor, PHF	0.98	0.98	0.92	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2189	5	49	5	1536	0	10
RTOR Reduction (vph)	0	0	0	0	0	0	10
Lane Group Flow (vph)	2194	0	0	54	1536	0	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%
Turn Type	NA		pm+pt	Perm	NA		Perm
Protected Phases	2		1		6		
Permitted Phases			6	6			8
Actuated Green, G (s)	108.0			92.7	92.7		4.3
Effective Green, g (s)	108.0			93.7	93.7		5.3
Actuated g/C Ratio	1.00			0.87	0.87		0.05
Clearance Time (s)	7.0			7.0	7.0		4.0
Vehicle Extension (s)	3.0			3.0	3.0		3.0
Lane Grp Cap (vph)	5185			124	4500		80
v/s Ratio Prot	c0.42				0.30		
v/s Ratio Perm				0.38			0.00
v/c Ratio	0.42			0.44	0.34		0.01
Uniform Delay, d1	0.0			1.5	1.3		48.8
Progression Factor	1.00			0.88	0.28		1.00
Incremental Delay, d2	0.3			10.1	0.2		0.0
Delay (s)	0.3			11.4	0.6		48.9
Level of Service	A			B	A		D
Approach Delay (s/veh)	0.3				0.9	48.9	
Approach LOS	A				A	D	
Intersection Summary							
HCM 2000 Control Delay (s/veh)			0.7		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.47				
Actuated Cycle Length (s)			108.0		Sum of lost time (s)		10.0
Intersection Capacity Utilization			54.1%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

2: 1st Ave & Grant Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	0	2005	195	0	1300	249	112	545	47	299	795	143
Future Volume (vph)	0	2005	195	0	1300	249	112	545	47	299	795	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		5159	1581		5173	1570	3501	3596	1588	3465	3581	1586
Flt Permitted		1.00	1.00		1.00	1.00	0.13	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)		5159	1581		5173	1570	468	3596	1588	1035	3581	1586
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	2067	201	0	1340	257	115	562	48	308	820	147
RTOR Reduction (vph)	0	0	77	0	0	122	0	0	34	0	0	98
Lane Group Flow (vph)	0	2067	124	0	1340	135	115	562	14	308	820	49
Confl. Peds. (#/hr)	16		9	9		16	6		5	5		6
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	2	0	0	2	0	0	4	0
Turn Type		NA	Perm		NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)		56.8	56.8		56.8	56.8	35.7	30.5	30.5	35.7	30.5	30.5
Effective Green, g (s)		56.8	56.8		56.8	56.8	37.7	30.5	30.5	37.7	30.5	30.5
Actuated g/C Ratio		0.53	0.53		0.53	0.53	0.35	0.28	0.28	0.35	0.28	0.28
Clearance Time (s)		6.5	6.5		6.5	6.5	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)		5.0	5.0		5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)		2713	831		2720	825	337	1015	448	500	1011	447
v/s Ratio Prot		c0.40			0.26		0.02	0.16		c0.04	c0.23	
v/s Ratio Perm			0.08			0.09	0.10		0.01	0.18		0.03
v/c Ratio		0.76	0.15		0.49	0.16	0.34	0.55	0.03	0.62	0.81	0.11
Uniform Delay, d1		20.3	13.2		16.4	13.3	41.7	33.0	28.0	38.1	36.1	28.7
Progression Factor		0.99	1.01		0.66	2.23	1.00	1.00	1.00	0.61	0.74	0.73
Incremental Delay, d2		1.9	0.4		0.6	0.4	0.2	0.7	0.0	1.5	4.7	0.1
Delay (s)		22.1	13.7		11.4	30.0	41.9	33.6	28.1	24.6	31.3	21.1
Level of Service		C	B		B	C	D	C	C	C	C	C
Approach Delay (s/veh)		21.3			14.4			34.6			28.5	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		22.6			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		77.0%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Grant Rd & Tyndall Ave

09/22/2025



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	⇐		↑↑↑	↑↑↑			
Traffic Volume (vph)	121	18	2212	1412	0	0	0
Future Volume (vph)	121	18	2212	1412	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		6.0	6.0			
Lane Util. Factor	1.00		0.91	0.91			
Frt	1.00		1.00	1.00			
Flt Protected	0.95		1.00	1.00			
Satd. Flow (prot)	1770		5184	5187			
Flt Permitted	0.16		0.91	1.00			
Satd. Flow (perm)	293		4728	5187			
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	132	19	2280	1456	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	132	0	2299	1456	0	0	0
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	0%
Turn Type	pm+pt	Perm	NA	NA			
Protected Phases	5		2	6			
Permitted Phases	2	2					
Actuated Green, G (s)	103.0		93.8	77.6			
Effective Green, g (s)	104.0		94.8	78.6			
Actuated g/C Ratio	0.96		0.88	0.73			
Clearance Time (s)	5.0		7.0	7.0			
Vehicle Extension (s)	3.0		3.0	3.0			
Lane Grp Cap (vph)	547		4150	3774			
v/s Ratio Prot	c0.04			0.28			
v/s Ratio Perm	0.19		c0.49				
v/c Ratio	0.24		0.55	0.39			
Uniform Delay, d1	0.9		1.6	5.6			
Progression Factor	16.65		0.48	0.53			
Incremental Delay, d2	0.1		0.4	0.3			
Delay (s)	14.4		1.1	3.2			
Level of Service	B		A	A			
Approach Delay (s/veh)			1.9	3.2		0.0	
Approach LOS			A	A		A	
Intersection Summary							
HCM 2000 Control Delay (s/veh)			2.4		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.55				
Actuated Cycle Length (s)			108.0		Sum of lost time (s)		10.0
Intersection Capacity Utilization			80.4%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

6: 1st Ave & Glenn St

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	153	33	103	138	67	27	744	37	57	1068	42
Future Volume (vph)	60	153	33	103	138	67	27	744	37	57	1068	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1780	1843		1795	1787		1802	3550		1799	3557	
Flt Permitted	0.37	1.00		0.42	1.00		0.21	1.00		0.32	1.00	
Satd. Flow (perm)	700	1843		799	1787		406	3550		615	3557	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	63	159	34	107	144	70	28	775	39	59	1112	44
RTOR Reduction (vph)	0	9	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	63	184	0	107	194	0	28	812	0	59	1155	0
Confl. Peds. (#/hr)	16		6	6		16	4		4	4		4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	17.7	17.7		17.7	17.7		78.8	78.8		78.8	78.8	
Effective Green, g (s)	19.7	19.7		19.7	19.7		80.3	80.3		80.3	80.3	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.74	0.74		0.74	0.74	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	127	336		145	325		301	2639		457	2644	
v/s Ratio Prot		0.10			0.11			0.23			c0.32	
v/s Ratio Perm	0.09			c0.13			0.07			0.10		
v/c Ratio	0.50	0.55		0.74	0.60		0.09	0.31		0.13	0.44	
Uniform Delay, d1	39.7	40.1		41.7	40.5		3.8	4.6		3.9	5.3	
Progression Factor	1.00	1.00		1.00	1.00		0.34	0.34		0.36	0.28	
Incremental Delay, d2	3.0	1.8		17.7	3.0		0.6	0.3		0.4	0.4	
Delay (s)	42.7	41.9		59.4	43.5		1.9	1.9		1.8	1.9	
Level of Service	D	D		E	D		A	A		A	A	
Approach Delay (s/veh)		42.1			48.8			1.9			1.9	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			11.5			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			79.9%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Future No-build AM

Synchro 12 Report
Page 4

HCM Signalized Intersection Capacity Analysis

8: 1st Ave & Fort Lowell Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	608	47	140	552	210	56	751	106	275	1012	63
Future Volume (vph)	87	608	47	140	552	210	56	751	106	275	1012	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1784	3543		1803	3610	1553	1805	3520		1803	3541	
Flt Permitted	0.22	1.00		0.15	1.00	1.00	0.11	1.00		0.20	1.00	
Satd. Flow (perm)	421	3543		290	3610	1553	214	3520		375	3541	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	91	633	49	146	575	219	58	782	110	286	1054	66
RTOR Reduction (vph)	0	5	0	0	0	168	0	10	0	0	4	0
Lane Group Flow (vph)	91	677	0	146	575	51	58	882	0	286	1116	0
Confl. Peds. (#/hr)	19		31	31		19	7		37	37		7
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	32.7	25.2		32.7	25.2	25.2	57.3	46.0		57.3	46.0	
Effective Green, g (s)	34.7	25.2		34.7	25.2	25.2	59.3	46.0		59.3	46.0	
Actuated g/C Ratio	0.32	0.23		0.32	0.23	0.23	0.55	0.43		0.55	0.43	
Clearance Time (s)	5.0	4.0		5.0	4.0	4.0	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	242	826		212	842	362	298	1499		368	1508	
v/s Ratio Prot	0.03	c0.19		c0.05	0.16		0.02	0.25		c0.09	0.32	
v/s Ratio Perm	0.09			0.17		0.03	0.08			c0.34		
v/c Ratio	0.38	0.82		0.69	0.68	0.14	0.19	0.59		0.78	0.74	
Uniform Delay, d1	38.6	39.2		42.4	37.8	32.8	29.5	23.7		30.6	26.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.63	0.59		0.75	0.37	
Incremental Delay, d2	0.4	6.4		7.2	2.3	0.2	0.1	1.7		7.0	2.5	
Delay (s)	38.9	45.6		49.6	40.1	33.0	18.8	15.6		30.0	12.0	
Level of Service	D	D		D	D	C	B	B		C	B	
Approach Delay (s/veh)		44.8			39.9			15.8			15.7	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		26.8										
HCM 2000 Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		79.8%										
Analysis Period (min)		15										
c Critical Lane Group												

Future No-build AM

Synchro 12 Report
Page 5

HCM Signalized Intersection Capacity Analysis

10: 1st Ave & Prince Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	513	114	69	363	149	110	792	78	224	1135	107
Future Volume (vph)	91	513	114	69	363	149	110	792	78	224	1135	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	3487		1769	3410		1787	3512		1787	3518	
Flt Permitted	0.25	1.00		0.16	1.00		0.10	1.00		0.23	1.00	
Satd. Flow (perm)	477	3487		295	3410		194	3512		429	3518	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	94	529	118	71	374	154	113	816	80	231	1170	110
RTOR Reduction (vph)	0	19	0	0	43	0	0	6	0	0	6	0
Lane Group Flow (vph)	94	628	0	71	485	0	113	890	0	231	1274	0
Confl. Peds. (#/hr)	11		3	3		11			7	7		
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%	1%	0%	0%	1%	0%	1%
Bus Blockages (#/hr)	0	2	0	0	2	0	0	6	0	0	6	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	28.5	24.4		28.5	24.4		61.5	53.5		61.5	53.5	
Effective Green, g (s)	30.5	24.4		30.5	24.4		63.5	53.5		63.5	53.5	
Actuated g/C Ratio	0.28	0.23		0.28	0.23		0.59	0.50		0.59	0.50	
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	196	787		152	770		246	1739		365	1742	
v/s Ratio Prot	c0.02	c0.18		0.02	0.14		0.04	0.25		c0.05	c0.36	
v/s Ratio Perm	0.11			0.11			0.23			0.32		
v/c Ratio	0.48	0.80		0.47	0.63		0.46	0.51		0.63	0.73	
Uniform Delay, d1	41.0	39.5		44.2	37.7		33.6	18.4		27.0	21.6	
Progression Factor	1.00	1.00		1.00	1.00		0.60	0.43		1.09	0.74	
Incremental Delay, d2	0.7	5.7		0.8	1.6		0.4	0.9		2.2	2.3	
Delay (s)	41.6	45.2		45.0	39.3		20.5	8.8		31.6	18.4	
Level of Service	D	D		D	D		C	A		C	B	
Approach Delay (s/veh)		44.7			40.0			10.1			20.4	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.4			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			76.0%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Future No-build AM

Synchro 12 Report
Page 6

HCM Signalized Intersection Capacity Analysis

12: 1st Ave & Roger Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	207	65	45	129	73	38	861	42	147	1253	24
Future Volume (vph)	50	207	65	45	129	73	38	861	42	147	1253	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1800	1794		1763	1787		1752	3503		1775	3598	
Flt Permitted	0.44	1.00		0.29	1.00		0.14	1.00		0.25	1.00	
Satd. Flow (perm)	826	1794		544	1787		257	3503		474	3598	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	213	67	46	133	75	39	888	43	152	1292	25
RTOR Reduction (vph)	0	11	0	0	20	0	0	2	0	0	1	0
Lane Group Flow (vph)	52	269	0	46	188	0	39	929	0	152	1316	0
Confl. Peds. (#/hr)	3		5	5		3	2		4	4		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	3%	1%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	6	4	4	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	21.2	21.2		21.2	21.2		71.8	66.1		71.8	66.1	
Effective Green, g (s)	23.2	23.2		23.2	23.2		73.8	66.1		73.8	66.1	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.68	0.61		0.68	0.61	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	177	385		116	383		268	2143		404	2202	
v/s Ratio Prot		c0.15			0.10		0.01	0.27		c0.02	c0.37	
v/s Ratio Perm	0.06			0.08			0.09			0.23		
v/c Ratio	0.29	0.70		0.40	0.49		0.15	0.43		0.38	0.60	
Uniform Delay, d1	35.5	39.2		36.4	37.2		16.4	11.1		13.3	12.8	
Progression Factor	1.00	1.00		1.00	1.00		0.51	0.83		2.03	1.35	
Incremental Delay, d2	0.9	5.5		2.2	1.0		0.1	0.6		0.2	1.0	
Delay (s)	36.5	44.6		38.6	38.2		8.5	9.7		27.1	18.2	
Level of Service	D	D		D	D		A	A		C	B	
Approach Delay (s/veh)		43.4			38.3			9.7			19.2	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			20.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			108.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			76.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Future No-build AM

Synchro 12 Report
Page 7

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	63	62	68	74	126	32	896	30	164	1347	23
Future Volume (vph)	41	63	62	68	74	126	32	896	30	164	1347	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1798	1759		1805	1900	1589	1805	3560		1804	3600	
Flt Permitted	0.69	1.00		0.52	1.00	1.00	0.13	1.00		0.25	1.00	
Satd. Flow (perm)	1313	1759		993	1900	1589	238	3560		473	3600	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	44	67	66	72	79	134	34	953	32	174	1433	24
RTOR Reduction (vph)	0	39	0	0	0	115	0	1	0	0	1	0
Lane Group Flow (vph)	44	94	0	72	79	19	34	984	0	174	1456	0
Confl. Peds. (#/hr)	3					3	1		4	4		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	12.8	12.8		12.8	12.8	12.8	79.7	72.1		79.7	72.1	
Effective Green, g (s)	15.3	15.3		15.3	15.3	15.3	81.7	72.1		81.7	72.1	
Actuated g/C Ratio	0.14	0.14		0.14	0.14	0.14	0.76	0.67		0.76	0.67	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	186	249		140	269	225	304	2376		463	2403	
v/s Ratio Prot		0.05			0.04		0.01	0.28		c0.03	c0.40	
v/s Ratio Perm	0.03			c0.07		0.01	0.08			0.25		
v/c Ratio	0.24	0.38		0.51	0.29	0.08	0.11	0.41		0.38	0.61	
Uniform Delay, d1	41.2	42.0		42.9	41.5	40.3	12.3	8.2		9.2	10.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.23	0.86		1.17	1.68	
Incremental Delay, d2	0.7	1.0		3.2	0.6	0.2	0.1	0.5		0.2	0.9	
Delay (s)	41.8	43.0		46.1	42.1	40.4	15.2	7.6		10.8	17.7	
Level of Service	D	D		D	D	D	B	A		B	B	
Approach Delay (s/veh)		42.7			42.3			7.8			17.0	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.8										
HCM 2000 Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		72.3%										
Analysis Period (min)		15										
c Critical Lane Group												

Future No-build AM

Synchro 12 Report
Page 8

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	36	244	124	65	43	251	771	48	20	1145	179
Future Volume (vph)	256	36	244	124	65	43	251	771	48	20	1145	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1802	1900	1531	1796	1775		1805	3555		1804	3567	1576
Flt Permitted	0.55	1.00	1.00	0.73	1.00		0.11	1.00		0.23	1.00	1.00
Satd. Flow (perm)	1047	1900	1531	1385	1775		216	3555		443	3567	1576
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	269	38	257	131	68	45	264	812	51	21	1205	188
RTOR Reduction (vph)	0	0	229	0	25	0	0	4	0	0	0	89
Lane Group Flow (vph)	269	38	28	131	88	0	264	859	0	21	1205	99
Confl. Peds. (#/hr)	3		5	5		3	2		9	9		2
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	2	0	0	6	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Actuated Green, G (s)	24.5	11.7	11.7	24.5	11.7		65.0	51.1		65.0	51.1	51.1
Effective Green, g (s)	26.5	11.7	11.7	26.5	11.7		67.0	51.6		67.0	51.6	51.6
Actuated g/C Ratio	0.25	0.11	0.11	0.25	0.11		0.62	0.48		0.62	0.48	0.48
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.5		5.0	4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	353	205	165	392	192		353	1698		462	1704	752
v/s Ratio Prot	c0.10	0.02		0.04	0.05		c0.10	0.24		0.01	0.34	
v/s Ratio Perm	c0.09		0.02	0.04			c0.36			0.02		0.06
v/c Ratio	0.76	0.19	0.17	0.33	0.46		0.75	0.51		0.05	0.71	0.13
Uniform Delay, d1	38.3	43.8	43.7	34.0	45.2		31.3	19.4		15.0	22.2	15.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.84	0.48		1.00	1.00	1.00
Incremental Delay, d2	8.5	0.4	0.5	0.2	1.7		7.1	1.0		0.0	2.5	0.4
Delay (s)	46.8	44.3	44.2	34.1	46.9		33.5	10.4		15.1	24.7	16.1
Level of Service	D	D	D	C	D		C	B		B	C	B
Approach Delay (s/veh)		45.4			40.1			15.8			23.4	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			76.4%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Future No-build AM

Synchro 12 Report
Page 9

HCM Signalized Intersection Capacity Analysis

17: 1st Ave & River Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	779	301	312	810	460	198	627	230	426	736	115
Future Volume (vph)	95	779	301	312	810	460	198	627	230	426	736	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3610	1589	3502	3610	1589	3502	3610	1590	3502	3610	1590
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3610	1589	3502	3610	1589	3502	3610	1590	3502	3610	1590
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	99	811	314	325	844	479	206	653	240	444	767	120
RTOR Reduction (vph)	0	0	180	0	0	243	0	0	165	0	0	87
Lane Group Flow (vph)	99	811	134	325	844	236	206	653	75	444	767	33
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	2		7	6		1	8		5	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	16.4	46.0	46.0	16.4	46.0	46.0	20.1	36.5	36.5	20.1	36.5	36.5
Effective Green, g (s)	17.4	49.5	49.5	17.4	49.5	49.5	21.1	40.0	40.0	21.1	40.0	40.0
Actuated g/C Ratio	0.12	0.34	0.34	0.12	0.34	0.34	0.15	0.28	0.28	0.15	0.28	0.28
Clearance Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)	423	1240	546	423	1240	546	513	1002	441	513	1002	441
v/s Ratio Prot	0.03	0.22		c0.09	c0.23		0.06	0.18		c0.13	c0.21	
v/s Ratio Perm			0.08			0.15			0.05			0.02
v/c Ratio	0.23	0.65	0.25	0.77	0.68	0.43	0.40	0.65	0.17	0.87	0.77	0.08
Uniform Delay, d1	57.3	40.0	33.9	61.3	40.5	36.4	55.7	45.9	39.4	60.1	47.7	38.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	2.7	1.1	7.4	3.0	2.5	0.2	1.5	0.2	13.8	3.5	0.1
Delay (s)	57.4	42.7	34.9	68.7	43.5	38.9	55.9	47.4	39.6	73.8	51.2	38.4
Level of Service	E	D	C	E	D	D	E	D	D	E	D	D
Approach Delay (s/veh)		41.9			47.1			47.3			57.6	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			48.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			144.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			80.6%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: Los Altos Ave & Grant Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↑↑↑			↔	↑↑↑				↔		
Traffic Volume (vph)	0	1771	5	66	17	2091	250	0	0	10	0	0
Future Volume (vph)	0	1771	5	66	17	2091	250	0	0	10	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0				3.0		
Lane Util. Factor		0.91			1.00	0.91				1.00		
Frt		1.00			1.00	0.98				0.87		
Flt Protected		1.00			0.95	1.00				1.00		
Satd. Flow (prot)		5185			1777	5093				1644		
Flt Permitted		1.00			0.10	1.00				1.00		
Satd. Flow (perm)		5185			191	5093				1644		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1925	5	72	18	2273	272	0	0	11	0	0
RTOR Reduction (vph)	0	0	0	0	0	8	0	0	0	10	0	0
Lane Group Flow (vph)	0	1930	0	0	90	2537	0	0	0	1	0	0
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%	2%	0%	2%	0%	2%	2%
Turn Type		NA		pm+pt	Perm	NA				Perm		
Protected Phases		2		1		6						
Permitted Phases				6	6					8		
Actuated Green, G (s)		108.0			92.7	92.7				4.3		
Effective Green, g (s)		108.0			93.7	93.7				5.3		
Actuated g/C Ratio		1.00			0.87	0.87				0.05		
Clearance Time (s)		7.0			7.0	7.0				4.0		
Vehicle Extension (s)		3.0			3.0	3.0				3.0		
Lane Grp Cap (vph)		5185			165	4418				80		
v/s Ratio Prot		c0.37				c0.50						
v/s Ratio Perm					0.47					0.00		
v/c Ratio		0.37			0.55	0.57				0.01		
Uniform Delay, d1		0.0			1.8	1.9				48.8		
Progression Factor		1.00			1.05	0.17				1.00		
Incremental Delay, d2		0.2			9.8	0.4				0.0		
Delay (s)		0.2			11.7	0.7				48.9		
Level of Service		A			B	A				D		
Approach Delay (s/veh)		0.2				1.1			48.9			0.0
Approach LOS		A				A			D			A
Intersection Summary												
HCM 2000 Control Delay (s/veh)			0.8		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			108.0		Sum of lost time (s)					10.0		
Intersection Capacity Utilization			64.3%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: Los Altos Ave & Grant Rd

09/22/2025



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

2: 1st Ave & Grant Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	0	1656	191	0	1906	304	339	840	114	346	791	179
Future Volume (vph)	0	1656	191	0	1906	304	339	840	114	346	791	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.95	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		5159	1581		5173	1532	3501	3596	1559	3500	3581	1568
Flt Permitted		1.00	1.00		1.00	1.00	0.13	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)		5159	1581		5173	1532	473	3596	1559	466	3581	1568
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1690	195	0	1945	310	346	857	116	353	807	183
RTOR Reduction (vph)	0	0	102	0	0	142	0	0	62	0	0	62
Lane Group Flow (vph)	0	1690	93	0	1945	168	346	857	54	353	807	121
Confl. Peds. (#/hr)	40		9	9		40	17		23	23		17
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	2	0	0	2	0	0	4	0
Turn Type		NA	Perm		NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)		50.7	50.7		50.7	50.7	41.8	30.6	30.6	41.8	30.6	30.6
Effective Green, g (s)		50.7	50.7		50.7	50.7	43.8	30.6	30.6	43.8	30.6	30.6
Actuated g/C Ratio		0.47	0.47		0.47	0.47	0.41	0.28	0.28	0.41	0.28	0.28
Clearance Time (s)		6.5	6.5		6.5	6.5	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)		5.0	5.0		5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)		2421	742		2428	719	533	1018	441	531	1014	444
v/s Ratio Prot		0.33			c0.38		0.07	c0.24		c0.07	0.23	
v/s Ratio Perm			0.06			0.11	0.19		0.03	0.19		0.08
v/c Ratio		0.70	0.12		0.80	0.23	0.65	0.84	0.12	0.66	0.80	0.27
Uniform Delay, d1		22.6	16.1		24.4	17.1	38.8	36.4	28.7	39.7	35.8	30.1
Progression Factor		1.00	1.10		0.74	2.21	1.00	1.00	1.00	0.61	0.77	0.76
Incremental Delay, d2		1.6	0.3		2.5	0.7	2.0	6.4	0.1	2.2	4.1	0.3
Delay (s)		24.2	18.1		20.5	38.4	40.8	42.8	28.9	26.6	31.7	23.1
Level of Service		C	B		C	D	D	D	C	C	C	C
Approach Delay (s/veh)		23.6			22.9			41.1			29.2	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		27.9			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		83.8%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Grant Rd & Tyndall Ave

09/22/2025



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	⇐		↑↑↑	↑↑↑			
Traffic Volume (vph)	123	0	2035	2058	0	0	0
Future Volume (vph)	123	0	2035	2058	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		6.0	6.0			
Lane Util. Factor	1.00		0.91	0.91			
Frpb, ped/bikes	1.00		1.00	1.00			
Flpb, ped/bikes	1.00		1.00	1.00			
Frt	1.00		1.00	1.00			
Flt Protected	0.95		1.00	1.00			
Satd. Flow (prot)	1770		5187	5187			
Flt Permitted	0.07		1.00	1.00			
Satd. Flow (perm)	123		5187	5187			
Peak-hour factor, PHF	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	134	0	2142	2166	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	134	0	2142	2166	0	0	0
Confl. Peds. (#/hr)		2			2		
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	0%
Turn Type	pm+pt		NA	NA			
Protected Phases	5		2	6			
Permitted Phases	2						
Actuated Green, G (s)	103.0		93.8	80.9			
Effective Green, g (s)	104.0		94.8	81.9			
Actuated g/C Ratio	0.96		0.88	0.76			
Clearance Time (s)	5.0		7.0	7.0			
Vehicle Extension (s)	3.0		3.0	3.0			
Lane Grp Cap (vph)	363		4553	3933			
v/s Ratio Prot	c0.05		c0.41	c0.42			
v/s Ratio Perm	0.30						
v/c Ratio	0.37		0.47	0.55			
Uniform Delay, d1	8.3		1.4	5.4			
Progression Factor	1.17		0.21	0.50			
Incremental Delay, d2	0.5		0.3	0.4			
Delay (s)	10.2		0.6	3.1			
Level of Service	B		A	A			
Approach Delay (s/veh)			1.1	3.1		0.0	
Approach LOS			A	A		A	
Intersection Summary							
HCM 2000 Control Delay (s/veh)			2.1		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.53				
Actuated Cycle Length (s)			108.0		Sum of lost time (s)		10.0
Intersection Capacity Utilization			54.9%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

6: 1st Ave & Glenn St

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	184	51	87	217	91	43	1152	61	93	1063	68
Future Volume (vph)	67	184	51	87	217	91	43	1152	61	93	1063	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	1829		1793	1798		1802	3548		1802	3542	
Flt Permitted	0.27	1.00		0.40	1.00		0.20	1.00		0.18	1.00	
Satd. Flow (perm)	516	1829		764	1798		375	3548		333	3542	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	69	190	53	90	224	94	44	1188	63	96	1096	70
RTOR Reduction (vph)	0	11	0	0	16	0	0	3	0	0	3	0
Lane Group Flow (vph)	69	232	0	90	302	0	44	1248	0	96	1163	0
Confl. Peds. (#/hr)	15		8	8		15	4		5	5		4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	24.2	24.2		24.2	24.2		72.3	72.3		72.3	72.3	
Effective Green, g (s)	26.2	26.2		26.2	26.2		73.8	73.8		73.8	73.8	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.68	0.68		0.68	0.68	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	125	443		185	436		256	2424		227	2420	
v/s Ratio Prot		0.13			c0.17			c0.35			0.33	
v/s Ratio Perm	0.13			0.12			0.12			0.29		
v/c Ratio	0.55	0.52		0.49	0.69		0.17	0.51		0.42	0.48	
Uniform Delay, d1	35.8	35.5		35.1	37.2		6.1	8.4		7.6	8.1	
Progression Factor	1.00	1.00		1.00	1.00		0.33	0.33		0.19	0.19	
Incremental Delay, d2	5.2	1.1		2.0	4.7		1.2	0.6		4.0	0.5	
Delay (s)	41.0	36.6		37.1	42.0		3.2	3.4		5.4	2.0	
Level of Service	D	D		D	D		A	A		A	A	
Approach Delay (s/veh)		37.6			40.9			3.4			2.3	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			10.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			86.1%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Future No-build PM

Synchro 12 Report
Page 5

HCM Signalized Intersection Capacity Analysis

8: 1st Ave & Fort Lowell Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	629	67	150	741	272	98	1115	114	215	1047	81
Future Volume (vph)	99	629	67	150	741	272	98	1115	114	215	1047	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1804	3533		1804	3574	1549	1805	3514		1805	3535	
Flt Permitted	0.14	1.00		0.15	1.00	1.00	0.10	1.00		0.09	1.00	
Satd. Flow (perm)	274	3533		281	3574	1549	199	3514		162	3535	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	100	635	68	152	748	275	99	1126	115	217	1058	82
RTOR Reduction (vph)	0	8	0	0	0	175	0	7	0	0	5	0
Lane Group Flow (vph)	100	695	0	152	748	100	99	1234	0	217	1135	0
Confl. Peds. (#/hr)	21		14	14		21	17		35	35		17
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	4	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	34.3	26.7		34.3	26.7	26.7	55.7	45.8		55.7	45.8	
Effective Green, g (s)	36.3	26.7		36.3	26.7	26.7	57.7	45.8		57.7	45.8	
Actuated g/C Ratio	0.34	0.25		0.34	0.25	0.25	0.53	0.42		0.53	0.42	
Clearance Time (s)	5.0	4.0		5.0	4.0	4.0	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	213	873		215	883	382	268	1490		252	1499	
v/s Ratio Prot	0.04	0.20		c0.06	c0.21		0.04	0.35		c0.09	0.32	
v/s Ratio Perm	0.12			0.18		0.06	0.16			c0.37		
v/c Ratio	0.47	0.80		0.71	0.85	0.26	0.37	0.83		0.86	0.76	
Uniform Delay, d1	41.8	38.1		41.9	38.7	32.7	34.9	27.6		39.2	26.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.55	0.49		0.74	0.38	
Incremental Delay, d2	0.6	5.1		8.4	7.6	0.4	0.3	4.9		17.4	2.5	
Delay (s)	42.4	43.2		50.2	46.3	33.1	19.4	18.6		46.4	12.4	
Level of Service	D	D		D	D	C	B	B		D	B	
Approach Delay (s/veh)		43.1			43.7			18.6			17.9	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		28.9										
HCM 2000 Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		87.9%										
Analysis Period (min)		15										
c Critical Lane Group												

Future No-build PM

Synchro 12 Report
Page 6

HCM Signalized Intersection Capacity Analysis

10: 1st Ave & Prince Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	478	160	73	496	180	151	1285	80	182	1188	78
Future Volume (vph)	123	478	160	73	496	180	151	1285	80	182	1188	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1804	3436		1804	3430		1787	3526		1805	3531	
Flt Permitted	0.15	1.00		0.16	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	292	3436		310	3430		159	3526		148	3531	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	126	488	163	74	506	184	154	1311	82	186	1212	80
RTOR Reduction (vph)	0	32	0	0	35	0	0	4	0	0	4	0
Lane Group Flow (vph)	126	619	0	74	655	0	154	1389	0	186	1288	0
Confl. Peds. (#/hr)	8		11	11		8	1		27	27		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	2	0	0	2	0	0	6	0	0	6	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	31.7	25.0		31.7	25.0		58.3	50.3		58.3	50.3	
Effective Green, g (s)	33.7	25.0		33.7	25.0		60.3	50.3		60.3	50.3	
Actuated g/C Ratio	0.31	0.23		0.31	0.23		0.56	0.47		0.56	0.47	
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	198	795		203	793		224	1642		220	1644	
v/s Ratio Prot	c0.05	0.18		0.03	c0.19		0.06	0.39		c0.07	0.36	
v/s Ratio Perm	0.15			0.09			0.33			c0.40		
v/c Ratio	0.64	0.78		0.36	0.83		0.69	0.85		0.85	0.78	
Uniform Delay, d1	43.0	38.9		41.3	39.4		37.1	25.4		40.1	24.3	
Progression Factor	1.00	1.00		1.00	1.00		0.58	0.50		0.88	0.50	
Incremental Delay, d2	4.9	4.9		0.4	7.0		4.8	4.0		17.8	2.7	
Delay (s)	47.8	43.8		41.7	46.4		26.3	16.6		53.3	14.9	
Level of Service	D	D		D	D		C	B		D	B	
Approach Delay (s/veh)		44.4			46.0			17.6			19.8	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		27.6					HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio		0.83										
Actuated Cycle Length (s)		108.0					Sum of lost time (s)		16.0			
Intersection Capacity Utilization		88.1%					ICU Level of Service		E			
Analysis Period (min)		15										
c Critical Lane Group												

Future No-build PM

Synchro 12 Report
Page 7

HCM Signalized Intersection Capacity Analysis

12: 1st Ave & Roger Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	233	96	91	264	115	105	1328	52	99	1278	46
Future Volume (vph)	65	233	96	91	264	115	105	1328	52	99	1278	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1794	1777		1797	1797		1805	3536		1776	3586	
Flt Permitted	0.19	1.00		0.27	1.00		0.10	1.00		0.09	1.00	
Satd. Flow (perm)	359	1777		510	1797		192	3536		164	3586	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	243	100	95	275	120	109	1383	54	103	1331	48
RTOR Reduction (vph)	0	14	0	0	15	0	0	2	0	0	2	0
Lane Group Flow (vph)	68	329	0	95	380	0	109	1435	0	103	1377	0
Confl. Peds. (#/hr)	13		7	7		13	8		19	19		8
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	6	4	4	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	26.6	26.6		26.6	26.6		66.4	59.0		66.4	59.0	
Effective Green, g (s)	28.6	28.6		28.6	28.6		68.4	59.0		68.4	59.0	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.63	0.55		0.63	0.55	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	95	470		135	475		247	1931		229	1959	
v/s Ratio Prot		0.19			c0.21		0.03	c0.41		c0.03	0.38	
v/s Ratio Perm	0.19			0.19			0.25			0.25		
v/c Ratio	0.72	0.70		0.70	0.80		0.44	0.74		0.45	0.70	
Uniform Delay, d1	36.0	35.8		35.9	37.0		30.9	18.7		32.9	18.0	
Progression Factor	1.00	1.00		1.00	1.00		0.49	0.57		1.41	1.26	
Incremental Delay, d2	22.5	4.7		15.3	9.4		0.3	1.5		0.4	1.7	
Delay (s)	58.5	40.5		51.2	46.4		15.5	12.2		46.8	24.4	
Level of Service	E	D		D	D		B	B		D	C	
Approach Delay (s/veh)		43.5			47.3			12.4			25.9	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			86.9%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Future No-build PM

Synchro 12 Report
Page 8

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	107	96	119	167	216	74	1371	50	182	1277	49
Future Volume (vph)	67	107	96	119	167	216	74	1371	50	182	1277	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1754		1803	1900	1584	1805	3557		1805	3586	
Flt Permitted	0.50	1.00		0.42	1.00	1.00	0.12	1.00		0.10	1.00	
Satd. Flow (perm)	941	1754		791	1900	1584	224	3557		182	3586	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	68	109	98	121	170	220	76	1399	51	186	1303	50
RTOR Reduction (vph)	0	33	0	0	0	176	0	2	0	0	2	0
Lane Group Flow (vph)	68	174	0	121	170	44	76	1448	0	186	1351	0
Confl. Peds. (#/hr)	5		1	1		5	3		9	9		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	19.0	19.0		19.0	19.0	19.0	73.5	62.0		73.5	62.0	
Effective Green, g (s)	21.5	21.5		21.5	21.5	21.5	75.5	62.0		75.5	62.0	
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.20	0.70	0.57		0.70	0.57	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	187	349		157	378	315	339	2041		315	2058	
v/s Ratio Prot		0.10			0.09		0.03	c0.41		c0.07	0.38	
v/s Ratio Perm	0.07			c0.15		0.03	0.13			0.34		
v/c Ratio	0.36	0.50		0.77	0.45	0.14	0.22	0.71		0.59	0.66	
Uniform Delay, d1	37.3	38.5		40.9	38.0	35.6	19.8	16.5		28.3	15.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.43	0.91		0.55	1.46	
Incremental Delay, d2	1.2	1.1		20.5	0.9	0.2	0.1	1.6		1.5	1.3	
Delay (s)	38.5	39.6		61.4	38.9	35.8	28.5	16.7		17.2	24.2	
Level of Service	D	D		E	D	D	C	B		B	C	
Approach Delay (s/veh)		39.3			42.9			17.3			23.3	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		24.7										
HCM 2000 Volume to Capacity ratio		0.71										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		83.1%										
Analysis Period (min)		15										
c Critical Lane Group												

Future No-build PM

Synchro 12 Report
Page 9

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	80	475	61	80	34	327	1145	79	37	1008	264
Future Volume (vph)	356	80	475	61	80	34	327	1145	79	37	1008	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1795	1900	1533	1788	1801		1805	3556		1805	3567	1559
Flt Permitted	0.58	1.00	1.00	0.68	1.00		0.13	1.00		0.09	1.00	1.00
Satd. Flow (perm)	1090	1900	1533	1288	1801		246	3556		170	3567	1559
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	367	82	490	63	82	35	337	1180	81	38	1039	272
RTOR Reduction (vph)	0	0	359	0	16	0	0	4	0	0	0	160
Lane Group Flow (vph)	367	82	131	63	102	0	337	1257	0	38	1039	112
Confl. Peds. (#/hr)	9		11	11		9	17		1	1		17
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	2	0	0	6	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Actuated Green, G (s)	30.4	15.0	15.0	30.4	15.0		59.1	43.8		59.1	43.8	43.8
Effective Green, g (s)	32.4	15.0	15.0	32.4	15.0		61.1	44.3		61.1	44.3	44.3
Actuated g/C Ratio	0.30	0.14	0.14	0.30	0.14		0.57	0.41		0.57	0.41	0.41
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.5		5.0	4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	434	263	212	462	250		374	1458		342	1463	639
v/s Ratio Prot	c0.13	0.04		0.02	0.06		c0.14	0.35		0.02	0.29	
v/s Ratio Perm	c0.13		0.09	0.02			c0.37			0.05		0.07
v/c Ratio	0.85	0.31	0.62	0.14	0.41		0.90	0.86		0.11	0.71	0.17
Uniform Delay, d1	35.5	41.9	43.8	28.1	42.4		33.8	29.1		31.5	26.5	20.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.71	0.79		1.00	1.00	1.00
Incremental Delay, d2	13.5	0.7	5.3	0.0	1.1		20.2	5.8		0.1	2.9	0.6
Delay (s)	49.0	42.5	49.1	28.2	43.5		44.1	28.9		31.6	29.5	20.8
Level of Service	D	D	D	C	D		D	C		C	C	C
Approach Delay (s/veh)		48.5			38.1			32.1			27.8	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			34.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			82.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Future No-build PM

Synchro 12 Report
Page 10

HCM Signalized Intersection Capacity Analysis

17: 1st Ave & River Rd

09/22/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	779	254	357	1007	612	314	890	326	335	651	123
Future Volume (vph)	161	779	254	357	1007	612	314	890	326	335	651	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3610	1585	3502	3610	1591	3502	3610	1585	3502	3610	1615
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3610	1585	3502	3610	1591	3502	3610	1585	3502	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	169	820	267	376	1060	644	331	937	343	353	685	129
RTOR Reduction (vph)	0	0	176	0	0	196	0	0	158	0	0	90
Lane Group Flow (vph)	169	820	91	376	1060	448	331	937	185	353	685	39
Confl. Peds. (#/hr)	2		5	5		2			6	6		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	2		7	6		1	8		5	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	16.7	45.4	45.4	16.7	45.4	45.4	16.5	40.4	40.4	16.5	40.4	40.4
Effective Green, g (s)	17.7	48.9	48.9	17.7	48.9	48.9	17.5	43.9	43.9	17.5	43.9	43.9
Actuated g/C Ratio	0.12	0.34	0.34	0.12	0.34	0.34	0.12	0.30	0.30	0.12	0.30	0.30
Clearance Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)	430	1225	538	430	1225	540	425	1100	483	425	1100	492
v/s Ratio Prot	0.05	0.23		c0.11	c0.29		0.09	c0.26		c0.10	0.19	
v/s Ratio Perm			0.06			0.28			0.12			0.02
v/c Ratio	0.39	0.67	0.17	0.87	0.87	0.83	0.78	0.85	0.38	0.83	0.62	0.08
Uniform Delay, d1	58.2	40.6	33.3	62.1	44.5	43.7	61.4	47.0	39.4	61.8	42.9	35.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	2.9	0.7	17.1	8.3	13.7	8.0	6.5	0.5	12.4	1.1	0.1
Delay (s)	58.4	43.6	34.0	79.2	52.8	57.5	69.4	53.5	39.9	74.2	44.1	35.7
Level of Service	E	D	C	E	D	E	E	D	D	E	D	D
Approach Delay (s/veh)		43.5			59.0			53.9			52.2	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			53.2				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			144.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			86.5%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group



Appendix G Year 2045 Build Conditions Synchro Worksheets

HCM Signalized Intersection Capacity Analysis

1: Los Altos Ave & Grant Rd

11/12/2025

	→	↘	↶	↙	←	↗	
Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↶	↑↑↑		↗
Traffic Volume (vph)	2145	5	45	5	1505	0	10
Future Volume (vph)	2145	5	45	5	1505	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0		3.0
Lane Util. Factor	0.91			1.00	0.91		1.00
Frt	1.00			1.00	1.00		0.87
Flt Protected	1.00			0.95	1.00		1.00
Satd. Flow (prot)	5185			1773	5187		1644
Flt Permitted	1.00			0.08	1.00		1.00
Satd. Flow (perm)	5185			143	5187		1644
Peak-hour factor, PHF	0.98	0.98	0.92	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2189	5	49	5	1536	0	10
RTOR Reduction (vph)	0	0	0	0	0	0	10
Lane Group Flow (vph)	2194	0	0	54	1536	0	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%
Turn Type	NA		pm+pt	Perm	NA		Perm
Protected Phases	2		1		6		
Permitted Phases			6	6			8
Actuated Green, G (s)	108.0			92.7	92.7		4.3
Effective Green, g (s)	108.0			93.7	93.7		5.3
Actuated g/C Ratio	1.00			0.87	0.87		0.05
Clearance Time (s)	7.0			7.0	7.0		4.0
Vehicle Extension (s)	3.0			3.0	3.0		3.0
Lane Grp Cap (vph)	5185			124	4500		80
v/s Ratio Prot	c0.42				0.30		
v/s Ratio Perm				0.38			0.00
v/c Ratio	0.42			0.44	0.34		0.01
Uniform Delay, d1	0.0			1.5	1.3		48.8
Progression Factor	1.00			0.88	0.28		1.00
Incremental Delay, d2	0.3			10.1	0.2		0.0
Delay (s)	0.3			11.4	0.6		48.9
Level of Service	A			B	A		D
Approach Delay (s/veh)	0.3				0.9	48.9	
Approach LOS	A				A	D	
Intersection Summary							
HCM 2000 Control Delay (s/veh)			0.7		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.47				
Actuated Cycle Length (s)			108.0		Sum of lost time (s)		10.0
Intersection Capacity Utilization			54.1%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

2: 1st Ave & Grant Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	0	2005	195	0	1300	249	112	545	47	299	795	143
Future Volume (vph)	0	2005	195	0	1300	249	112	545	47	299	795	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		5159	1589		5173	1560	3501	3596	1576	3463	3581	1586
Flt Permitted		1.00	1.00		1.00	1.00	0.13	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)		5159	1589		5173	1560	468	3596	1576	1034	3581	1586
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	2067	201	0	1340	257	115	562	48	308	820	147
RTOR Reduction (vph)	0	0	77	0	0	122	0	0	34	0	0	98
Lane Group Flow (vph)	0	2067	124	0	1340	135	115	562	14	308	820	49
Confl. Peds. (#/hr)	22		4	4		22	4		12	12		6
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	2	0	0	2	0	0	4	0
Turn Type		NA	Perm		NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)		56.8	56.8		56.8	56.8	35.7	30.5	30.5	35.7	30.5	30.5
Effective Green, g (s)		56.8	56.8		56.8	56.8	37.7	30.5	30.5	37.7	30.5	30.5
Actuated g/C Ratio		0.53	0.53		0.53	0.53	0.35	0.28	0.28	0.35	0.28	0.28
Clearance Time (s)		6.5	6.5		6.5	6.5	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)		5.0	5.0		5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)		2713	835		2720	820	337	1015	445	500	1011	447
v/s Ratio Prot		c0.40			0.26		0.02	0.16		c0.04	c0.23	
v/s Ratio Perm			0.08			0.09	0.10		0.01	0.18		0.03
v/c Ratio		0.76	0.15		0.49	0.16	0.34	0.55	0.03	0.62	0.81	0.11
Uniform Delay, d1		20.3	13.2		16.4	13.3	41.7	33.0	28.0	38.1	36.1	28.7
Progression Factor		0.99	1.01		0.66	2.23	1.00	1.00	1.00	0.55	0.69	0.60
Incremental Delay, d2		1.9	0.3		0.6	0.4	0.2	0.7	0.0	1.5	4.6	0.1
Delay (s)		22.1	13.7		11.4	30.0	41.9	33.6	28.1	22.5	29.7	17.3
Level of Service		C	B		B	C	D	C	C	C	C	B
Approach Delay (s/veh)		21.3			14.4			34.6			26.5	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		22.2			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		78.2%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Grant Rd & Tyndall Ave

11/12/2025



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↓		↑↑↑	↑↑↑			
Traffic Volume (vph)	121	18	2212	1412	0	0	0
Future Volume (vph)	121	18	2212	1412	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		6.0	6.0			
Lane Util. Factor	1.00		0.91	0.91			
Frt	1.00		1.00	1.00			
Flt Protected	0.95		1.00	1.00			
Satd. Flow (prot)	1770		5184	5187			
Flt Permitted	0.16		0.91	1.00			
Satd. Flow (perm)	293		4728	5187			
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	132	19	2280	1456	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	132	0	2299	1456	0	0	0
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	0%
Turn Type	pm+pt	Perm	NA	NA			
Protected Phases	5		2	6			
Permitted Phases	2	2					
Actuated Green, G (s)	103.0		93.8	77.6			
Effective Green, g (s)	104.0		94.8	78.6			
Actuated g/C Ratio	0.96		0.88	0.73			
Clearance Time (s)	5.0		7.0	7.0			
Vehicle Extension (s)	3.0		3.0	3.0			
Lane Grp Cap (vph)	547		4150	3774			
v/s Ratio Prot	c0.04			0.28			
v/s Ratio Perm	0.19		c0.49				
v/c Ratio	0.24		0.55	0.39			
Uniform Delay, d1	0.9		1.6	5.6			
Progression Factor	16.65		0.48	0.53			
Incremental Delay, d2	0.1		0.4	0.3			
Delay (s)	14.4		1.1	3.2			
Level of Service	B		A	A			
Approach Delay (s/veh)			1.9	3.2		0.0	
Approach LOS			A	A		A	
Intersection Summary							
HCM 2000 Control Delay (s/veh)			2.4		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.55				
Actuated Cycle Length (s)			108.0		Sum of lost time (s)		10.0
Intersection Capacity Utilization			80.4%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

6: 1st Ave & Glenn St

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	153	33	108	138	67	27	744	37	57	1068	42
Future Volume (vph)	60	153	33	108	138	67	27	744	37	57	1068	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	1844		1797	1789		1802	3550		1799	3557	
Flt Permitted	0.38	1.00		0.43	1.00		0.21	1.00		0.32	1.00	
Satd. Flow (perm)	708	1844		805	1789		405	3550		614	3557	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	159	34	112	144	70	28	775	39	59	1112	44
RTOR Reduction (vph)	0	9	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	63	184	0	113	194	0	28	812	0	59	1155	0
Confl. Peds. (#/hr)	13		5	5		13	4		4	4		4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	17.9	17.9		17.9	17.9		78.6	78.6		78.6	78.6	
Effective Green, g (s)	19.9	19.9		19.9	19.9		80.1	80.1		80.1	80.1	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.74	0.74		0.74	0.74	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	130	339		148	329		300	2632		455	2638	
v/s Ratio Prot		0.10			0.11			0.23			c0.32	
v/s Ratio Perm	0.09			c0.14			0.07			0.10		
v/c Ratio	0.48	0.54		0.76	0.59		0.09	0.31		0.13	0.44	
Uniform Delay, d1	39.5	39.9		41.8	40.3		3.9	4.7		4.0	5.3	
Progression Factor	1.00	1.00		1.00	1.00		0.34	0.34		0.33	0.26	
Incremental Delay, d2	2.8	1.8		20.5	2.8		0.6	0.3		0.4	0.4	
Delay (s)	42.3	41.7		62.4	43.2		1.9	1.9		1.7	1.8	
Level of Service	D	D		E	D		A	A		A	A	
Approach Delay (s/veh)		41.8			49.8			1.9			1.8	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			11.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			79.4%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Future With-build AM

Synchro 12 Report
Page 4

HCM Signalized Intersection Capacity Analysis

8: 1st Ave & Fort Lowell Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	608	47	140	552	210	56	751	106	275	1012	63
Future Volume (vph)	87	608	47	140	552	210	56	751	106	275	1012	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	3536		1802	3610	1594	1805	3610	1574	1800	3581	1555
Flt Permitted	0.21	1.00		0.16	1.00	1.00	0.13	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	403	3536		299	3610	1594	251	3610	1574	463	3581	1555
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	91	633	49	146	575	219	58	782	110	286	1054	66
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	91	677	0	146	575	219	58	782	110	286	1054	66
Confl. Peds. (#/hr)	4		49	49		4	19		46	46		19
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		Free	6		Free	2		Free
Actuated Green, G (s)	31.6	24.4		31.6	24.4	108.0	58.4	45.5	108.0	58.4	45.5	108.0
Effective Green, g (s)	33.6	24.4		33.6	24.4	108.0	60.4	45.5	108.0	60.4	45.5	108.0
Actuated g/C Ratio	0.31	0.23		0.31	0.23	1.00	0.56	0.42	1.00	0.56	0.42	1.00
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	230	798		207	815	1594	340	1520	1574	431	1508	1555
v/s Ratio Prot	0.03	c0.19		c0.05	0.16		0.02	0.22		c0.09	c0.29	
v/s Ratio Perm	0.09			0.17		0.14	0.07		0.07	0.29		0.04
v/c Ratio	0.40	0.85		0.71	0.71	0.14	0.17	0.51	0.07	0.66	0.70	0.04
Uniform Delay, d1	39.7	40.0		43.1	38.5	0.0	26.6	23.1	0.0	27.5	25.6	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.62	0.60	1.00	0.80	0.36	1.00
Incremental Delay, d2	0.4	8.3		8.6	2.8	0.2	0.1	1.2	0.1	2.4	2.1	0.0
Delay (s)	40.1	48.4		51.7	41.3	0.2	16.5	15.0	0.1	24.3	11.5	0.0
Level of Service	D	D		D	D	A	B	B	A	C	B	A
Approach Delay (s/veh)		47.4			33.3			13.4			13.6	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		24.5				HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		108.0				Sum of lost time (s)		16.0				
Intersection Capacity Utilization		78.7%				ICU Level of Service		D				
Analysis Period (min)		15										
c Critical Lane Group												

Future With-build AM

Synchro 12 Report
Page 5

HCM Signalized Intersection Capacity Analysis

10: 1st Ave & Prince Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	513	114	69	363	149	110	792	78	224	1135	107
Future Volume (vph)	91	513	114	69	363	149	110	792	78	224	1135	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1785	3485		1769	3410		1787	3567	1588	1785	3567	1599
Flt Permitted	0.25	1.00		0.16	1.00		0.13	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	462	3485		302	3410		244	3567	1588	484	3567	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	94	529	118	71	374	154	113	816	80	231	1170	110
RTOR Reduction (vph)	0	17	0	0	41	0	0	0	0	0	0	57
Lane Group Flow (vph)	94	630	0	71	487	0	113	816	80	231	1170	53
Confl. Peds. (#/hr)	11		5	5		11			16	16		
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%	1%	0%	0%	1%	0%	1%
Bus Blockages (#/hr)	0	2	0	0	2	0	0	6	0	0	6	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		Free	2		2
Actuated Green, G (s)	28.2	23.7		28.2	23.7		61.8	52.5	108.0	61.8	52.5	52.5
Effective Green, g (s)	30.2	23.7		30.2	23.7		63.8	52.5	108.0	63.8	52.5	52.5
Actuated g/C Ratio	0.28	0.22		0.28	0.22		0.59	0.49	1.00	0.59	0.49	0.49
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	196	764		159	748		291	1733	1588	409	1733	777
v/s Ratio Prot	c0.02	c0.18		0.02	0.14		0.04	0.23		c0.05	c0.33	
v/s Ratio Perm	0.11			0.10			0.19		0.05	0.28		0.03
v/c Ratio	0.48	0.82		0.45	0.65		0.39	0.47	0.05	0.56	0.68	0.07
Uniform Delay, d1	41.4	40.2		44.3	38.4		29.4	18.5	0.0	23.9	21.2	14.8
Progression Factor	1.00	1.00		1.00	1.00		0.52	0.46	1.00	1.09	0.70	0.40
Incremental Delay, d2	0.7	7.2		0.7	2.0		0.3	0.9	0.1	0.9	1.7	0.1
Delay (s)	42.0	47.4		45.0	40.4		15.5	9.4	0.1	26.9	16.5	6.0
Level of Service	D	D		D	D		B	A	A	C	B	A
Approach Delay (s/veh)		46.7			41.0			9.3			17.3	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.6			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			72.6%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Future With-build AM

Synchro 12 Report
Page 6

HCM Signalized Intersection Capacity Analysis

12: 1st Ave & Roger Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	207	65	50	129	73	38	861	42	147	1253	24
Future Volume (vph)	50	207	65	50	129	73	38	861	42	147	1253	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0	6.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1795		1768	1900	1578	1752	3503		1775	3598	
Flt Permitted	0.59	1.00		0.28	1.00	1.00	0.11	1.00		0.23	1.00	
Satd. Flow (perm)	1109	1795		516	1900	1578	212	3503		435	3598	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	213	67	52	133	75	39	888	43	152	1292	25
RTOR Reduction (vph)	0	11	0	0	0	61	0	3	0	0	1	0
Lane Group Flow (vph)	52	269	0	52	133	14	39	928	0	152	1316	0
Confl. Peds. (#/hr)	8		4	4		8	4		4	4		4
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	3%	1%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	6	4	4	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	23.9	20.3		23.9	20.3	20.3	64.1	58.7		64.1	58.7	
Effective Green, g (s)	27.9	22.3		27.9	22.3	20.3	66.1	58.7		66.1	58.7	
Actuated g/C Ratio	0.26	0.21		0.26	0.21	0.19	0.61	0.54		0.61	0.54	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	322	370		198	392	296	221	1903		345	1955	
v/s Ratio Prot	0.01	c0.15		c0.01	0.07		0.01	0.26		c0.03	c0.37	
v/s Ratio Perm	0.03			0.05		0.01	0.10			0.24		
v/c Ratio	0.16	0.73		0.26	0.34	0.05	0.18	0.49		0.44	0.67	
Uniform Delay, d1	33.2	40.0		41.0	36.6	35.9	24.4	15.3		20.0	17.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.61	0.87		1.43	1.14	
Incremental Delay, d2	0.1	7.0		0.3	0.5	0.1	0.1	0.8		0.3	1.5	
Delay (s)	33.3	47.0		41.3	37.1	36.0	15.0	14.1		28.8	21.7	
Level of Service	C	D		D	D	D	B	B		C	C	
Approach Delay (s/veh)		44.8			37.6			14.1			22.4	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)	23.5			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.64											
Actuated Cycle Length (s)	108.0			Sum of lost time (s)			15.0					
Intersection Capacity Utilization	70.9%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

Future With-build AM

Synchro 12 Report
Page 7

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	41	63	62	68	74	126	32	896	30	10	164	1347
Future Volume (vph)	41	63	62	68	74	126	32	896	30	10	164	1347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95			1.00	0.95
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00			1.00	1.00
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.93		1.00	1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1785	1743		1797	1900	1576	1805	3557			1801	3599
Flt Permitted	0.69	1.00		0.52	1.00	1.00	0.12	1.00			0.25	1.00
Satd. Flow (perm)	1303	1743		989	1900	1576	235	3557			469	3599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.94	0.94
Adj. Flow (vph)	44	67	66	72	79	134	34	953	32	11	174	1433
RTOR Reduction (vph)	0	39	0	0	0	115	0	1	0	0	0	1
Lane Group Flow (vph)	44	94	0	72	79	19	34	984	0	0	185	1456
Confl. Peds. (#/hr)	9		4	4		9	3		12		12	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	pm+pt	NA
Protected Phases		8			4		1	6		5	5	2
Permitted Phases	8			4		4	6			2	2	
Actuated Green, G (s)	12.8	12.8		12.8	12.8	12.8	79.7	71.5			79.7	71.5
Effective Green, g (s)	15.3	15.3		15.3	15.3	15.3	81.7	71.5			81.7	71.5
Actuated g/C Ratio	0.14	0.14		0.14	0.14	0.14	0.76	0.66			0.76	0.66
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	5.0	4.0			5.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	5.0			2.0	5.0
Lane Grp Cap (vph)	184	246		140	269	223	311	2354			468	2382
v/s Ratio Prot		0.05			0.04		0.01	0.28			c0.03	c0.40
v/s Ratio Perm	0.03			c0.07		0.01	0.07				0.26	
v/c Ratio	0.24	0.38		0.51	0.29	0.09	0.11	0.42			0.40	0.61
Uniform Delay, d1	41.2	42.1		42.9	41.5	40.3	12.5	8.5			9.6	10.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.92	0.92			0.98	1.79
Incremental Delay, d2	0.7	1.0		3.2	0.6	0.2	0.1	0.5			0.2	1.0
Delay (s)	41.9	43.1		46.1	42.1	40.4	24.2	8.3			9.5	19.5
Level of Service	D	D		D	D	D	C	A			A	B
Approach Delay (s/veh)		42.8			42.3			8.8				18.3
Approach LOS		D			D			A				B
Intersection Summary												
HCM 2000 Control Delay (s/veh)		18.8										
HCM 2000 Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		74.1%										
Analysis Period (min)		15										
c Critical Lane Group												

Future With-build AM

Synchro 12 Report
Page 8

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

11/12/2025

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	23
Future Volume (vph)	23
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	24
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	0%
Bus Blockages (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	256	36	244	124	65	43	251	771	48	20	20	1145
Future Volume (vph)	256	36	244	124	65	43	251	771	48	20	20	1145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.5	4.0		5.0	4.5			5.0	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95			1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.99			1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1796	1900	1538	1789	1770		3502	3558			1786	3567
Flt Permitted	0.57	1.00	1.00	0.73	1.00		0.95	1.00			0.21	1.00
Satd. Flow (perm)	1080	1900	1538	1379	1770		3502	3558			396	3567
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.95	0.95
Adj. Flow (vph)	269	38	257	131	68	45	264	812	51	22	21	1205
RTOR Reduction (vph)	0	0	0	0	25	0	0	4	0	0	0	0
Lane Group Flow (vph)	269	38	257	131	88	0	264	859	0	0	43	1205
Confl. Peds. (#/hr)	8		9	9		8	4		3		3	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	2	0	0	0	6
Turn Type	pm+pt	NA	Free	pm+pt	NA		Prot	NA		pm+pt	pm+pt	NA
Protected Phases	3	8		7	4		1	6		5	5	2
Permitted Phases	8		Free	4						2	2	
Actuated Green, G (s)	24.6	6.0	108.0	34.3	11.7		14.9	48.1			51.4	42.3
Effective Green, g (s)	26.6	6.0	108.0	35.3	11.7		15.9	48.6			53.4	42.8
Actuated g/C Ratio	0.25	0.06	1.00	0.33	0.11		0.15	0.45			0.49	0.40
Clearance Time (s)	5.5	4.0		5.5	4.0		6.0	5.0			6.0	5.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0			2.0	5.0
Lane Grp Cap (vph)	395	105	1538	546	191		515	1601			325	1413
v/s Ratio Prot	c0.12	0.02		0.06	c0.05		c0.08	c0.24			0.01	c0.34
v/s Ratio Perm	c0.04		0.17	0.02							0.05	
v/c Ratio	0.68	0.36	0.17	0.24	0.46		0.51	0.54			0.13	0.85
Uniform Delay, d1	37.3	49.2	0.0	27.0	45.2		42.5	21.5			24.5	29.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.86	0.43			1.00	1.00
Incremental Delay, d2	3.8	2.1	0.2	0.1	1.8		0.3	1.2			0.1	6.7
Delay (s)	41.1	51.3	0.2	27.1	47.0		36.9	10.5			24.6	36.4
Level of Service	D	D	A	C	D		D	B			C	D
Approach Delay (s/veh)		23.2			36.3			16.7				31.3
Approach LOS		C			D			B				C
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			70.9%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

11/12/2025

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	179
Future Volume (vph)	179
Ideal Flow (vphpl)	1900
Total Lost time (s)	3.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.99
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1578
Flt Permitted	1.00
Satd. Flow (perm)	1578
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	188
RTOR Reduction (vph)	0
Lane Group Flow (vph)	188
Confl. Peds. (#/hr)	4
Heavy Vehicles (%)	1%
Bus Blockages (#/hr)	0
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	108.0
Effective Green, g (s)	108.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1578
v/s Ratio Prot	
v/s Ratio Perm	0.12
v/c Ratio	0.12
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

17: 1st Ave & River Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	779	301	312	810	460	198	627	230	426	736	115
Future Volume (vph)	95	779	301	312	810	460	198	627	230	426	736	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	3.5	3.5	8.0	3.5	5.5	8.0	3.5	3.5	8.0	3.5	3.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3610	1585	3502	3610	1598	3502	3610	1590	3502	3610	1590
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3610	1585	3502	3610	1598	3502	3610	1590	3502	3610	1590
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	99	811	314	325	844	479	206	653	240	444	767	120
RTOR Reduction (vph)	0	0	195	0	0	47	0	0	137	0	0	86
Lane Group Flow (vph)	99	811	119	325	844	432	206	653	103	444	767	34
Confl. Peds. (#/hr)	3		5	5		3	3		3	3		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.6	41.4	41.4	15.5	45.3	67.9	17.7	32.5	32.5	22.6	37.4	37.4
Effective Green, g (s)	12.6	44.9	44.9	16.5	48.8	74.9	18.7	36.0	36.0	23.6	40.9	40.9
Actuated g/C Ratio	0.09	0.31	0.31	0.11	0.34	0.52	0.13	0.25	0.25	0.16	0.28	0.28
Clearance Time (s)	9.0	7.0	7.0	9.0	7.0	9.0	9.0	7.0	7.0	9.0	7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)	306	1125	494	401	1223	892	454	902	397	573	1025	451
v/s Ratio Prot	0.03	c0.22		c0.09	c0.23	0.09	0.06	0.18		c0.13	c0.21	
v/s Ratio Perm			0.07			0.18			0.06			0.02
v/c Ratio	0.32	0.72	0.24	0.81	0.69	0.48	0.45	0.72	0.26	0.77	0.75	0.08
Uniform Delay, d1	61.7	44.0	36.9	62.2	41.1	22.2	57.9	49.4	43.3	57.7	46.9	37.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	4.0	1.1	11.2	3.2	0.2	0.3	2.9	0.3	5.9	3.0	0.1
Delay (s)	61.9	48.0	38.0	73.4	44.3	22.3	58.2	52.4	43.6	63.6	49.9	37.8
Level of Service	E	D	D	E	D	C	E	D	D	E	D	D
Approach Delay (s/veh)		46.6			43.6			51.5			53.4	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		48.4										
HCM 2000 Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		144.0										
Intersection Capacity Utilization		86.3%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: Los Altos Ave & Grant Rd

11/12/2025

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑		↗
Traffic Volume (vph)	1837	5	83	2091	0	10
Future Volume (vph)	1837	5	83	2091	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		3.0
Lane Util. Factor	0.91		1.00	0.91		1.00
Frt	1.00		1.00	1.00		0.87
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	5185		1805	5187		1644
Flt Permitted	1.00		0.09	1.00		1.00
Satd. Flow (perm)	5185		180	5187		1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1997	5	90	2273	0	11
RTOR Reduction (vph)	0	0	0	0	0	10
Lane Group Flow (vph)	2002	0	90	2273	0	1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	NA		Perm	NA		Perm
Protected Phases	2			6		
Permitted Phases			6			8
Actuated Green, G (s)	108.0		92.7	92.7		4.3
Effective Green, g (s)	108.0		93.7	93.7		5.3
Actuated g/C Ratio	1.00		0.87	0.87		0.05
Clearance Time (s)	7.0		7.0	7.0		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	5185		156	4500		80
v/s Ratio Prot	c0.39			0.44		
v/s Ratio Perm			c0.50			0.00
v/c Ratio	0.39		0.58	0.51		0.01
Uniform Delay, d1	0.0		1.9	1.7		48.8
Progression Factor	1.00		1.27	0.17		1.00
Incremental Delay, d2	0.2		9.9	0.3		0.0
Delay (s)	0.2		12.3	0.6		48.9
Level of Service	A		B	A		D
Approach Delay (s/veh)	0.2			1.0	48.9	
Approach LOS	A			A	D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			0.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			108.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			65.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

2: 1st Ave & Grant Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	0	1656	191	0	1906	304	339	840	114	346	791	179
Future Volume (vph)	0	1656	191	0	1906	304	339	840	114	346	791	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.95	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		5159	1575		5173	1535	3499	3596	1570	3501	3581	1528
Flt Permitted		1.00	1.00		1.00	1.00	0.13	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)		5159	1575		5173	1535	492	3596	1570	459	3581	1528
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1690	195	0	1945	310	346	857	116	353	807	183
RTOR Reduction (vph)	0	0	103	0	0	142	0	0	61	0	0	61
Lane Group Flow (vph)	0	1690	92	0	1945	168	346	857	55	353	807	122
Confl. Peds. (#/hr)	38		13	13		38	42		16	16		42
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	2	0	0	2	0	0	4	0
Turn Type		NA	Perm		NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)		50.6	50.6		50.6	50.6	41.9	31.1	31.1	41.9	31.1	31.1
Effective Green, g (s)		50.6	50.6		50.6	50.6	43.9	31.1	31.1	43.9	31.1	31.1
Actuated g/C Ratio		0.47	0.47		0.47	0.47	0.41	0.29	0.29	0.41	0.29	0.29
Clearance Time (s)		6.5	6.5		6.5	6.5	5.0	4.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)		5.0	5.0		5.0	5.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)		2417	737		2423	719	528	1035	452	518	1031	440
v/s Ratio Prot		0.33			c0.38		0.07	c0.24		c0.07	0.23	
v/s Ratio Perm			0.06			0.11	0.19		0.03	0.20		0.08
v/c Ratio		0.70	0.13		0.80	0.23	0.66	0.83	0.12	0.68	0.78	0.28
Uniform Delay, d1		22.7	16.2		24.4	17.1	38.7	35.9	28.4	39.8	35.3	29.7
Progression Factor		1.00	1.00		0.86	1.59	1.00	1.00	1.00	0.62	0.74	0.69
Incremental Delay, d2		1.6	0.3		2.8	0.7	2.2	5.6	0.1	2.7	3.6	0.3
Delay (s)		24.3	16.5		23.8	28.0	40.9	41.5	28.5	27.2	29.7	20.8
Level of Service		C	B		C	C	D	D	C	C	C	C
Approach Delay (s/veh)		23.5			24.3			40.2			27.8	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		27.9			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		108.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		84.1%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Grant Rd & Tyndall Ave

11/12/2025



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	⇐		⇐⇐⇐	⇐⇐⇐			
Traffic Volume (vph)	0	123	2035	2058	0	0	0
Future Volume (vph)	0	123	2035	2058	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0			
Lane Util. Factor			0.91	0.91			
Frt			1.00	1.00			
Flt Protected			1.00	1.00			
Satd. Flow (prot)			5169	5187			
Flt Permitted			0.65	1.00			
Satd. Flow (perm)			3346	5187			
Peak-hour factor, PHF	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	129	2142	2166	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	2271	2166	0	0	0
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	0%
Turn Type	pm+pt	Perm	NA	NA			
Protected Phases	5		2	6			
Permitted Phases	2	2					
Actuated Green, G (s)			93.8	108.0			
Effective Green, g (s)			94.8	108.0			
Actuated g/C Ratio			0.88	1.00			
Clearance Time (s)			7.0	7.0			
Vehicle Extension (s)			3.0	3.0			
Lane Grp Cap (vph)			2937	5187			
v/s Ratio Prot				c0.42			
v/s Ratio Perm			c0.68				
v/c Ratio			0.91dl	0.42			
Uniform Delay, d1			2.5	0.0			
Progression Factor			2.59	1.00			
Incremental Delay, d2			1.7	0.2			
Delay (s)			8.2	0.2			
Level of Service			A	A			
Approach Delay (s/veh)			8.2	0.2		0.0	
Approach LOS			A	A		A	

Intersection Summary

HCM 2000 Control Delay (s/veh)	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: 1st Ave & Glenn St

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	184	51	102	217	91	43	1152	61	93	1063	68
Future Volume (vph)	67	184	51	102	217	91	43	1152	61	93	1063	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1827		1789	1799		1799	3546		1800	3539	
Flt Permitted	0.27	1.00		0.40	1.00		0.20	1.00		0.18	1.00	
Satd. Flow (perm)	516	1827		762	1799		374	3546		333	3539	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	69	190	53	105	224	94	44	1188	63	96	1096	70
RTOR Reduction (vph)	0	11	0	0	16	0	0	3	0	0	3	0
Lane Group Flow (vph)	69	232	0	105	302	0	44	1248	0	96	1163	0
Confl. Peds. (#/hr)	14		11	11		14	10		9	9		10
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	24.2	24.2		24.2	24.2		72.3	72.3		72.3	72.3	
Effective Green, g (s)	26.2	26.2		26.2	26.2		73.8	73.8		73.8	73.8	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.68	0.68		0.68	0.68	
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	125	443		184	436		255	2423		227	2418	
v/s Ratio Prot		0.13			c0.17			c0.35			0.33	
v/s Ratio Perm	0.13			0.14			0.12			0.29		
v/c Ratio	0.55	0.52		0.57	0.69		0.17	0.52		0.42	0.48	
Uniform Delay, d1	35.8	35.5		36.0	37.2		6.1	8.4		7.6	8.1	
Progression Factor	1.00	1.00		1.00	1.00		0.28	0.29		0.21	0.19	
Incremental Delay, d2	5.2	1.1		4.2	4.7		1.2	0.6		4.0	0.5	
Delay (s)	41.0	36.6		40.2	42.0		2.9	3.1		5.6	2.0	
Level of Service	D	D		D	D		A	A		A	A	
Approach Delay (s/veh)		37.6			41.5			3.1			2.3	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			11.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			108.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			86.0%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Future With-build PM

Synchro 12 Report
Page 4

HCM Signalized Intersection Capacity Analysis

8: 1st Ave & Fort Lowell Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	629	67	150	741	272	98	1115	114	215	1047	81
Future Volume (vph)	99	629	67	150	741	272	98	1115	114	215	1047	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1803	3513		1802	3574	1580	1804	3610	1568	1804	3581	1579
Flt Permitted	0.15	1.00		0.15	1.00	1.00	0.12	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	279	3513		279	3574	1580	226	3610	1568	182	3581	1579
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	100	635	68	152	748	275	99	1126	115	217	1058	82
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	100	695	0	152	748	275	99	1126	115	217	1058	82
Confl. Peds. (#/hr)	32		55	55		32	36		59	59		36
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		Free	6		Free	2		Free
Actuated Green, G (s)	33.3	26.2		33.3	26.2	108.0	56.7	43.5	108.0	56.7	43.5	108.0
Effective Green, g (s)	35.3	26.2		35.3	26.2	108.0	58.7	43.5	108.0	58.7	43.5	108.0
Actuated g/C Ratio	0.33	0.24		0.33	0.24	1.00	0.54	0.40	1.00	0.54	0.40	1.00
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	205	852		205	867	1580	330	1454	1568	312	1442	1579
v/s Ratio Prot	0.04	0.20		c0.06	c0.21		0.04	c0.31		c0.09	0.30	
v/s Ratio Perm	0.12			0.19		0.17	0.12		0.07	0.29		0.05
v/c Ratio	0.49	0.82		0.74	0.86	0.17	0.30	0.77	0.07	0.70	0.73	0.05
Uniform Delay, d1	42.6	38.6		42.7	39.2	0.0	31.6	28.0	0.0	35.5	27.3	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.55	0.64	1.00	0.77	0.34	1.00
Incremental Delay, d2	0.7	6.1		11.9	8.9	0.2	0.2	3.7	0.1	3.7	2.3	0.0
Delay (s)	43.2	44.7		54.6	48.0	0.2	17.4	21.5	0.1	30.9	11.6	0.0
Level of Service	D	D		D	D	A	B	C	A	C	B	A
Approach Delay (s/veh)		44.5			37.7			19.3			14.0	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		26.7										
HCM 2000 Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		84.3%										
Analysis Period (min)		15										
c Critical Lane Group												

Future With-build PM

Synchro 12 Report
Page 5

HCM Signalized Intersection Capacity Analysis

10: 1st Ave & Prince Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	478	160	73	496	180	151	1285	80	182	1188	78
Future Volume (vph)	123	478	160	73	496	180	151	1285	80	182	1188	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1804	3436		1804	3425		1787	3567	1580	1805	3567	1615
Flt Permitted	0.16	1.00		0.16	1.00		0.10	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	309	3436		309	3425		186	3567	1580	153	3567	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	126	488	163	74	506	184	154	1311	82	186	1212	80
RTOR Reduction (vph)	0	30	0	0	34	0	0	0	0	0	0	44
Lane Group Flow (vph)	126	621	0	74	656	0	154	1311	82	186	1212	36
Confl. Peds. (#/hr)	12		11	11		12			32	32		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	2	0	0	2	0	0	6	0	0	6	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		Free	2		2
Actuated Green, G (s)	30.2	23.6		30.2	23.6		59.8	48.7	108.0	59.8	48.7	48.7
Effective Green, g (s)	32.2	23.6		32.2	23.6		61.8	48.7	108.0	61.8	48.7	48.7
Actuated g/C Ratio	0.30	0.22		0.30	0.22		0.57	0.45	1.00	0.57	0.45	0.45
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	197	750		197	748		285	1608	1580	272	1608	728
v/s Ratio Prot	c0.04	0.18		0.03	c0.19		0.06	c0.37		c0.08	0.34	
v/s Ratio Perm	0.15			0.09			0.25		0.05	0.31		0.02
v/c Ratio	0.64	0.83		0.38	0.88		0.54	0.82	0.05	0.68	0.75	0.05
Uniform Delay, d1	43.9	40.3		42.5	40.8		33.9	25.7	0.0	36.8	24.7	16.7
Progression Factor	1.00	1.00		1.00	1.00		0.58	0.41	1.00	1.07	0.63	0.41
Incremental Delay, d2	4.9	7.5		0.4	11.3		0.9	3.7	0.0	3.7	2.2	0.1
Delay (s)	48.8	47.8		42.9	52.1		20.5	14.3	0.0	43.0	17.6	6.9
Level of Service	D	D		D	D		C	B	A	D	B	A
Approach Delay (s/veh)		48.0			51.2			14.2			20.3	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		28.1					HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		108.0					Sum of lost time (s)		16.0			
Intersection Capacity Utilization		85.5%					ICU Level of Service		E			
Analysis Period (min)		15										
c Critical Lane Group												

Future With-build PM

Synchro 12 Report

Page 6

HCM Signalized Intersection Capacity Analysis

12: 1st Ave & Roger Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	233	96	96	264	115	105	1328	52	99	1278	46
Future Volume (vph)	65	233	96	96	264	115	105	1328	52	99	1278	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0	6.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1799	1777		1804	1900	1562	1805	3534		1776	3586	
Flt Permitted	0.32	1.00		0.20	1.00	1.00	0.09	1.00		0.07	1.00	
Satd. Flow (perm)	608	1777		373	1900	1562	163	3534		136	3586	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	243	100	100	275	120	109	1383	54	103	1331	48
RTOR Reduction (vph)	0	14	0	0	0	88	0	2	0	0	2	0
Lane Group Flow (vph)	68	329	0	100	275	32	109	1435	0	103	1377	0
Confl. Peds. (#/hr)	15		7	7		15	7		25	25		7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	6	4	4	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	27.0	22.3		27.0	22.3	22.3	61.0	55.3		61.0	55.3	
Effective Green, g (s)	31.0	24.3		31.0	24.3	22.3	63.0	55.3		63.0	55.3	
Actuated g/C Ratio	0.29	0.23		0.29	0.23	0.21	0.58	0.51		0.58	0.51	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	5.0	4.0		5.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	248	399		195	427	322	196	1809		181	1836	
v/s Ratio Prot	0.02	c0.19		c0.03	0.14		0.03	c0.41		c0.04	0.38	
v/s Ratio Perm	0.06			0.12		0.02	0.29			0.30		
v/c Ratio	0.27	0.82		0.51	0.64	0.10	0.56	0.79		0.57	0.75	
Uniform Delay, d1	38.3	39.8		43.5	37.9	34.7	36.1	21.6		37.5	20.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.47	0.73		1.15	0.99	
Incremental Delay, d2	0.2	13.0		0.9	3.3	0.1	1.1	2.1		1.9	2.3	
Delay (s)	38.5	52.8		44.5	41.2	34.8	18.0	17.9		45.0	22.8	
Level of Service	D	D		D	D	C	B	B		D	C	
Approach Delay (s/veh)		50.4			40.4			17.9			24.4	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		26.6										
HCM 2000 Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		108.0										
Intersection Capacity Utilization		81.1%										
Analysis Period (min)		15										
c Critical Lane Group												

Future With-build PM

Synchro 12 Report
Page 7

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	67	107	96	119	167	216	74	1371	50	5	182	1277
Future Volume (vph)	67	107	96	119	167	216	74	1371	50	5	182	1277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95			1.00	0.95
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00			1.00	1.00
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.99			1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1791	1750		1799	1900	1578	1805	3555			1804	3584
Flt Permitted	0.50	1.00		0.42	1.00	1.00	0.12	1.00			0.10	1.00
Satd. Flow (perm)	939	1750		789	1900	1578	223	3555			181	3584
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.92	0.98	0.98
Adj. Flow (vph)	68	109	98	121	170	220	76	1399	51	5	186	1303
RTOR Reduction (vph)	0	33	0	0	0	163	0	2	0	0	0	2
Lane Group Flow (vph)	68	174	0	121	170	57	76	1448	0	0	191	1351
Confl. Peds. (#/hr)	8		4	4		8	8		13		13	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	pm+pt	NA
Protected Phases		8			4		1	6		5	5	2
Permitted Phases	8			4		4	6			2	2	
Actuated Green, G (s)	19.0	19.0		19.0	19.0	19.0	73.5	61.8			73.5	61.8
Effective Green, g (s)	21.5	21.5		21.5	21.5	21.5	75.5	61.8			75.5	61.8
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.20	0.70	0.57			0.70	0.57
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	5.0	4.0			5.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	5.0			2.0	5.0
Lane Grp Cap (vph)	186	348		157	378	314	341	2034			317	2050
v/s Ratio Prot		0.10			0.09		0.03	c0.41			c0.07	0.38
v/s Ratio Perm	0.07			c0.15		0.04	0.13				0.35	
v/c Ratio	0.37	0.50		0.77	0.45	0.18	0.22	0.71			0.60	0.66
Uniform Delay, d1	37.4	38.5		40.9	38.0	35.9	19.9	16.7			28.4	15.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.99	0.98			0.46	1.34
Incremental Delay, d2	1.2	1.1		20.5	0.9	0.3	0.1	1.6			1.9	1.4
Delay (s)	38.6	39.6		61.4	38.9	36.2	39.8	18.0			15.0	22.7
Level of Service	D	D		E	D	D	D	B			B	C
Approach Delay (s/veh)		39.4			43.1			19.1				21.8
Approach LOS		D			D			B				C
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.8									
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			108.0									
Intersection Capacity Utilization			86.9%									
Analysis Period (min)			15									
c Critical Lane Group												

Future With-build PM

Synchro 12 Report

Page 8

HCM Signalized Intersection Capacity Analysis

13: 1st Ave & Limberlost Dr

11/12/2025

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	49
Future Volume (vph)	49
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	50
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Heavy Vehicles (%)	0%
Bus Blockages (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	356	80	475	61	80	34	327	1145	79	30	37	1008
Future Volume (vph)	356	80	475	61	80	34	327	1145	79	30	37	1008
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.5	4.0		5.0	4.5			5.0	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95			1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99			1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1791	1900	1551	1786	1798		3502	3552			1788	3567
Flt Permitted	0.50	1.00	1.00	0.67	1.00		0.95	1.00			0.10	1.00
Satd. Flow (perm)	946	1900	1551	1250	1798		3502	3552			187	3567
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.92	0.97	0.97
Adj. Flow (vph)	367	82	490	63	82	35	337	1180	81	33	38	1039
RTOR Reduction (vph)	0	0	0	0	16	0	0	4	0	0	0	0
Lane Group Flow (vph)	367	82	490	63	101	0	337	1257	0	0	71	1039
Confl. Peds. (#/hr)	14		13	13		14	19		8		8	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	2	0	0	0	6
Turn Type	pm+pt	NA	Free	pm+pt	NA		Prot	NA		pm+pt	pm+pt	NA
Protected Phases	3	8		7	4		1	6		5	5	2
Permitted Phases	8		Free	4						2	2	
Actuated Green, G (s)	29.5	9.1	108.0	35.5	12.1		15.7	48.2			46.1	39.3
Effective Green, g (s)	31.5	9.1	108.0	37.5	12.1		16.7	48.7			48.1	39.8
Actuated g/C Ratio	0.29	0.08	1.00	0.35	0.11		0.15	0.45			0.45	0.37
Clearance Time (s)	5.5	4.0		5.5	4.0		6.0	5.0			6.0	5.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	5.0			2.0	5.0
Lane Grp Cap (vph)	443	160	1551	555	201		541	1601			198	1314
v/s Ratio Prot	c0.16	0.04		0.03	0.06		c0.10	c0.35			0.03	0.29
v/s Ratio Perm	c0.08		c0.32	0.01							0.13	
v/c Ratio	0.83	0.51	0.32	0.11	0.50		0.62	0.78			0.36	0.79
Uniform Delay, d1	36.1	47.3	0.0	24.7	45.1		42.7	25.2			41.5	30.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.74	0.73			1.00	1.00
Incremental Delay, d2	11.5	2.8	0.5	0.0	2.0		1.3	3.2			0.4	4.9
Delay (s)	47.7	50.1	0.5	24.7	47.1		33.0	21.5			41.9	35.3
Level of Service	D	D	A	C	D		C	C			D	D
Approach Delay (s/veh)		23.3			39.3			23.9				28.7
Approach LOS		C			D			C				C
Intersection Summary												
HCM 2000 Control Delay (s/veh)			26.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			108.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			75.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: 1st Ave & Wetmore Rd

11/12/2025

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	264
Future Volume (vph)	264
Ideal Flow (vphpl)	1900
Total Lost time (s)	3.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1587
Flt Permitted	1.00
Satd. Flow (perm)	1587
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	272
RTOR Reduction (vph)	0
Lane Group Flow (vph)	272
Confl. Peds. (#/hr)	19
Heavy Vehicles (%)	0%
Bus Blockages (#/hr)	0
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	108.0
Effective Green, g (s)	108.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1587
v/s Ratio Prot	
v/s Ratio Perm	0.17
v/c Ratio	0.17
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

17: 1st Ave & River Rd

11/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	779	254	357	1007	612	314	890	326	335	651	123
Future Volume (vph)	161	779	254	357	1007	612	314	890	326	335	651	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	3.5	3.5	8.0	3.5	5.5	8.0	3.5	3.5	8.0	3.5	3.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3610	1583	3502	3610	1600	3502	3610	1585	3502	3610	1615
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3610	1583	3502	3610	1600	3502	3610	1585	3502	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	169	820	267	376	1060	644	331	937	343	353	685	129
RTOR Reduction (vph)	0	0	195	0	0	49	0	0	134	0	0	95
Lane Group Flow (vph)	169	820	72	376	1060	595	331	937	209	353	685	34
Confl. Peds. (#/hr)	2		6	6		2			6	6		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	8.8	35.4	35.4	16.2	42.8	64.6	26.5	38.6	38.6	21.8	33.9	33.9
Effective Green, g (s)	9.8	38.9	38.9	17.2	46.3	71.6	27.5	42.1	42.1	22.8	37.4	37.4
Actuated g/C Ratio	0.07	0.27	0.27	0.12	0.32	0.50	0.19	0.29	0.29	0.16	0.26	0.26
Clearance Time (s)	9.0	7.0	7.0	9.0	7.0	9.0	9.0	7.0	7.0	9.0	7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0
Lane Grp Cap (vph)	238	975	427	418	1160	856	668	1055	463	554	937	419
v/s Ratio Prot	0.05	0.23		c0.11	c0.29	c0.12	0.09	c0.26		0.10	0.19	
v/s Ratio Perm			0.05			0.25			0.13			0.02
v/c Ratio	0.71	0.84	0.17	0.90	0.91	0.69	0.50	0.89	0.45	0.64	0.73	0.08
Uniform Delay, d1	65.7	49.6	40.2	62.5	46.9	27.8	52.1	48.7	41.5	56.7	48.7	40.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	8.7	0.9	21.1	12.5	2.0	0.2	9.2	0.7	1.8	3.0	0.1
Delay (s)	73.7	58.3	41.0	83.6	59.4	29.8	52.3	57.9	42.2	58.5	51.7	40.4
Level of Service	E	E	D	F	E	C	D	E	D	E	D	D
Approach Delay (s/veh)		56.7			54.6			53.4			52.5	
Approach LOS		E			D			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			54.3				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			144.0				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			92.1%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

1: Los Altos Ave & Grant Rd

11/12/2025

	→	↙	←	↘
Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	2194	54	1536	10
v/c Ratio	0.42	0.41	0.32	0.04
Control Delay (s/veh)	0.3	13.4	0.6	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.3	13.4	0.6	0.3
Queue Length 50th (ft)	0	1	0	0
Queue Length 95th (ft)	0	m39	35	0
Internal Link Dist (ft)	3790		516	
Turn Bay Length (ft)		250		
Base Capacity (vph)	5187	133	4788	355
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	93	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.41	0.32	0.03
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

Queues

2: 1st Ave & Grant Rd

11/12/2025

										
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	2067	201	1340	257	115	562	48	308	820	147
v/c Ratio	0.76	0.22	0.49	0.27	0.34	0.55	0.09	0.63	0.81	0.27
Control Delay (s/veh)	23.1	4.5	11.9	5.3	31.3	34.7	1.7	22.1	31.4	4.6
Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.3	4.5	11.9	5.3	31.3	34.7	1.7	22.1	31.4	4.6
Queue Length 50th (ft)	394	1	152	6	25	172	0	34	137	0
Queue Length 95th (ft)	496	53	47	69	41	218	8	44	227	23
Internal Link Dist (ft)	516		759			2409			2627	
Turn Bay Length (ft)		250		250	200		250	200		250
Base Capacity (vph)	2709	911	2716	941	651	1132	555	805	1127	592
Starvation Cap Reductn	129	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.22	0.49	0.27	0.18	0.50	0.09	0.38	0.73	0.25
Intersection Summary										

Queues

3: Grant Rd & Tyndall Ave

11/12/2025



Lane Group	EBU	EBT	WBT
Lane Group Flow (vph)	132	2299	1456
v/c Ratio	0.26	0.51	0.37
Control Delay (s/veh)	3.9	1.1	3.8
Queue Delay	0.0	0.0	0.1
Total Delay (s/veh)	3.9	1.1	3.8
Queue Length 50th (ft)	4	11	66
Queue Length 95th (ft)	m19	52	93
Internal Link Dist (ft)		759	410
Turn Bay Length (ft)	250		
Base Capacity (vph)	748	4502	4046
Starvation Cap Reductn	0	0	850
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.18	0.51	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: 1st Ave & Glenn St

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	193	113	214	28	814	59	1157
v/c Ratio	0.48	0.55	0.76	0.61	0.09	0.31	0.13	0.44
Control Delay (s/veh)	50.1	42.6	71.6	42.5	2.5	2.1	2.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	50.1	42.6	71.6	42.5	2.5	2.1	2.3	2.0
Queue Length 50th (ft)	40	117	76	123	1	12	2	26
Queue Length 95th (ft)	77	170	129	181	m4	36	m3	27
Internal Link Dist (ft)		1615		879		2627		1219
Turn Bay Length (ft)	115		300		105		115	
Base Capacity (vph)	236	622	268	612	301	2635	455	2637
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.31	0.42	0.35	0.09	0.31	0.13	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: 1st Ave & Fort Lowell Rd

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	91	682	146	575	219	58	782	110	286	1054	66
v/c Ratio	0.40	0.85	0.72	0.71	0.14	0.17	0.51	0.07	0.67	0.70	0.04
Control Delay (s/veh)	37.7	51.0	59.9	43.9	0.2	10.3	15.8	0.1	26.0	12.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.7	51.0	59.9	43.9	0.2	10.3	15.8	0.1	26.0	12.1	0.0
Queue Length 50th (ft)	41	227	68	186	0	11	118	0	108	163	0
Queue Length 95th (ft)	83	#347	#142	261	0	24	159	0	m166	157	m0
Internal Link Dist (ft)		964		571			1201			892	
Turn Bay Length (ft)	150		300		230	300		185	300		155
Base Capacity (vph)	241	815	217	826	1594	422	1519	1574	511	1507	1555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.84	0.67	0.70	0.14	0.14	0.51	0.07	0.56	0.70	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

10: 1st Ave & Prince Rd

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	94	647	71	528	113	816	80	231	1170	110
v/c Ratio	0.45	0.83	0.42	0.67	0.39	0.46	0.05	0.56	0.66	0.13
Control Delay (s/veh)	40.2	48.9	42.3	39.2	14.0	9.9	0.1	24.9	17.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.2	48.9	42.3	39.2	14.0	9.9	0.1	24.9	17.3	1.7
Queue Length 50th (ft)	46	212	34	154	12	74	0	87	454	14
Queue Length 95th (ft)	85	#315	68	221	56	89	0	124	495	m12
Internal Link Dist (ft)		973		2614		1618			2566	
Turn Bay Length (ft)	300		300		215		150	165		175
Base Capacity (vph)	250	795	213	801	384	1767	1588	503	1767	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.81	0.33	0.66	0.29	0.46	0.05	0.46	0.66	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: 1st Ave & Roger Rd

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	280	52	133	75	39	931	152	1317
v/c Ratio	0.15	0.73	0.24	0.34	0.19	0.18	0.48	0.44	0.66
Control Delay (s/veh)	27.2	49.5	31.4	38.1	3.6	9.1	14.8	23.7	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.2	49.5	31.4	38.1	3.6	9.1	14.8	23.7	22.9
Queue Length 50th (ft)	25	172	25	78	0	9	191	66	373
Queue Length 95th (ft)	52	257	52	131	17	m10	201	89	565
Internal Link Dist (ft)		1621		1856			2566		206
Turn Bay Length (ft)	300		300		110	300		300	
Base Capacity (vph)	354	433	225	447	429	279	1937	404	1987
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.65	0.23	0.30	0.17	0.14	0.48	0.38	0.66

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

13: 1st Ave & Limberlost Dr

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	44	133	72	79	134	34	985	185	1457
v/c Ratio	0.24	0.47	0.52	0.29	0.40	0.11	0.42	0.40	0.61
Control Delay (s/veh)	43.2	32.7	55.6	43.4	10.4	8.8	9.0	7.7	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.2	32.7	55.6	43.4	10.4	8.8	9.0	7.7	21.4
Queue Length 50th (ft)	28	56	47	50	0	8	184	25	314
Queue Length 95th (ft)	59	111	91	91	52	m21	346	m34	455
Internal Link Dist (ft)		1216		979			656		242
Turn Bay Length (ft)	300		110		300	300		150	
Base Capacity (vph)	350	501	265	510	521	422	2355	578	2384
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.27	0.27	0.15	0.26	0.08	0.42	0.32	0.61

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: 1st Ave & Wetmore Rd

11/12/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	269	38	257	131	113	264	863	43	1205	188
v/c Ratio	0.75	0.22	0.17	0.25	0.52	0.60	0.50	0.12	0.78	0.12
Control Delay (s/veh)	51.9	48.7	0.2	28.5	42.5	43.9	10.3	14.1	32.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.9	48.7	0.2	28.5	42.5	43.9	10.3	14.1	32.1	0.2
Queue Length 50th (ft)	159	25	0	71	57	95	71	10	340	0
Queue Length 95th (ft)	201	58	0	102	110	138	120	32	#617	0
Internal Link Dist (ft)		527			621		404		317	
Turn Bay Length (ft)	300			125		270		100		280
Base Capacity (vph)	357	510	1538	515	398	616	1764	388	1546	1578
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.07	0.17	0.25	0.28	0.43	0.49	0.11	0.78	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

17: 1st Ave & River Rd

11/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	99	811	314	325	844	479	206	653	240	444	767	120
v/c Ratio	0.32	0.72	0.46	0.81	0.69	0.56	0.45	0.72	0.45	0.78	0.75	0.21
Control Delay (s/veh)	65.6	49.6	8.8	78.7	45.4	19.8	61.3	54.0	13.9	67.5	51.5	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.6	49.6	8.8	78.7	45.4	19.8	61.3	54.0	13.9	67.5	51.5	2.1
Queue Length 50th (ft)	45	376	21	155	380	221	89	296	42	200	344	0
Queue Length 95th (ft)	78	458	105	#220	446	339	139	345	114	#288	391	14
Internal Link Dist (ft)	1487			1907			1101			5430		
Turn Bay Length (ft)	225		310	225		500	200		200	350		300
Base Capacity (vph)	305	1127	690	413	1239	865	458	1065	598	590	1240	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.72	0.46	0.79	0.68	0.55	0.45	0.61	0.40	0.75	0.62	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

1: Los Altos Ave & Grant Rd

11/12/2025



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	2002	90	2273	11
v/c Ratio	0.39	0.54	0.47	0.04
Control Delay (s/veh)	0.2	17.5	0.5	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.2	17.5	0.6	0.3
Queue Length 50th (ft)	0	2	0	0
Queue Length 95th (ft)	0	m23	39	0
Internal Link Dist (ft)	3790		516	
Turn Bay Length (ft)		250		
Base Capacity (vph)	5187	166	4788	368
Starvation Cap Reductn	0	0	238	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.54	0.50	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: 1st Ave & Grant Rd

11/12/2025

	→	↘	←	↖	↙	↑	↗	↘	↓	↖
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1690	195	1945	310	346	857	116	353	807	183
v/c Ratio	0.70	0.23	0.80	0.36	0.66	0.83	0.23	0.69	0.78	0.37
Control Delay (s/veh)	25.5	3.7	24.8	7.6	42.4	43.5	10.5	29.3	31.4	12.5
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.6	3.7	24.8	7.6	42.4	43.5	10.5	29.3	31.4	12.5
Queue Length 50th (ft)	335	1	242	1	74	287	15	58	175	28
Queue Length 95th (ft)	433	44	353	87	94	355	56	106	237	64
Internal Link Dist (ft)	516		759			2409			2627	
Turn Bay Length (ft)		250		250	200		250	200		250
Base Capacity (vph)	2417	840	2424	861	658	1132	553	650	1127	539
Starvation Cap Reductn	96	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.23	0.80	0.36	0.53	0.76	0.21	0.54	0.72	0.34
Intersection Summary										

Queues

3: Grant Rd & Tyndall Ave

11/12/2025



Lane Group	EBT	WBT
Lane Group Flow (vph)	2271	2166
v/c Ratio	0.91dl	0.42
Control Delay (s/veh)	8.7	0.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	8.8	0.2
Queue Length 50th (ft)	214	0
Queue Length 95th (ft)	131	0
Internal Link Dist (ft)	759	410
Turn Bay Length (ft)		
Base Capacity (vph)	3188	5187
Starvation Cap Reductn	0	0
Spillback Cap Reductn	69	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.73	0.42

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues

6: 1st Ave & Glenn St

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	69	243	105	318	44	1251	96	1166
v/c Ratio	0.55	0.54	0.57	0.70	0.17	0.52	0.42	0.48
Control Delay (s/veh)	51.1	36.8	47.0	42.7	3.6	3.4	6.5	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.1	36.8	47.0	42.7	3.6	3.4	6.5	2.2
Queue Length 50th (ft)	42	138	64	189	2	31	4	24
Queue Length 95th (ft)	83	194	111	255	m7	80	m10	52
Internal Link Dist (ft)		1615		879		2627		1219
Turn Bay Length (ft)	115		300		105		115	
Base Capacity (vph)	172	618	253	614	256	2425	226	2422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.39	0.42	0.52	0.17	0.52	0.42	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

8: 1st Ave & Fort Lowell Rd

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	100	703	152	748	275	99	1126	115	217	1058	82
v/c Ratio	0.50	0.82	0.76	0.86	0.17	0.30	0.77	0.07	0.70	0.73	0.05
Control Delay (s/veh)	44.7	47.5	63.5	51.1	0.2	13.8	22.2	0.1	34.6	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	44.7	47.5	63.5	51.1	0.2	13.8	22.2	0.1	34.6	12.0	0.0
Queue Length 50th (ft)	45	234	71	256	0	15	186	0	110	75	0
Queue Length 95th (ft)	89	#365	#155	#400	0	44	275	0	m164	205	m0
Internal Link Dist (ft)		964		571			1201			892	
Turn Bay Length (ft)	150		300		230	300		185	300		155
Base Capacity (vph)	217	860	216	867	1580	407	1454	1568	390	1442	1579
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.82	0.70	0.86	0.17	0.24	0.77	0.07	0.56	0.73	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

10: 1st Ave & Prince Rd

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	126	651	74	690	154	1311	82	186	1212	80
v/c Ratio	0.65	0.83	0.38	0.88	0.54	0.82	0.05	0.69	0.75	0.10
Control Delay (s/veh)	55.2	48.7	40.4	52.5	22.2	15.4	0.1	44.8	18.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.2	48.7	40.4	52.5	22.2	15.4	0.1	44.8	18.5	0.8
Queue Length 50th (ft)	60	210	34	224	47	141	0	104	476	3
Queue Length 95th (ft)	111	#323	71	#352	m96	#170	m0	m142	490	m4
Internal Link Dist (ft)		973		2614		1618			2566	
Turn Bay Length (ft)	300		300		215		150	165		175
Base Capacity (vph)	217	781	217	783	348	1607	1580	335	1607	788
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.83	0.34	0.88	0.44	0.82	0.05	0.56	0.75	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: 1st Ave & Roger Rd

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	343	100	275	120	109	1437	103	1379
v/c Ratio	0.27	0.83	0.50	0.64	0.29	0.56	0.79	0.57	0.75
Control Delay (s/veh)	30.7	55.3	44.1	45.2	9.9	19.3	18.7	44.4	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.7	55.3	44.1	45.2	9.9	19.3	18.7	44.4	23.8
Queue Length 50th (ft)	32	212	48	170	5	14	227	42	539
Queue Length 95th (ft)	64	#347	88	258	52	m22	292	m81	610
Internal Link Dist (ft)		1621		1856			2566		206
Turn Bay Length (ft)	300		300		110	300		300	
Base Capacity (vph)	258	441	203	457	433	202	1810	186	1837
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.78	0.49	0.60	0.28	0.54	0.79	0.55	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

13: 1st Ave & Limberlost Dr

11/12/2025



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	207	121	170	220	76	1450	191	1353
v/c Ratio	0.36	0.54	0.77	0.45	0.46	0.22	0.71	0.61	0.66
Control Delay (s/veh)	40.8	35.1	70.0	40.4	9.2	23.1	20.3	18.9	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.8	35.1	70.0	40.4	9.2	23.1	20.3	18.9	25.5
Queue Length 50th (ft)	41	103	80	104	10	18	527	30	303
Queue Length 95th (ft)	77	164	139	156	67	m41	623	m68	432
Internal Link Dist (ft)		1216		979			656		242
Turn Bay Length (ft)	300		110		300	300		150	
Base Capacity (vph)	252	499	211	510	572	394	2036	370	2051
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.41	0.57	0.33	0.38	0.19	0.71	0.52	0.66

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

15: 1st Ave & Wetmore Rd

11/12/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	367	82	490	63	117	337	1261	71	1039	272
v/c Ratio	0.88	0.42	0.32	0.12	0.54	0.67	0.76	0.33	0.75	0.17
Control Delay (s/veh)	60.2	52.1	0.5	24.4	47.0	37.9	21.6	28.1	34.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	60.2	52.1	0.5	24.4	47.0	37.9	21.6	28.1	34.4	0.2
Queue Length 50th (ft)	210	55	0	30	66	117	132	21	322	0
Queue Length 95th (ft)	#326	101	0	57	120	137	#463	45	#487	0
Internal Link Dist (ft)		527			621		404		317	
Turn Bay Length (ft)	300			125		270		100		280
Base Capacity (vph)	418	510	1551	520	396	616	1670	253	1379	1587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.16	0.32	0.12	0.30	0.55	0.76	0.28	0.75	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

17: 1st Ave & River Rd

11/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	169	820	267	376	1060	644	331	937	343	353	685	129
v/c Ratio	0.71	0.84	0.43	0.90	0.91	0.78	0.50	0.89	0.57	0.64	0.73	0.24
Control Delay (s/veh)	82.3	58.6	6.7	86.8	59.4	31.8	56.6	60.0	22.8	62.9	53.2	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	82.3	58.6	6.7	86.8	59.4	31.8	56.6	60.0	22.8	62.9	53.2	2.9
Queue Length 50th (ft)	81	382	0	182	502	394	144	441	120	162	311	0
Queue Length 95th (ft)	#126	464	69	#276	#626	556	209	#534	227	218	354	22
Internal Link Dist (ft)	1487				1907				1101			
Turn Bay Length (ft)	225		310	225		500	200		200	350		300
Base Capacity (vph)	243	990	627	419	1165	824	666	1065	601	554	1240	664
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.83	0.43	0.90	0.91	0.78	0.50	0.88	0.57	0.64	0.55	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



Appendix H Synchro and Vissim LOS Comparison

Delay and Level of Service																												
Intersection			EBL		EBT		EBR		WBL		WBT		WBR		NBL		NBT		NBR		SBL		SBT		SBR		Intersection	
		MOE	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
6: 1st Ave & Glenn St	Synchro	Delay	42.3	41.0	41.7	36.6	--	--	62.4	40.2	43.2	42.0	--	--	1.9	2.9	1.9	3.1	--	--	1.7	5.6	1.8	2.0	--	--	11.6	11.0
		LOS	D	D	D	D	--	--	E	D	D	D	--	--	A	A	A	A	--	--	A	A	A	A	--	--	B	B
	Vissim	Delay	42.0	41.2	36.1	33.6	22.2	25.5	43.1	43.0	39.7	37.2	26.5	32.3	19.1	22.9	5.9	8.6	5.8	7.0	18.7	31.8	11.6	5.9	11.1	5.7	15.2	14.5
		LOS	D	D	D	C	C	C	D	D	D	D	C	C	B	C	A	A	A	A	B	C	B	A	B	A	B	B
8: 1st Ave & Fort Lowell Rd	Synchro	Delay	40.1	43.2	48.4	44.7	--	--	51.7	54.6	41.3	48.0	0.2	0.2	16.5	17.4	15.0	21.5	0.1	0.1	24.3	30.9	11.5	11.6	0.0	0.0	24.5	26.7
		LOS	D	D	D	D	--	--	D	D	D	D	A	A	B	B	B	C	A	A	C	C	B	B	A	A	C	C
	Vissim	Delay	33.5	84.5	31.0	45.3	25.5	40.2	40.6	82.3	29.9	43.0	6.2	11.8	33.8	32.4	30.6	25.5	5.1	6.8	42.6	48.1	39.3	24.5	7.9	8.1	31.6	33.7
		LOS	C	F	C	D	C	D	D	F	C	D	A	B	C	C	C	C	A	A	D	D	D	C	A	A	C	C
10: 1st Ave & Prince Rd	Synchro	Delay	42.0	48.8	47.4	47.8	--	--	45.0	42.9	40.4	52.1	--	--	15.5	20.5	9.4	14.3	0.1	0.0	26.9	43.0	16.5	17.6	6.0	6.9	24.6	28.1
		LOS	D	D	D	D	--	--	D	D	D	D	--	--	B	C	A	B	A	A	C	D	B	B	A	A	C	C
	Vissim	Delay	48.3	70.8	38.1	45.3	34.1	39.9	44.4	51.9	34.9	45.5	29.1	41.6	34.1	37.3	17.7	25.4	2.9	6.3	24.8	45.8	14.4	16.7	5.8	7.3	23.8	31.1
		LOS	D	E	D	D	C	D	D	D	C	D	C	D	C	D	B	C	A	A	C	D	B	B	A	A	C	C
12: 1st Ave & Roger Rd	Synchro	Delay	33.3	38.5	47.0	52.8	--	--	41.3	44.5	37.1	41.2	36.0	34.8	15.0	18.0	14.1	17.9	--	--	28.8	45.0	21.7	22.8	--	--	23.5	26.6
		LOS	C	D	D	D	--	--	D	D	D	D	D	C	B	B	B	B	--	--	C	D	C	C	--	--	C	C
	Vissim	Delay	40.2	47.5	42.6	46.8	33.1	37.1	42.6	47.2	43.8	44.4	9.0	17.4	20.4	31.3	7.0	21.2	7.3	20.0	24.8	49.2	13.3	22.8	10.9	22.4	16.6	27.4
		LOS	D	D	D	D	C	D	D	D	D	D	A	B	C	C	A	C	A	C	C	D	B	C	B	C	B	C
13: 1st Ave & Limberlost Dr	Synchro	Delay	41.9	38.6	43.1	39.6	--	--	46.1	61.4	42.1	38.9	40.4	36.2	24.2	39.8	8.3	18.0	--	--	9.5	15.0	19.5	22.7	--	--	18.8	24.8
		LOS	D	D	D	D	0	0	D	E	D	D	D	D	C	D	A	B	--	--	A	B	B	C	--	--	B	C
	Vissim	Delay	47.8	48.4	41.5	40.4	24.0	29.2	46.0	51.6	40.0	36.8	11.3	17.4	24.3	26.9	12.2	15.5	11.4	17.2	42.3	59.3	20.0	24.6	20.0	22.5	20.4	24.8
		LOS	D	D	D	D	C	C	D	D	D	D	B	B	C	C	B	B	B	B	D	E	C	C	C	C	C	C
15: 1st Ave & Wetmore Rd	Synchro	Delay	41.1	47.7	51.3	50.1	0.2	0.5	27.1	24.7	47.0	47.1	--	--	36.9	33.0	10.5	21.5	--	--	24.6	41.9	36.4	35.3	0.0	0.0	25.4	26.1
		LOS	D	D	D	D	A	A	C	C	D	D	--	--	D	C	B	C	--	--	C	D	D	D	0	0	C	C
	Vissim	Delay	49.6	80.2	45.5	52.8	8.6	23.5	40.8	40.0	49.4	45.9	24.5	24.1	36.1	39.4	7.2	18.1	6.4	18.4	40.1	60.9	40.5	44.9	10.5	13.1	28.1	34.8
		LOS	D	F	D	D	A	C	D	D	D	D	C	C	D	D	A	B	A	B	D	E	D	D	B	B	C	C
17: 1st Ave & River Rd	Synchro	Delay	61.9	73.7	48.0	58.3	38.0	41.0	73.4	83.6	44.3	59.4	22.3	29.8	58.2	52.3	52.4	57.9	43.6	42.2	63.6	58.5	49.9	51.7	37.8	40.4	48.4	54.3
		LOS	E	E	D	E	D	D	E	F	D	E	C	C	E	D	D	E	D	D	E	E	D	D	D	D	D	D
	Vissim	Delay	65.9	76.8	46.4	52.1	13.4	13.0	71.6	78.4	40.2	57.3	10.0	29.3	58.9	67.7	56.4	70.3	16.6	30.2	61.8	73.0	55.0	55.4	4.7	6.2	44.1	54.2
		LOS	E	E	D	D	B	B	E	E	D	E	B	C	E	E	E	E	B	C	E	E	E	E	A	A	D	D