



Evaluation of Alternatives Report

US 287/120th Avenue Multimodal and Safety Study

Broomfield, CO
COT01 - 24810 | June 16, 2023



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Evaluation of Alternatives Report

US 287/120th Avenue Multimodal and Safety Study

Prepared for Colorado Department of Transportation – Region 1 in partnership with City and County of Broomfield

Introduction

The US 287/120th Avenue corridor is vital to the Colorado Department of Transportation (CDOT) and the City and County of Broomfield (City). This corridor serves as one of the main multimodal commuter thoroughfares for the City in addition to connecting surrounding neighborhoods. Additionally, it provides access to important commercial areas, employment centers, major regional corridors, and local government services. Forecasted growth for the greater area surrounding US 287/120th Ave will exacerbate the need for improvements along the corridor to provide adequate multimodal connectivity, mobility, and safety. The objective for the *US 287/120th Avenue Multimodal and Safety Study* is to build upon previous City, CDOT, and Regional Transportation District (RTD) studies and improvement efforts to develop a comprehensive plan that protects traffic operations, expands multimodal facilities, and increases safety for all users while not precluding economic development throughout the corridor.

The study area runs along the length of US 287/ 120th Avenue from Lowell Boulevard to Midway Boulevard. In the study area, US 287 travels from Lowell Boulevard to Upham Street in an east-west direction. The corridor then turns at an angle from Upham Street to Nickel Street. Finally continuing in a north-south direction from Nickel Street to Midway Boulevard. The study area is depicted in **Figure 1**.

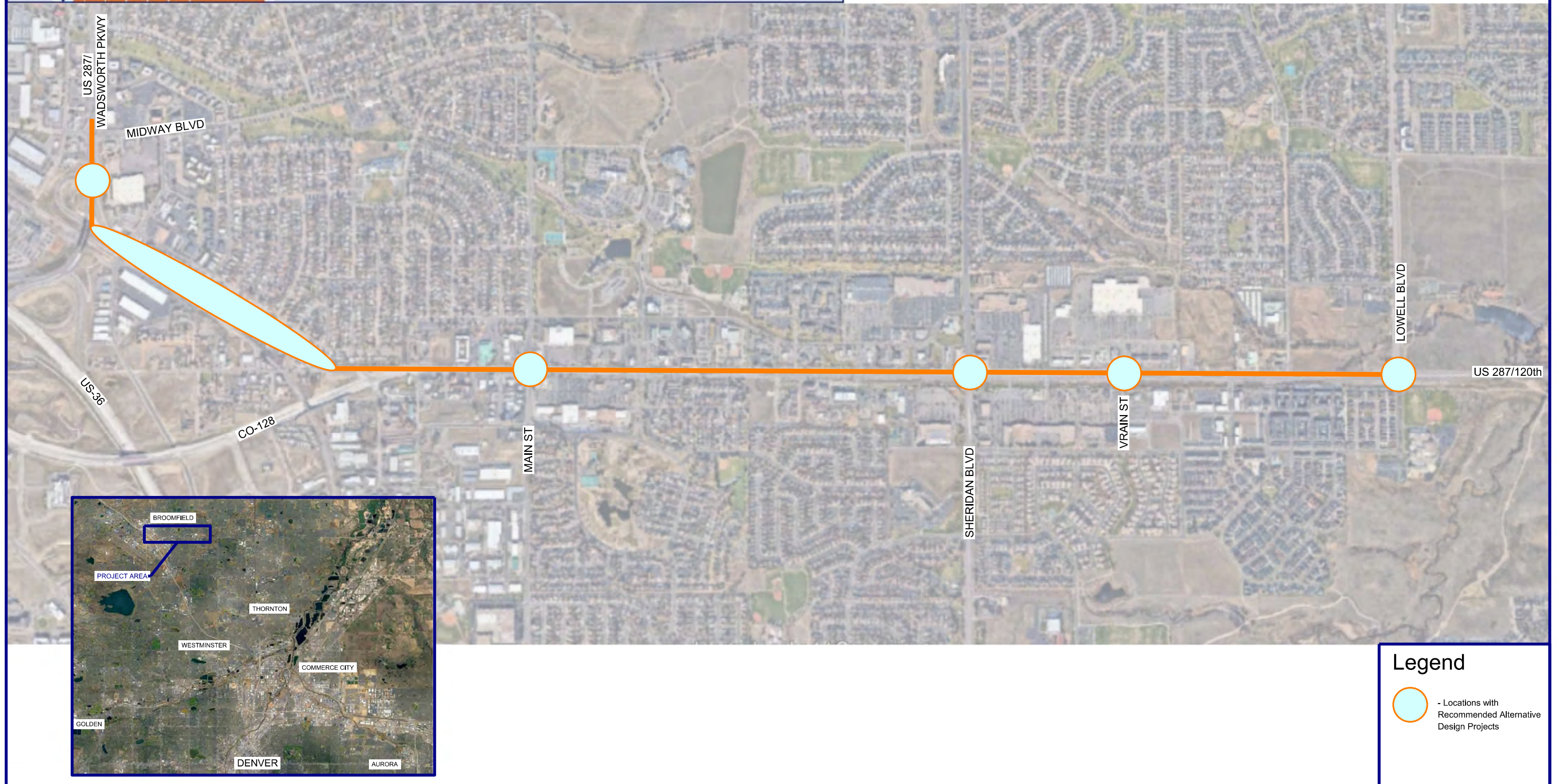
This *Evaluation of Alternatives Report* is a supporting document to the overall *US 287/120th Avenue Multimodal and Safety Study*. It includes further analysis on optimal ways to address issues identified in the *Existing Conditions and 2050 Baseline Analysis Report* and then recommends design projects which have been identified as resolving or alleviating multiple concerns present in existing conditions. The information contained in this report will also provide a basis for identifying preferred methods of meeting future demands.

Building on the findings from the evaluation of alternatives, along with stakeholder and public input, the next steps for the *US 287/120th Avenue Multimodal and Safety Study* will be developing the *Final Recommendations Report*.

US 287/120th Ave

MULTIMODAL STUDY

Figure 1: STUDY AREA



US 287/120th Ave

MULTIMODAL STUDY

Study Area

The study area, shown in **Figure 1**, focuses on the 3.3 mile section of US 287/120th Ave between Midway Boulevard to the northwest and Lowell Boulevard to the east. The corridor is classified as a Non-Rural Principal Highway (NR-A) by CDOT. Between the intersections of Upham Street and Lowell Boulevard, US 287 is also known as CO 128 and 120th Avenue. This stretch of roadway shall be referred to as US 287 and/or 120th Avenue interchangeably throughout this Report. US 287/120th Avenue mainly runs east-west between Upham Street and Lowell Boulevard.

West of Upham Street, the main roadway becomes CO 128 and travels across US 36 to connect with Interlocken Loop. US 287 branches off heading northwest on a diagonal to the interchange with Wadsworth Parkway, then continues north-south to and beyond the study area boundary at Midway Boulevard. Following analysis detailed within this report, the overall corridor was studied and specific design project alternatives were developed for the following six locations:

- The intersection of 120th Avenue & Lowell Boulevard.
- The intersection of 120th Avenue & Vrain Street.
- The intersection of 120th Avenue & Sheridan Boulevard.
- The intersection of 120th Avenue & Main Street.
- US 287 between Upham Street and Nickel Street.
- The Slip ramp of US 287 and Wadsworth Parkway.

In addition to these specific project recommendations, this report highlights aspects of the desired ultimate design distribution for this corridor, including features such as widening and more connection multiuse paths and more developed bus transit facilities.

Intersections

Lowell Boulevard

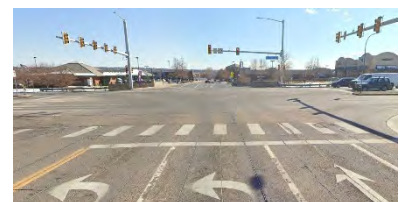
Lowell Boulevard is a four-lane north-south Major Arterial in the vicinity of its intersection with US 287. Regionally, Lowell Boulevard runs south from SH 7 and terminates just south of the intersection area at 118th Place. It serves multiple residential areas within Broomfield. This intersection was identified for multiple safety concerns for pedestrians and transit stop weaving conditions, as well as for major congestion.



Lowell Blvd and US 287/120th Ave

Vrain Street

Vrain Street is a two-lane north-south Local Street that extends from the Walmart parking lot at W 121st Avenue to the north and W 118th Place to the south. Vrain Street serves as a connection to the commercial areas one block north and south of US 287, including Walmart, Whole Foods Market, and other businesses. Vrain Street was identified as one of the optimal north-south connector intersection for bicycles.



Vrain St and US 287/120th Ave

US 287/120th Ave

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Sheridan Boulevard

Sheridan Boulevard is a four-lane north-south Major Arterial within the vicinity of its intersection with US 287. It serves as one of the major transit corridors in the area and provides access to multiple retail shopping areas. Sheridan terminates in the north at Lowell Boulevard just south of Northwest Parkway and runs south well into the Denver Metro area. Sheridan Boulevard is one of the most traveled intersections in the area as it provides the connection between two major travel ways. Pedestrian safety, bottlenecking, and traffic delay were all concerns for this location.



Sheridan Blvd and US 287/120th Ave

Main Street

Main Street is classified as a Minor Arterial. Main Street serves as a connection between neighborhoods and commercial areas. It runs through the City from its south origin at 112th Avenue to its northern terminus at 136th Avenue. Main Street serves as two-lane divided roadway to the south of US 287/120th and a four-lane section to the north of US 287/120th until E 1st Avenue. North of E 1st Avenue, Main Street transitions to a 3-lane roadway. The already heavy traffic volumes documented in existing conditions will be exacerbated by the development of Broomfield Town Square proposed to the north of its intersection with US 287.



Main St and US 287/120th Ave

CO 128

US 287/120th and CO 128 have a merging junction within the project study area where US 287 shifts its direction from east-west to northwest-southeast. CO 128, classified as a Minor Arterial, continues in the east-west direction from this junction to its west terminus at SH 93. At this merging junction, CO 128 has three through lanes westbound and two through lanes eastbound divided by median. CO 128 serves the City by connecting residences, multi-family housing, and the Interlocken business district. The larger connection built at Interlocken has caused a considerable portion of traffic to no longer take the western stretch of US 287 to get from Upham St. to Wadsworth Parkway. Thus, this stretch of US 287 can be redesigned. This is further explored later in this report.



CO 128 and US 287/120th Ave

CO 121 (Wadsworth Parkway)

Wadsworth Parkway merges with US 287 via slip ramps. In this area, Wadsworth Parkway is a north-south divided four-lane Regional Arterial. Wadsworth Parkway runs north-south through the Denver Metro area and runs through the City from the Northwest Parkway to



CO 121 and US 287/120th Ave



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the transition at the aforementioned merge point with US 287. In this short stretch, the corridor offers access to US 36, serves as part of Interlocken Loop, and serves business districts and multi-family housing.

Traffic Operations and Safety

Traffic operations and safety were analyzed in the *Existing Conditions and 2050 Baseline Traffic Analysis Report*. Existing and Year 2050 traffic volumes and levels of service for each intersection in the study area are illustrated in **Appendix B** at the end of this report.

Public Involvement

Public involvement events were coordinated for the surrounding community for them to learn about the study and provide comment. Feedback was gathered from these events and compiling along with the findings of the *Existing Conditions & 2050 Baseline Analysis Report*. Public Outreach was performed during the summer of 2022. Highlights of this effort include the Broomfield Brewhaha on June 18th, Broomfield's National Night Out on August 2nd, and FISH Family Fun Day on August 5th. Comments were recorded on concept maps and on comment sheets. Additionally, throughout the duration of the study, online comments were gathered through the City website at www.broomfieldvoice.com/120thmultimodalstudy. With the help of these comments, multiple concerns were identified and emphasized. A full summary of public comments is detailed in **Appendix A**. Public sentiment about the whole corridor were about the congestion, safety concerns while biking and walking and that most people avoid it. The most common concerns at specifically mentioned locations are listed below:

- Sheridan Blvd: Safety concerns include pedestrian and bicyclist accommodations and feel.
- Sheridan Blvd: Congestion concerns included bottlenecking, slowdowns, and potential for improved signal timing.
- Vrain St: Suggestion for a safe bike crossing location for easier and safer access to shops and restaurants on the south side of 120th Ave.
- Lowell Blvd: Concerns included a preference for improved signal timing during school pick up and drop off.
- Lowell Blvd: Safety concerns for pedestrians including a feeling of a lack of safe crossings on medians were also brought up.
- US 287: The public sited inadequate bike or pedestrian facilities along the entire corridor.
- Slip Ramp: Unsafe merging and weaving patterns were brought up for this location.
- Main St: Citizens noted congestion and unsafe signal timing for pedestrians.



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Study Goals

Public involvement comments were compiled and used in conjunction with the data from the *Existing Conditions Report* to identify key areas for alternatives to be studied. Study goals for developing alternatives include:

- Improving mobility and reliability of the US 287 corridor and surrounding system;
- Reducing congestion, for vehicles, pedestrians, and bicycles;
- Improving safety, for vehicles, pedestrians, and bicycles;
- Improving all modes of transportation, including transit, pedestrians and bicycles; and
- Incorporating comments and suggestions gathered from public outreach efforts.

Alternatives Evaluation

Design alternatives throughout the study area were developed to address deficiencies identified in the *Existing Conditions and Baseline Analysis Report* and incorporate feedback received from the City of Broomfield citizens. The following describes the major categories by which each alternative is measured:

Vehicle Traffic Operations

Operational analyses were conducted for each intersection alternative. To evaluate the operational performance of each alternative, measures of effectiveness (MOE) such as average delay per vehicle, intersection Level of Service (LOS), arterial LOS, and average queue lengths were acquired from Synchro/SimTraffic (Version 9.1, build 904, revision 125) traffic analysis software. The Synchro/SimTraffic software package uses criteria described in the Highway Capacity Manual, 2010 Edition (HCM 2010). SimTraffic microsimulation was primarily used to analyze LOS, vehicle delay, and average queue lengths. The alternatives were evaluated based on its ability to accommodate 2050 project volumes. Table 11 in the CDOT Traffic Analysis and Forecasting Guidelines was used to calibrate the models. **Appendix E** included within this report details the calibration of the SimTraffic microsimulation model used. It should be noted that the traffic operations analysis was performed at a high level for the corridor. With alternatives that significantly change the characteristics of the roadway, a more detailed traffic analysis should be performed before further design and construction.

Vehicle delay in seconds per vehicle translates into LOS, which is typically reported for ease of reference. LOS is a measure used to describe operational conditions at an intersection. LOS grades range from A to F and are assigned based on the predicted delay (in seconds) per vehicle for the whole intersection as well as for individual turning movements. LOS A indicates very good operations, while LOS F indicates poor, congested operations.

CDOT sets the vehicle operations benchmark for adequately functioning intersections to be LOS D or better. For individual movements (left/right turns, etc.), the goal is also LOS D or better if that movement volume comprises 5% or greater of the total entering volume. An LOS that does not meet the CDOT's benchmark is considered failing or unacceptable.

Safety

A safety study was conducted as part of the *Existing Conditions and 2050 Baseline Traffic Analysis Report* that identified hot spots within the study area where improvements may mitigate or eliminate some of the most prominent safety issues. Each alternative was measured by crash reduction potential and how well it reduced potential multi-modal conflicts.

Cost and Construction Feasibility

This evaluation will offer CDOT the ability to evaluate alternatives that best fit the operational and safety goals for this corridor while also taking into account fiscal requirements and impacts of construction on the community.



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Right-of-Way

In addition to general right-of-way impacts like property acquisition and parking lot impacts, an assessment was conducted to determine the ability to preserve the existing accessibility in the area. This included determining whether each alternative maintained the existing movements and whether surrounding properties were adversely impacted. Level of property impact was based on loss of parking, removal or limitation of access, and whether portions of the parcel (including structures) were impacted.

Multimodal Accommodations

Multimodal improvements provided by each alternative were evaluated. Improvement examples included: shortened pedestrian crossing distances, new pedestrian pathways, and bridged links in the existing bike network where gaps were previously present. As well as, transit delays and accommodations.

Alternative Evaluation Criteria

Performance measures were developed for each evaluation criterion (listed in the following “Traffic Operations” section) to compare how well each alternative meets the vision and goals of the project. The performance measures are a mix of qualitative and quantitative assessments based on the criteria and the availability of data at this stage of analysis.

The color ratings shown with the performance measures included in this report correlate to the colors provided in the Alternative Screening Matrix in **Appendix D**. The ratings were used as a visual indication of the comparative characteristics of a criterion between alternatives, but not used as an indication of a decision (i.e., an alternative with many “red” ratings was not automatically rendered unreasonable). The colors are a general indication of whether the alternative favorably achieved the established criteria (green), had neutral impacts (black), or showed poor results and/or had negative impacts (red). The quantitative and qualitative ratings detailed below were based on industry standards. The alternatives were then compared to each other to determine a hierarchy of expected benefit.

Traffic Operations

Level of Service and Delay

Level of Service (LOS) and Delay for each alternative and respective corridors as a network for the AM and PM peak hours for the year 2050.

Rating:

- Green = Intersection LOS D or better during peak hour, as well as LOS D or better for any movement that comprises 5% of the total entering volume.
- Black = Intersection LOS D while allowing individual movements that comprise 5% of entering volume to be LOS E or LOS F.
- Red = LOS E or F during the peak hour.



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Total Network Delay

Total Network Delay measures how well an alternative fit within the study area where all other intersections are modeled with improvements. Therefore, this criterion is evaluated such that the alternatives are measured relative to each other. Total network delay (hours) along each respective corridor for the AM and PM peak hours for the year 2050.

Rating:

- Green = Total network delay is between 320 to 360 hours.
- Black = Total network delay is between 361 to 400 hours.
- Red = Corridor peak hour delay increased compared to the No Action peak hour.

Safety

Potential Vehicular Safety Benefits

Potential for vehicular crash reduction at the intersection

Rating:

- Green = Alternative expected to provide notable reduction in vehicular crashes.
- Black = Alternative expected to provide moderate reduction in vehicular crashes.
- Red = Alternative expected to provide minimal to no reduction in vehicular crashes and safety concerns.

Multimodal Conflict Reduction

Ability of the alternative to reduce the number of potential multimodal conflict points.

Rating:

- Green = Notable reduction in multimodal conflict points.
- Black = Minimal to no reduction in multimodal conflict points.
- Red = Increase in multimodal conflict points.

Multimodal Improvements

Pedestrian/Bicyclist Connections

Continuous sidewalk and/or paths and pedestrian/bicyclist intersection treatments to enhance and encourage pedestrian and bicyclist activity.

Rating:

- Green = Notable improvements to pedestrian/bicyclist connects along the corridors and throughout the study area.
- Black = Maintain existing level of pedestrian/bicyclist connections along the corridors and throughout the study area.
- Red = Introduces deficiencies that make it more difficult for people to walk or bike along the corridors compared to the No Action.



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Pedestrian/Bicycle Movement Comfort and Safety

Evaluation of user perception based on crossing distance and refuge areas at roadway crossings and operational characteristics of pedestrian and bicycle facilities.

Rating:

- Green = Alternative generally feels comfortable for pedestrians and bicycle movements along and across each corridor.
- Black = Minor improvement at some locations, but key characteristics make the alternative feel uncomfortable or intimidating.
- Red = Key characteristics make the alternative feel notably uncomfortable or intimidating.

Transit Connections

The evaluation of this criteria is twofold and measures whether the alternative precludes the addition of transit improvements in the future or significantly increases delay of existing transit operations.

Rating:

- Green = Provides numerous opportunities for improvements to be worked into the design of the alternative and is expected to improve transit travel times.
- Black = Minimal opportunities for transit improvements to be worked into the design of the alternative and does not significantly impact transit travel times.
- Red = Precludes transit improvement opportunities and/or is expected to cause significant delay in transit travel times.

Right of Way

Right of Way (ROW) Required (Acres)

Acres of property with acquisition of property expected based on alternative conceptual layout.

Rating:

- Green = Less than one acre of permanent property acquisition anticipated.
- Black = One – 10 acres of permanent property acquisition anticipated.
- Red = More than 10 acres of permanent property acquisition anticipated.

Right of Way (ROW) Required (Number of Properties)

Number of properties with acquisition of property expected based on alternative conceptual layout.

Rating:

- Green = Less than 10 properties with permanent property acquisition anticipated.
- Black = 10 – 25 properties with permanent property acquisition anticipated.
- Red = More than 25 properties with permanent property acquisition anticipated.



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Property Access Impacts

Evaluation of property access impacts due to access movement restrictions or traffic controls based on alternative conceptual layout.

Rating:

- Green = No impacts to properties.
- Black = Moderate impacts to properties with changes to allowable movements at accesses.
- Red = Major impacts to properties with property access closures.

Consistency with Established Local and Regional Plans

Evaluation of consistency of alternative elements with documented planning efforts for the area transportation system and surrounding land use.

Rating:

- Green = Consistent with established local and regional plans.
- Black = Consistent with some, but not all established local and regional plans.
- Red = Not consistent with established local and regional plans.

Cost and Feasibility

Conceptual-level Probable Construction Costs

General evaluation (low, moderate, high) based on major cost items of the alternative conceptual layout.

Rating:

- Low (Green) = Relative low costs.
- Moderate (Black) = Relative moderate costs.
- High (Red) = Relative high costs.

Constructability

Evaluation of general construction complexity and difficulty from contractor perspective.

Rating:

- Easy (Green) = Typical construction mostly outside of existing roadway area.
- Moderate (Black) = Moderate construction within tightly constrained area.
- Difficult (Red) = Major construction complexity and staging area issues within tightly constrained area.



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Ability to Construct in Phases

Evaluation of the ability to construct useful portions of the improvements as separate projects over a phased implementation period.

Rating:

- Easy (Green) = Opportunities for useful portions to be implemented separately.
- Moderate (Black) = Opportunities for implementation of useful portions as separate projects, but with limited benefits or potential issues with increased cost/processes.
- Difficult (Red) = Useful portions difficult to implement in pieces due to large cost/processes.

Use of Existing Infrastructure

General evaluation of the ability to maximize the use of existing transportation infrastructure.

Rating:

- Green = Substantial use of existing infrastructure.
- Black = Moderate use of existing infrastructure.
- Red = Major increase in new infrastructure.

Corridor Overview

Introduction

Holistically, the US 287 study corridor exhibits multiple locations of bottlenecking, poor pedestrian and bicycle facilities, and areas in need of safety improvements. A desired ultimate condition for the US 287/120th Ave corridor through this area of Broomfield would improve vehicle operations and mobility, feature connected and ADA compliant bicycle and pedestrian facilities, safer and more effective corridor crossing points, and expanded alternative transit accommodations. This study, through its associated exhibits, documents, and other related media, intends to both describe steps towards achieving this long-term goal as well as detail more realistic, short-term improvements that can be further developed and funded in the near future. Through analyzing the full study corridor, specific intersections and stretches have been identified as key locations most needing immediate improvements.

General

Based on future projected traffic volumes (detailed in the *Existing Conditions and 2050 Baseline Traffic Analysis Report*) the entire corridor is expected to grow from existing volumes of between 16,000 and 44,000 vehicles per day (veh/day) to approximately between 16,720 and 53,300 vehicles per day (veh/day) in 2050. US 287 is used heavily travelled by commuters and local traffic alike in this area.

Problem Statement

The corridor has multiple locations that can be updated for operations, safety, and multi-model use. The following six locations were focused on to develop alternatives to help update the corridor:

- The intersection of US 287/120th Avenue & Lowell Boulevard.
- The intersection of US 287/120th Avenue & Vrain Street.
- The intersection of US 287/120th Avenue & Sheridan Boulevard.
- The intersection of US 287/120th Avenue & Main Street.
- US 287 between Upham Street and Nickel Street.
- The Slip ramp from US 287 to Wadsworth Parkway.

Surrounding Area Projects Performed by Others

At the time of this study, multiple other studies and projects are in progress developing improvements for the surrounding Broomfield area. These developments factor into this study, and influence the recommendations presented within. The following is a list of known major projects and studies, with a description of their current scope and status at the time of this report:

- City and County of Broomfield 120th Ave Sidepath Infill Project – Adds and updates the sidewalks and multi-use paths that run the length of the corridor. As well as improvement of key intersections to enhance pedestrian safety and improve access.



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- Broomfield Town Square Development Project – Creation of a town center will add traffic to the US 287 corridor and specifically the Main St intersection.
- Midway Blvd Future Off-Street Protected Multi-Use Path – Creation of a multi-use path running along Midway Blvd in each direction with recommendations for pedestrian crossing enhancements and traffic calming.
- Ultimate Interlocken Condition: US 287 to Abbot Ave Underpass – Reconfiguration of the US 287 and Wadsworth Pkwy interchange.

Background Analysis

Traffic Safety

During the study period of 2015 to 2020, 420 crashes were reported at or related to the intersections along the entire length of the corridor. 126 of those crashes involved injuries. There were no fatal crashes within the project area during the obtained years of traffic data. There were 11 pedestrian crashes and 10 crashes involving bicycles.

Rear end collisions are the most common type, followed by sideswipe and broadside crashes. Rear end collisions are indicative of general congestion along the corridor.

Traffic Operations

The entire corridor runs with delays of 187.8/259.8 sec/veh for AM/PM. These delays provide a starting point corridor as a whole and allow for a starting point for improvements.

Multimodal Operations

There are sidewalks and multi-use paths present along much of the corridor. However, gaps exist which cause a disjointed and unconnected feeling for local residents and commuters using the facility. At several corridor intersections, long wait periods accompany a feeling of lack of safety noted by non-vehicle users.

There are no dedicated bicycle lanes along the corridor and no designated north-south crossing points.

Bus routes 120E and 120W run along US 287/ 120th Ave with multiple bus stops in each direction. Most of these stops are located within turning lanes and/or areas of merging.

Proposed Alternatives

Proposed Restriping for Third Continuous Travel Lane

Along the corridor through most of the study area, the outermost lane is used as a designated right turn acceleration and deceleration lane. This lane could be restriped as an additional continuous travel lane to add carrying capacity for one or multiple purposes. The following are use options for this additional lane:

- General purpose choice lane (through/right-turn lane)



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- General lane shared as a bus queue jump lane
- Bus only lane

The general-purpose choice lane will add capacity to the corridor and decrease delay. The major associated downside being that there would no longer be exclusive right turning lanes at the majority of the corridor intersections and major business access points. However, a general-purpose lane will allow for more vehicle capacity to combat the effects of the predicted future 2050 condition.

The general-purpose lane with shared bus queue jump lane will also allow for less congestion and decreased delay but will also decrease the delay of area bus routes. A bus queue jump lane is painted at each intersection to allow for buses to move to the front of the lane, allowing faster movement through the traffic signals. According to the National Association of City Transportation Officials (NACTO), bus queue lanes will decrease area bus delays by 10%. For the Us 287 corridor, this equates to a delay reduction of 19 seconds in the AM peak and 24 seconds in the PM peak period.

The last potential lane use is a bus only lane. This will allow buses to flow freely down the corridor and allow them to stop without disrupting the flow of general traffic. This will not decrease delays for general traffic but will significantly increase public transit efficiency within the study area. This bus lane can also be utilized by potential future rapid bus transit (RTD) operations.

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Intersection Alternatives

US 287/120th Avenue and Lowell Boulevard

Introduction

This intersection was identified from public involvement comments to be unsafe for pedestrian and bicycle crossings. Pedestrians and bicycles are using this intersection to access the K-12 Academy of Charter Schools south of this intersection, as well as the Big Dry Creek Trail and Metzger Farm Open Space. Along with pedestrian safety, transit stops at this location cause poor and unsafe weaving movements for both buses and vehicular traffic.

General

Based on future projected traffic volumes (detailed in the *Existing Conditions and 2050 Baseline Traffic Analysis Report*) the Lowell Boulevard intersection is expected to grow from existing volumes of 41,000 vehicles per day (veh/day) to approximately 48,995 vehicles per day (veh/day) in 2050. US 287 is heavily travelled by commuters and local traffic alike in this area, making traffic operations and mobility paramount.

Lowell Boulevard is a four lane north-south Major Arterial in the vicinity of its intersection with US 287. Raised medians are present in each direction on US 287 and there are four porkchop islands with slip right turns at all corners of the intersection.



Lowell Blvd and US 287/120th Ave

Problem Statement

Presently, this intersection currently operates at LOS grade C/C for AM/PM traffic and is projected to degrade to LOS D/D in the year 2050. Rear end collisions are the most commonly observed type of crash, and this crash pattern suggests a problem with congestion at the intersection and stop-start vehicle travel during peak hours. The low LOS at this location endorses this conclusion. Pedestrians attempting to reach the academy, neighborhoods, or nearby trails must cross 95ft of roadway to cross US 287, and the small islands do not provide an adequate feeling of protection while waiting to traverse the intersection. Transit stop locations are also causing weave movements to be interrupted, due to the stops being located in the right turn acceleration lanes.

Background Analysis

Traffic Safety

During the study period of 2015 to 2020, 25 crashes were reported at or related to the intersection, 6 involving injuries. There were no fatal crashes at the intersection during the study period. The intersection

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has a LOSS of 2 and LOSS Severity of 2. Rear end collisions are the most common type (19), followed by sideswipe crashes (3).

There were zero pedestrian or bicycle crashes in the study period. The corridor has an LTS of 4 on the north side of this intersection and an LTS of 1 on the southside.

Traffic Operations

To reiterate, presently the intersection is operating at LOS C in the AM peak hour and LOS C in the PM peak hour. Future 2050 traffic operations for the intersection without any improvements result in an intersection approaching failure, but acceptable: LOS D for both peak hours with a PM peak hour delay of 42.8 seconds. See **Table 1** below for the Level of Service comparison.

Table 1 - 120th Ave and Lowell Blvd Level of Service

	EXISTING		2050 NO ACTION	
	AM	PM	AM	PM
LOS	C	C	D	D
DELAY	27.0	24.7	38.4	42.8

Multimodal Operations

Pedestrians cross this intersection using small porkchop islands. Pedestrians reported feeling unsafe on these small refuges with the amount of traffic flowing by at high speed.

There are bicycle lanes on Lowell Blvd north of this intersection. Bicycles have the choice of sharing the lane or use the multi-use paths south of the intersection.

Bus routes 120E and 120W run through this intersection along US 287/ 120th Ave. There are two bus stops near this intersection. For eastbound buses, the stop is located about 200 feet east of the intersection, with the stop being directly in the northbound channelized right turn lane merge area. For westbound buses, the stop is located about 275 feet west of the intersection with the stop being directly in the southbound channelized right turn lane merge area.

Proposed Alternatives

No Action

The No Action option was evaluated as a baseline for comparison with other alternatives. This option retains the intersection in its original location and configuration. The intersection includes the following lane configuration:

- Northbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.



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- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Cost Estimate: There is no construction cost associated with this option.

Alternative 1 – Signal Timing Adjustment

This intersection will stay the same lane configuration as the No Action alternative but adjust the signal timing. The timing was kept the 120 second cycle length and the signal phasing configuration but changed the split timings. The following are the new phasing times:

- Westbound left (Phase 1): 20 seconds
- Eastbound through (Phase 2): 57 seconds
- Northbound left (Phase 3): 8 seconds
- Southbound through (Phase 4): 35 seconds
- Eastbound left (Phase 5): 9 seconds
- Westbound through (Phase 6): 68 seconds
- Southbound left (Phase 7): 13 seconds
- Northbound through (Phase 8): 30 seconds

These timings also keep the protected lefts so there are no conflicts with pedestrian crossings.

Cost Estimate: Cost of analysis and labor to design and construct this alternative is minimal.

Preservation of Existing Access Accommodations

There will be no impacts to the access or any acquisitions of right-of-way for this alternative.

Conclusion: No impacts to existing access are anticipated as a result of this alternative.

Alternative 2 – Creating Larger Islands on the Southside of the Intersection

There will be no change to the lanes for this alternative, but the two porkchop islands on the southside of the intersection will be enlarged. This will straighten the crosswalk on the east side of the intersection and create a safer pedestrian refuge. This will allow for slightly shorter crossing for pedestrians and for pedestrians to feel safer while waiting to cross the intersection. There will be no transit improvements for this alternative. The intersection includes the following lane configuration:

- Northbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.



US 287/120th Ave

MULTIMODAL STUDY

- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Figure 2 on page 21 displays the proposed layout for Alternative 2.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$861,000. The cost breakdown can be found in **Appendix D**.

Preservation of Existing Access Accommodations

The change in size of the porkchop islands will not impact the access of this intersection and not require an acquisition of right-of-way.

Conclusion: No impacts to existing access are anticipated because of this alternative.

Alternative 3 – Bus Stop Islands

This alternative will significantly enlarge the islands on the northwest and southeast corners of the intersection to allow for bus stops on the islands themselves. This will create substantially larger refuges for pedestrians awaiting transit or crossing US 287. Additionally, it will eliminate the bus weaving motion present in the existing condition. To further facilitate safety and permit bus queue jumps, there will be added bus-only lanes that will go through the intersection in each direction. The northeast and southwest islands at the intersection will also be reconfigured to accommodate this new bus lane. This alternative will allow buses to separate from general traffic, allowing general traffic to continue while allowing buses to stop and let riders enter and exit. These islands will also be necessary to accommodate express and BRT style transit facilities. The intersection includes the following lane configuration:

- Northbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, one bus-only through lane, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, one bus-only through lane, and one exclusive right-turn lane.

Figure 3 on page 22 displays the proposed layout for Alternative 3.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$2,099,000. The cost break down can be found in **Appendix D**.



US 287/120th Ave

MULTIMODAL STUDY

Preservation of Existing Access Accommodati0ons

The bus stop island alternative adds bus lanes and modifies the islands, expanding the footprint of the intersection. All current movements are maintained, no ROW acquisition is necessary, and all existing accesses near the intersection are maintained.

Conclusion: No property acquisitions are required and no impacts to existing access are anticipated should this alternative be pursued.

Summary

Safety and operations analysis indicates that all the alternatives will operate without negatively impacting LOS. Both alternatives 2 and 3 will improve the pedestrian safety by bolstering island refuges. Alternative 3 will improve transit operations by eliminating the existing bus weave pattern and accommodating BRT and express transit. **Table 2** on page 23 shows the alternative evaluation matrix. Both alternatives focused on pedestrian, bicycle, and transit operations, as well as on safety. Alternative 3 provides greater benefit at the cost of a higher construction price tag.

ALL INFORMATION SHOWN IS
HYPOTHETICAL AND SUBJECT TO CHANGE.

US 287

PEDESTRIAN PUSH BUTTON POST ASSEMBLY (TYP.)

REALIGN CROSSWALK

YIELD SIGN

EXISTING PULL BOXES & UTILITY MARKER

SCHOOL CROSSING SIGN

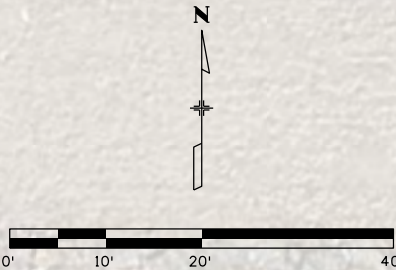
DELINEATOR (TYP.)

RAISED CROSSWALK

EXISTING PULL BOXES

RAISED CROSSWALK

LOWELL
BLVD.



Print Date: 5/31/2023	
File Name: 166182_Lowell Concept.dgn	
Horiz. Scale: 1:20	Vert. Scale: As Noted
Unit Information	Unit Leader Initials
 Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900	Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801

Sheet Revisions			
Date:	Comments	Init.	

Colorado Department of Transportation



4670 Holly Street
Denver, CO 80216-6408
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Region 1

RS

As Constructed		FIGURE 2		Project No./Code	
No Revisions:		US 287 AND LOWELL BLVD. ALT 2		COT01	
Revised:		Designer: C. BURGESS	Structure Numbers	24810	
Void:		Detailer: K. CROELL		Sheet Number	
		Sheet Subset:	Subset Sheets:		

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ALL INFORMATION SHOWN IS
HYPOTHETICAL AND SUBJECT TO CHANGE.

PROPOSED BUS PLATFORM AREA

BUS THROUGH MOVEMENT ALLOWED,
ALL OTHER VEHICLES MUST TURN RIGHT.
POTENTIAL FOR BUS QUEUE JUMP.

RESTRIPING AND SLIGHT
REALIGNMENT OF THROUGH LANES

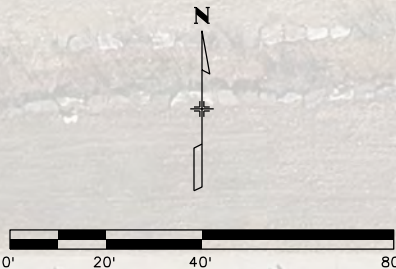
RESTRIPING AND SLIGHT
REALIGNMENT OF THROUGH LANES

US 287

LOWELL BLVD.

BUS THROUGH MOVEMENT ALLOWED,
ALL OTHER VEHICLES MUST TURN RIGHT.
POTENTIAL FOR BUS QUEUE JUMP.

PROPOSED BUS PLATFORM AREA



Print Date: 5/31/2023	
File Name: 166182_Lowell Concept_Bus.dgn	
Horiz. Scale: 1:40	Vert. Scale: As Noted
Unit Information	Unit Leader Initials
 Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900	Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801

Sheet Revisions			
Date:	Comments	Init.	

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Region 1

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As Constructed		FIGURE 3		Project No./Code	
No Revisions:		US 287 AND LOWELL BLVD. ALT 3		COT01	
Revised:		Designer: C. BURGESS	Structure Numbers	24810	
Void:		Detailer: K. CROELL	Subset Sheets:	Sheet Number	

Table 2: 120th Ave and Lowell Blvd Analysis Matrix

Description	Operations		Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
	Level of Service & Delay	Total Network Delay	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bicycle Movement Comfort and Safety	Transit Accommodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 - No Action	●	●	●	●	●	●	●	●	●	●	●	N/A	N/A	N/A	●
Alternative 1 - Signal Timing Adjustment	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Alternative 2 - Larger Islands on the Southside of the Intersection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Alternative 3 - Bus Stop Islands	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- - Positive Impact
- - Neutral Impact
- - Negative Impact

US 287/120th Ave

MULTIMODAL STUDY

US 287/120th Avenue and Vrain St

Introduction

This intersection was identified in public involvement comments to be an optimal location for a proposed north-south bicyclist and enhanced pedestrian crossing. This location gives access to businesses and access to the proposed and existing trail system. Currently, there are no good ways to get across the US 287 corridor from the bicycle path on the north side to the businesses on the south side.

General

Based on future projected traffic volumes contained in the *Existing Conditions and 2050 Baseline Analysis Report*, the Vrain Street intersection is expected to grow from existing volume of 35,000 vehicles per day (veh/day) to approximately 45,150 veh/day by year 2050. The intersection is the entrance to multiple commercial shopping areas. US 287 is used heavily by commuters and local traffic alike in this area, making improved traffic operations and mobility paramount.

Vrain Street is a two-lane north-south Local Street that extends from the Walmart parking lot at W 121st Avenue to the north and W 118th Place to the south. Raised medians are found on the east and west leg of US 287.



Vrain St and US 287/120th Ave

Problem Statement

Presently, this intersection operates at an LOS of B/D for AM/PM traffic and is projected to degrade to LOS C/F in the year 2050. This intersection also has no existing bicycle facilities to allow for a movement across the 120th Ave corridor.

Background Analysis

Traffic Safety

During the study period of 2015 to 2020, there were 67 crashes reported at the intersection, 25 resulting in injuries. There were no fatal crashes at the intersection during the study period. While Rear Ends (29) make up the majority of the crashes at this location, sideswipes (9) were also high. The number of approach turn (12) and broadside (10) collisions observed at this location is also highly concerning. These types of crashes are byproducts of overall congestion, but safety countermeasures may be implemented to mitigate these types of severe crashes. Protected lefts were added to this intersection in 2017 and the approach turn crashes were eliminated after their implementation. The intersection has a LOSS of 4 and a LOSS Severity of 4.

US 287/120th Ave

MULTIMODAL STUDY

There were 2 pedestrian crashes and 2 bicycle crashes at this intersection in the study period. The corridor has an LTS of 1 on both sides of the corridor at this intersection.

Traffic Operations

Presently, the intersection is operating at LOS B in the AM peak hour and LOS D in the PM peak hour. Future 2050 traffic operations for the intersection without any improvements result in an overall failure of the intersection with LOS F for the PM peak hours resulting in a PM peak hour delay of 102.2 seconds. See **Table 3** for the Level of Service comparison.

Table 3 - 120th Ave and Vrain St Level of Service

	EXISTING		2050 NO ACTION		2050 ALT 1	
	AM	PM	AM	PM	AM	PM
LOS	B	C	C	C	B	C
DELAY	18.4	28.9	20.2	33.9	19.3	30.6

Multimodal Operations

Pedestrians can cross from northwest to northeast and from northeast to southeast corners of the intersection.

There are no bicycle lanes on either side of the intersection. The bicycles must share the travel lane in existing conditions.

Bus routes 120E and 120W run through this intersection along US 287/ 120th Ave. There is one bus stop near this intersection for westbound buses. The stop is located about 100 feet west of the intersection directly in the westbound right turn lane merge area.

Proposed Alternatives

No Action

The 2050 No Action plan was evaluated as a baseline to compare the other alternatives. This option maintains the intersection in its original location and configuration. The intersection includes the following lane configuration:

- Northbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.



US 287/120th Ave

MULTIMODAL STUDY

- Westbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.

Cost Estimate: There is no construction cost associated with this option.

Alternative 1 – Signal Timing Adjustment

This intersection will stay the same lane configuration as the No Action alternative but adjust the signal timing. The timing was kept the 120 second cycle length and the signal phasing configuration but changed the split timings. The new signal configuration decreases the east and west through movements by 10 seconds. The following are the new phasing times for AM/PM:

- Westbound left (Phase 1): 17 seconds/ 16 seconds
- Eastbound through (Phase 2): 68 seconds/ 48 seconds
- Northbound left (Phase 3): 12 seconds/ 20 seconds
- Southbound through (Phase 4): 21 seconds/ 36 seconds
- Eastbound left (Phase 5): 7 seconds/ 12 seconds
- Westbound through (Phase 6): 80 seconds/ 52 seconds
- Southbound left (Phase 7): 12 seconds/ 17 seconds
- Northbound through (Phase 8): 21 seconds/ 39 seconds

These timings also keep the protected lefts in the north and south directions and added protected lefts in the east and west directions to eliminate all pedestrian conflicts.

Cost Estimate: Cost of analysis and labor to design and construct this alternative is minimal.

Preservation of Existing Access Accommodations

There will be no impacts to the access and no required acquisitions of right-of-way for this alternative.

Conclusion: No impacts to existing access are anticipated as a result of this alternative.

Alternative 2 – Adding Bicycle Boxes to the North and South Legs

There will be no change to the lane configuration for this alternative, but bike boxes will be added to the north and south legs of the intersection. There will also be bicycle detection added to the signal to allow the signal to activate when bicycles are detected. This will allow for the bicycles to have a safer and a more comfortable crossing across 120th Ave. However, CDOT Signals will also need to be coordinated with to adjust the vehicle detection. The intersection includes the following lane configuration:

- Northbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.



US 287/120th Ave

MULTIMODAL STUDY

- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane

Figure 4 on page 28 displays the proposed layout for Alternative 2.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$245,000. The cost break down can be found in **Appendix D**.

Preservation of Existing Access Accommodations

Adding bike boxes will not impact the access points of this intersection and will not require an acquisition of right-of-way.

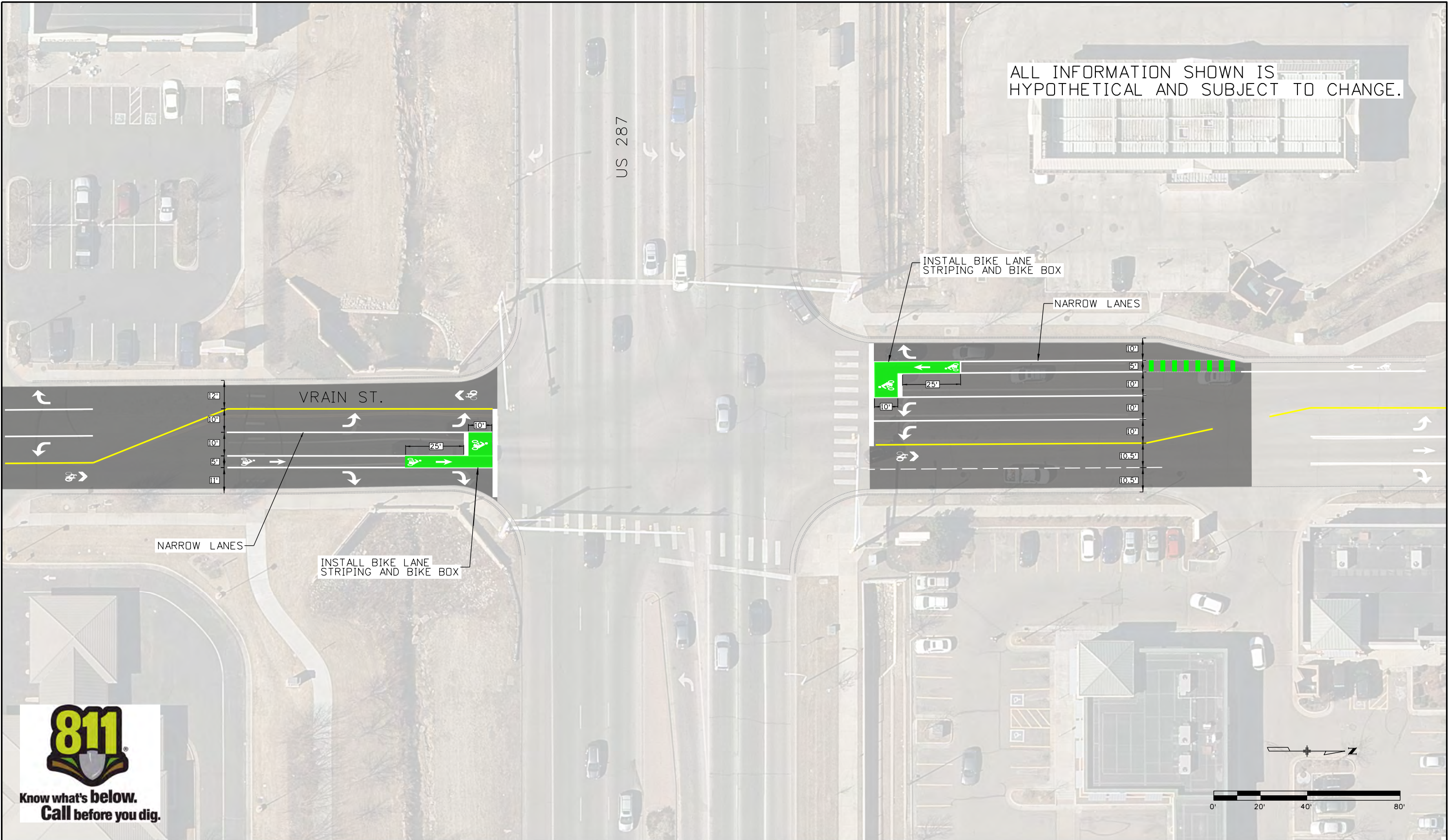
Conclusion: No impacts to existing access are anticipated as a result of this alternative.

Summary

Modeling results and safety analysis indicate proper operations for all options. Alternative 1 is a simple signal timing optimization. Alternative 2 will improve bicycle safety and comfort at the intersection while creating a preferred intended bike crossing location along the US 287 corridor. In doing so, the overall connectivity of the study area bicycle facilities will improve. The bus stop at this location is accessible and unaffected by any option chosen.

Should Alternative 2 be pursued and found successful, similar bike facility improvements can be applied at the intersection of 120th Avenue and Greenway Drive, an intersection which displays similar characteristics. **Table 4** on page 29 shows the alternative evaluation matrix.

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Sheet Revisions		
Date:	Comments	Init.

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Region 1

RS

As Constructed		FIGURE 4 US 287 AND VRAIN ST. ALT 2		Project No./Code
No Revisions:		Designer: C. BURGESS		COT01
Revised:		Detailer: K. CROELL	Structure Numbers	24810
Void:		Sheet Subset:	Subset Sheets:	Sheet Number

Table 4: 120th Ave and Vrain St Analysis Matrix

Description	Operations		Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
	Level of Service & Delay	Total Network Delay	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bicycle Movement Comfort and Safety	Transit Accommodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 - No Action	●	●	●	●	●	●	●	●	●	●	●	N/A	N/A	N/A	●
Alternative 1 - Signal Timing Adjustment	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Alternative 2- Bicycle Boxes	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- - Positive Impact
- - Neutral Impact
- - Negative Impact

US 287/120th Ave

MULTIMODAL STUDY

US 287/120th Avenue and Sheridan Boulevard

Introduction

This intersection was identified in public involvement feedback and the *Existing Conditions and 2050 Baseline Traffic Analysis Report* as a very congested intersection that is causing numerous efficiency and safety concerns. In addition to traffic congestion, pedestrians have a hard time crossing the width of this intersection and there are no existing bicycle facilities.

General

Based on future projected traffic volumes contained in the *Existing Conditions and 2050 Baseline Analysis Report*, the Sheridan Boulevard intersection is expected to grow from existing volume of 35,000 vehicles per day (veh/day) to approximately 41,300 veh/day in year 2050. The intersection crosses two major area thoroughfares, making traffic operations and mobility paramount.

Sheridan Boulevard is a four-lane north-south Major Arterial. Within the vicinity of its intersection with US 287, Sheridan Boulevard services multiple retail shopping areas. Raised medians are found on the east and west leg of 120th Ave.



Sheridan Blvd and US 287/120th Ave

Problem Statement

Presently, the LOS for this intersection operates at LOS E/F for AM/PM traffic and is projected to degrade to LOS F/F in the year 2050. Crash numbers were significant, aligning with the noted congestion and poor LOS. Pedestrians also have a difficult time crossing this large intersection and come into conflict with the turning vehicles.

Background Analysis

Traffic Safety

During the study period of 2015 to 2020, there were 87 crashes reported at the intersection with 17 involving injuries. There were no fatal crashes at the intersection during the study period. While Rear Ends (56) make up the majority of the crashes at this location, sideswipes (10) were also significant. Most concerning is the number of approach turn (5) and broadside (17) observed. The intersection has a LOSS of 4 and a LOSS Severity of 4.

There were 0 pedestrian crashes and 1 bicycle crash at this intersection in the study period. The corridor has an LTS of 4 on both sides of the corridor at this intersection.

US 287/120th Ave

MULTIMODAL STUDY

Traffic Operations

Presently, the intersection is operating at LOS E in the AM peak hour and LOS F in the PM peak hour. Future 2050 traffic operations for the intersection without any improvements result in an overall failure of the intersection with LOS F for both peak hours and increase PM peak hour delay to 127.2 seconds. See **Table 5** for the LOS comparison.

Table 5 - 120th Ave and Sheridan Blvd Level of Service

	EXISTING		2050 NO ACTION		2050 ALT 1		2050 ALT 2		2050 ALT 3	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
LOS	E	F	F	F	F	F	D	D	E	E
DELAY	61.5	99.8	90.0	127.2	83.4	92.6	35.9	54.2	57.9	59.2

Multimodal Operations

Pedestrians can cross to all corners of the intersection. There are two pork chop islands on the south side of the intersection which provide some refuge shelter as well. The crossing length across 120th Ave is about 115 feet, which is considered a very long crossing distance.

There are no bicycle lanes on either side of the intersection.

Bus routes 120E and 120W run through this intersection along US 287/ 120th Ave. There is one bus stop near this intersection for eastbound buses. This stop is located about 200 feet east of the intersection directly in the westbound channelized right turn lane merge location. The bus stop is served by a sidewalk that terminates at it.

Proposed Alternatives

No Action

The No Action option was evaluated as a baseline for comparison with other alternatives. This option is defined as the intersection in its original location and configuration. The intersection includes the following lane configuration:

- Northbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one through/right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.



US 287/120th Ave

MULTIMODAL STUDY

Cost Estimate: There is no construction cost associated with this option.

Alternative 1 – Signal Timing Adjustment

This intersection will stay the same lane configuration as the No Action alternative but adjust the signal timing. The timing was increased to a 150 second cycle length and the signal phasing configuration but changed the slit timings. The following are the new phasing times:

- Westbound left (Phase 1): 28 seconds
- Eastbound through (Phase 2): 55 seconds
- Northbound left (Phase 3): 21 seconds
- Southbound through (Phase 4): 46 seconds
- Eastbound left (Phase 5): 10 seconds
- Westbound through (Phase 6): 73 seconds
- Southbound left (Phase 7): 18 seconds
- Northbound through (Phase 8): 49 seconds

These timings also keep the protected lefts in all directions.

Cost Estimate: Cost of analysis and labor to design and construct this alternative is minimal.

Preservation of Existing Access Accommodations

There will be no impacts to the access or any acquisitions of right-of-way for this alternative.

Conclusion: No impacts to existing access are anticipated with this alternative. The intersection remained failing with an LOS F, but the delay decreased.

Alternative 2 – Detached Left for the North/South Legs

Convert the intersection into a detached left intersection on the North and South legs. A detached left intersection shifts the left turn lanes across oncoming through lanes to the far-left side of the roadway. Two new signals are constructed to control this new left movement condition. The intersection includes the following lane configuration:

- Northbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, two through lanes, and one through/right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.



US 287/120th Ave

MULTIMODAL STUDY

- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Figure 5 on page 36 displays the proposed layout for Alternative 2. Alternative 2 will add pedestrian refugees and reduce the intersection crossing distance, making pedestrian crossing safer and more comfortable. The transit stops along Sheridan Blvd will need to be moved further away from the intersection to provide a safer stopping condition. The existing transit stop along US 287/ 120th Ave will be maintained.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$9,090,000. The cost breakdown can be found in **Appendix D**.

Preservation of Existing Access Accommodations

The detached left will impact the structure crossing the City Park Channel floodway on the south side of the intersection and will impact access to the Exxon gas station on the northeast corner. There will be a right-in / right-out access point to the Exxon gas station but this differs and is more restrictive than existing access. This may cause conflict with this property owner and is acknowledged as a concern for the feasibility of this alternative.

Conclusion: No acquisitions will need to be made but impacts to existing access of surrounding businesses is anticipated should this alternative be pursued. Further traffic analysis will also need to be conducted to move forward with this option.

Alternative 3 – Converting Right-Turn Lanes in the Eastbound and Westbound Direction into Choice Through / Right-Turn Lanes While Maintaining Standard Intersection

This alternative maintains a standard intersection configuration while maximizing existing roadway pavement through primarily restriping. With this alternative, the intersection would consist of the following lane configuration:

- Northbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one choice through/right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one choice through/right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one choice through/right-turn lane.

Further expansion areas were considered and analyzed, such as adding dedicated right turn lanes (with and without median islands) to the northeast and northwest corners. These corner expansions would further improve traffic operations but would require substantial ROW acquisition. Considering the properties on each of these northern corners, the amount of land purchase needed for these

US 287/120th Ave

MULTIMODAL STUDY

improvements was determined to be fiscally unrealistic under present day conditions. **Figure 6** on page 37.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$388,000. This estimate consists primarily of asphalt patching and restriping costs. This cost breakdown can be found in **Appendix D**.

Preservation of Existing Access Accommodations

This alternative stays within the existing roadway pavement footprint at this intersection.

Conclusion: No access points will be affected with this alternative, though congestion may be increased at the access points closest to the intersection along the restriped choice lanes.

Network Traffic Analysis

The results of the corridor traffic operations analysis for this intersection are illustrated in **Table 6** below. The analysis worksheets are contained in **Appendix C** for reference. This analysis represents how each alternative impacts the full US 287 network. This was achieved by keeping all other intersections as existing conditions while updating the intersection of 120th Ave and Sheridan Blvd with the different alternatives. Similar or better delay times along the corridor indicate that the configuration at the 120th Ave and Sheridan Blvd intersection does not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and Average Network Speed. The No Action alternative provides a baseline to compare to the proposed alternatives. The No Action average network speed is 11/8 mph for the AM/PM peak hours and the total network delay is 187.8/259.8 seconds per hour respectively.

Table 6 - 120th Ave and Sheridan Blvd Network Traffic

ALTERNATIVE	AVERAGE NETWORK SPEED (MPH)		TOTAL 2050 NETWORK DELAY (S/HR)	
	AM	PM	AM	PM
NO ACTION	11	8	187.8	259.8
1	11	11	166.9	186.3
2	12	12	164.5	156.2
3	12	14	164.3	184.1

Summary

Table 6 displays how significantly the operations at Sheridan Blvd affect the entire 287 network delay, highlighting the importance of any improvements made to this intersection. Study analysis indicates that all explored alternatives dramatically improve upon the no action option. Alternative 1 provides immediate improvement for relatively minor cost. Alternative 2 provides the greatest level of benefit for both traffic operations and for non-vehicular traveler safety. This is achieved through creating safer crossing points for pedestrians and by eliminating pedestrian conflict points with left turning vehicles, allowing them to cross at the same time as through and left turning vehicles.

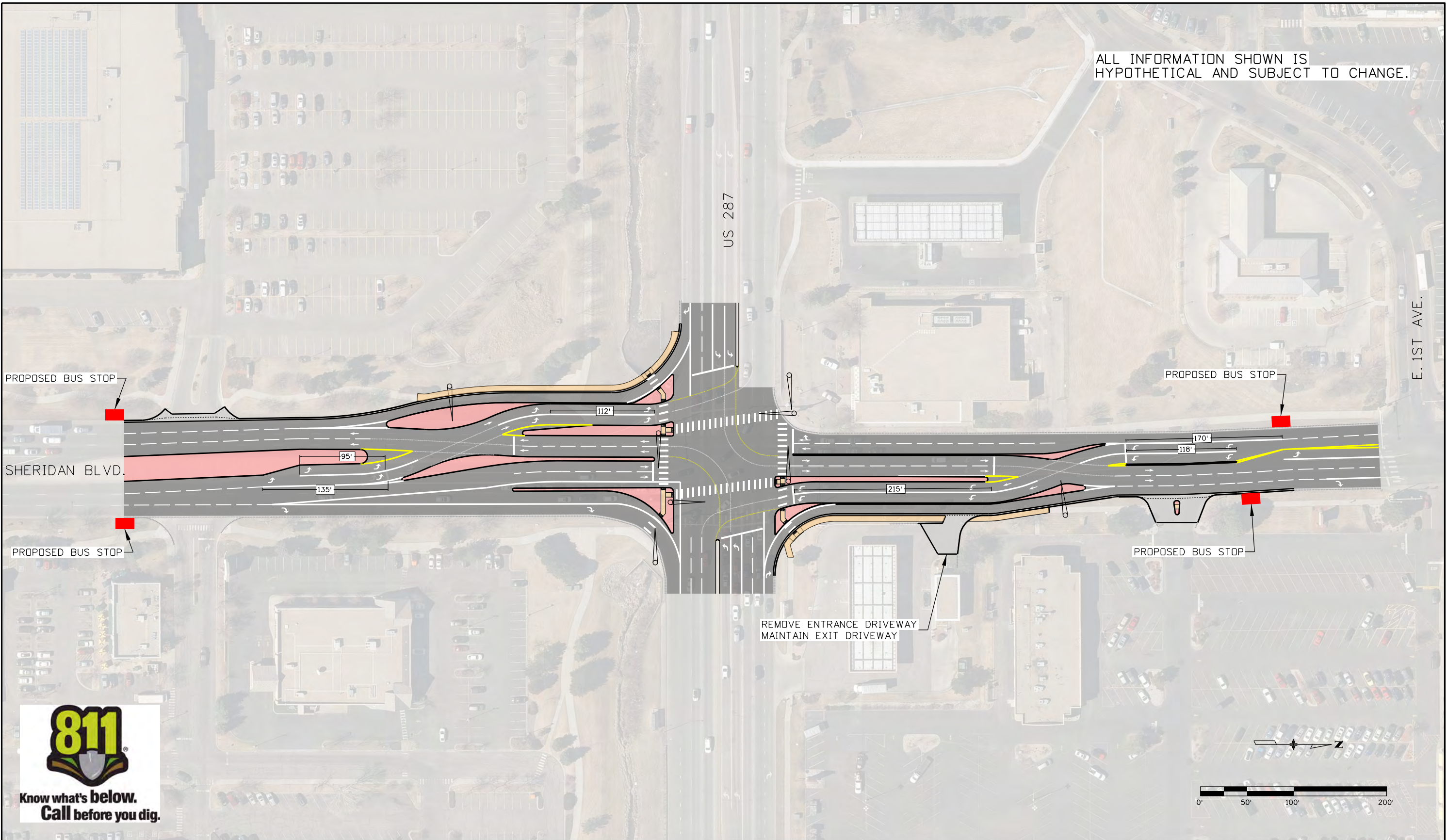


US 287/120th Ave

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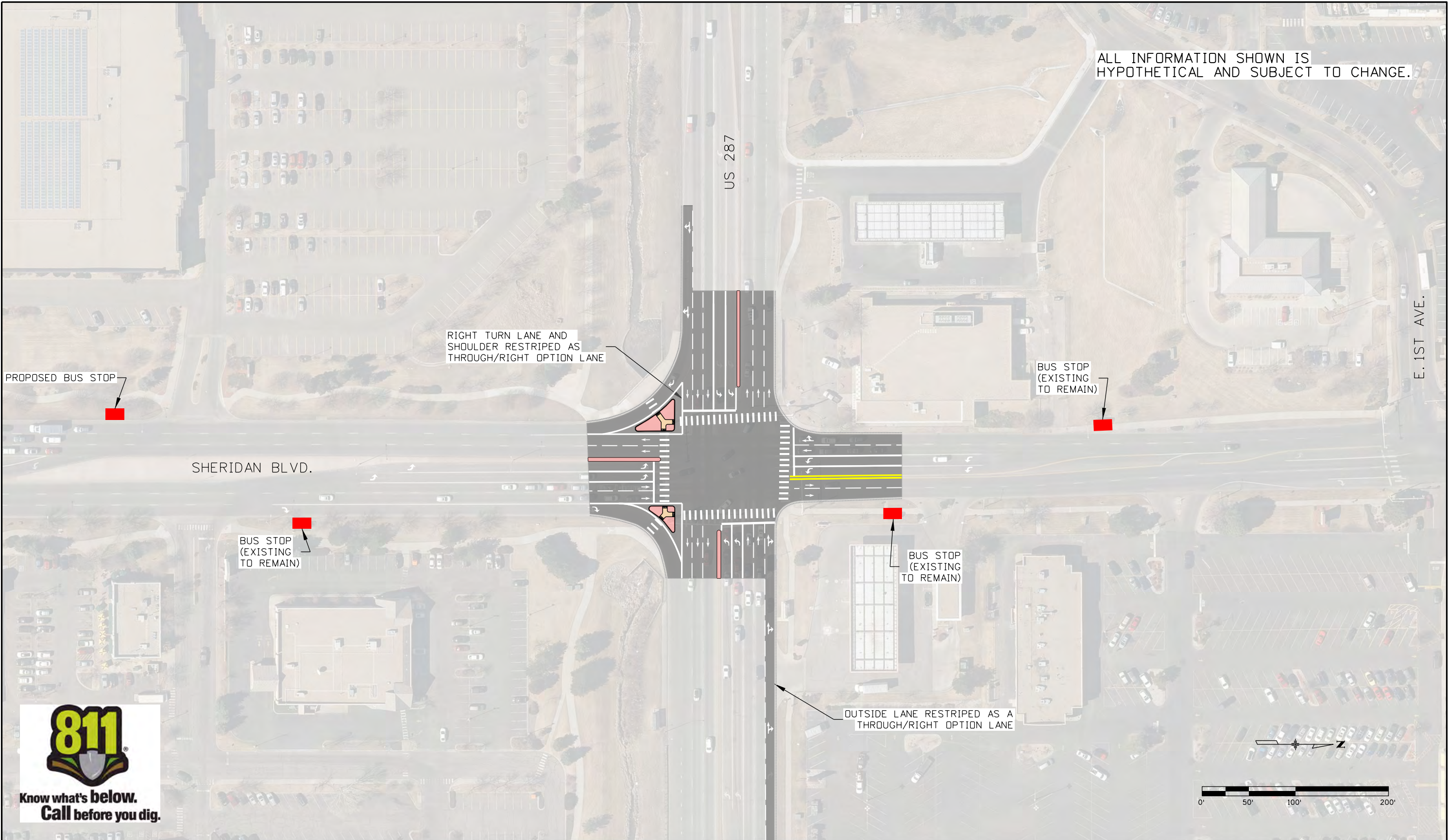
Alternative 3 greatly improves upon the no action option by maximizing the existing pavement footprint through restriping. **Table 7** on page 38 shows the alternative evaluation matrix. Public transit operations are an important factor to consider when further exploring these options for design and construction.

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Print Date: 5/31/2023			Sheet Revisions			Colorado Department of Transportation 4670 Holly Street Denver, CO 80216-6408 Phone: 303-398-6783 FAX: 303-398-6781 Region 1 RS	As Constructed		FIGURE 5			Project No./Code	
File Name: 166182_Sheridan Concept.dgn			Date:	Comments	Init.		No Revisions:		US 287 AND SHERIDAN BLVD. ALT 2			COT01	
Horiz. Scale: 1:100 Vert. Scale: As Noted							Revised:		Designer: C. BURGESS	Structure		24810	
Unit Information Unit Leader Initials							Void:		Detailer: K. CROELL	Numbers		Sheet Number	
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Print Date: 6/16/2023			Sheet Revisions			Colorado Department of Transportation 4670 Holly Street Denver, CO 80216-6408 Phone: 303-398-6783 FAX: 303-398-6781 Region 1 RS	As Constructed		FIGURE 6			Project No./Code	
File Name: 166182_Sheridan Standard Concept.dgn			Date:	Comments	Init.		No Revisions:		US 287 AND SHERIDAN BLVD. ALT 3			COT01	
Horiz. Scale: 1:100 Vert. Scale: As Noted							Revised:		Designer: C. BURGESS	Structure		24810	
Unit Information Unit Leader Initials							Void:		Detailer: K. CROELL	Numbers		Sheet Number	
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Table 7: 120th Ave and Sheridan Blvd Analysis Matrix

Description	Operations		Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
	Level of Service & Delay	Total Network Delay	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bicycle Movement Comfort and Safety	Transit Accommodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 - No Action												N/A	N/A	N/A	
Alternative 1 - Signal Timing Adjustment															
Alternative 2- Detached Left for the North/South Legs															
Alternative 3- Adding Trough Lanes in the East/ West Dircion and Right Turn Lane for the South Direction															

-  - Positive Impact
-  - Neutral Impact
-  - Negative Impact

US 287/120th Ave

MULTIMODAL STUDY

US 287/120th Avenue and Main St

Introduction

This intersection was identified from public involvement comments and the *Existing Conditions and 2050 Baseline Traffic Analysis Report* as another high congestion intersection. The future Broomfield Town Square Development Project will exacerbate traffic concerns in future years, while the upcoming Broomfield Sidepath Infill Project will help with noted pedestrian and bicycle issues in the connecting area.

General

Based on future projected traffic volumes contained in the *Existing Conditions and 2050 Baseline Analysis Report*, the Main St intersection is expected to grow from existing volume of 29,000 vehicles per day (veh/day) to approximately 35,090 veh/day. The intersection connects US 287 with surrounding shopping centers and neighborhoods.

Main Street is classified as a Minor Arterial. Main Street serves as a connection between neighborhoods and to commercial areas, running through the City from its south terminus at 112th Avenue to its northern conclusion at 136th Avenue. Main Street serves as two-lane divided roadway to the south of US 287 and a four-lane section to the north of US 287 until E 1st Avenue. North of E 1st Avenue, Main Street transitions to a three-lane roadway. Raised medians are found on the east and west leg of 120th Ave.



Main St and US 287/120th Ave

Problem Statement

Presently, this intersection operates at an LOS C/D for AM/PM traffic and is projected to degrade to LOS E/E in the year 2050. There is a crash pattern showing elevated rear end crashes and approach turn crashes. This crash pattern is indicative of major congestion which the low LOS confirms. The intersection is also constrained by lack of ROW availability due to grades and private businesses. The addition of the Broomfield Town Square project will add to the congestion at this intersection.

Background Analysis

Traffic Safety

During the study period of 2015 to 2020 there were 56 crashes reported at the intersection with 13 involving injuries. There were no fatal crashes at the intersection during the study period. Analysis shows that rear end (35) crashes make up the majority of incidents at this location. Other noteworthy crash types include broadside (7) and approach turn (8). The intersection has a LOSS of 4 and a LOSS Severity of 3.

US 287/120th Ave

MULTIMODAL STUDY

There were 0 pedestrian crashes and 0 bicycle crash at this intersection in the study period. The corridor has an LTS of 4 on both sides of the corridor at this intersection.

Traffic Operations

Presently, the intersection is operating at LOS C in the AM peak hour and LOS D in the PM peak hour. Future 2050 traffic operations for the intersection without any improvements result in an overall failure of the intersection with LOS E for both peak hours resulting in an AM peak hour delay of 72.0 seconds, see **Table 8** below for the Level of Service comparison. A large portion for the increase in traffic volumes at this intersection is due to the Broomfield Town Square project.

Table 8 - 120th Ave and Main St Level of Service

	EXISTING		2050 NO ACTION		2050 ALT 1/2		2050 ALT 3	
	AM	PM	AM	PM	AM	PM	AM	PM
LOS	C	D	F	E	E	E	E	E
DELAY	27.5	38.9	90.6	62.6	86.7	61.2	78.7	57.3

Multimodal Operations

Pedestrians can cross on all corners of the intersection. There is one pork chop island on the southeast corner.

There are no bicycle lanes on either side of the intersection. However, improvements are being planned for bicyclists and pedestrians in the near future with another project.

Bus routes 120E and 120W run through this intersection along US 287/ 120th Ave. There is one bus stop near this intersection for eastbound buses. The stop is located about 225 feet east of the intersection directly in the northbound channelized right turn lane merge area.

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. This alternative takes the Broomfield Town Square and Sidepath Infill projects into account for helping to alleviate the pedestrian and bicycle concerns for the area by expanding sidewalks and adding directional pedestrian ramps. The intersection includes the following lane configuration:

- Northbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.



US 287/120th Ave

MULTIMODAL STUDY

- Eastbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.

Cost Estimate: There is no construction cost associated with this option.

Alternative 1 – Signal Timing Adjustment

This intersection will stay the same lane configuration as the No Action alternative but adjust the signal timing. The timing was increased to 140 second cycle length and the signal phasing configuration but changed the split timings. The following are the new phasing times:

- Westbound left (Phase 1): 20 seconds
- Eastbound through (Phase 2): 72 seconds
- Northbound left (Phase 3): 9 seconds
- Southbound through (Phase 4): 39 seconds
- Eastbound left (Phase 5): 37 seconds
- Westbound through (Phase 6): 55 seconds
- Southbound left (Phase 7): 11 seconds
- Northbound through (Phase 8): 37 seconds

These timings also keep the protected lefts in the east-west direction but permissive/protected in the north-south direction.

Cost Estimate: Cost of analysis and labor to design and construct this alternative is minimal.

Preservation of Existing Access Accommodations

There will be no impacts to the access or any acquisitions of right-of-way for this alternative.

Conclusion: No impacts to existing access are anticipated as a result of this alternative. LOS decreases in both AM and PM peak periods.

Alternative 2 – Extending the Eastbound Left Turn Lane

There will be no change to the lane configuration for this alternative; the eastbound left turn lane will be extended to 500' long to accommodate the queue lengths. This will decrease the westbound left turning lane for Quay St by 100 feet. Signal timing will be upgraded the same as in alternative 1. The intersection includes the following lane configuration:



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- Northbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$94,000. The cost breakdown can be found in **Appendix D**.

Preservation of Existing Access Accommodations

Extending the turn lane will not impact the access of this intersection and not require an acquisition of right-of-way.

Conclusion: No impacts to existing access are anticipated as a result of this alternative. This alternative will fail in the future and double through lanes will become necessary. LOS will decrease with the signal timing changes.

Alternative 3 – Adding Through Lanes in the Northbound and Southbound Direction and Left Turn Lanes in the Eastbound and Westbound Direction While Maintaining Standard Intersection

This alternative maintains a standard intersection configuration while adding a left turn lanes in the eastbound and westbound directions. The signal timing will be updated to accommodate the new configuration but there were no improvements for transit. The intersection includes the following lane configuration:

- Northbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$4,856,000. There are many assumptions that had to be made to create a preliminary cost estimate. Some of the assumptions include property takes, drainage, and utilities. Drainage and utilities are only

US 287/120th Ave

MULTIMODAL STUDY

estimated as a contingency percentage which likely does not encompass the full extent of negotiation and effort with affected entities. ROW acquisition was only estimated by acres and does not fully account for cost of land negotiations per current rates in this area, nor how loss of land use or full parcel condemnation would be estimated per fair market value by affected owners during negotiations. Soil excavation and fill were also estimated as a contingency percentage for this preliminary cost estimate. The cost breakdown can be found in **Appendix D**.

Preservation of Existing Access Accommodations

Adding left turn lanes will impact the access of this intersection and require an acquisition of a minimum of 30-feet of right-of-way for the left turn lanes and another minimum 30-feet of right-of-way for the through lanes. This will require the acquisition of properties from business owners. This alternative will eventually need to be investigated more with additional traffic predicted from the Broomfield Town Square project.

Conclusion: Multiple ROW acquisitions will need to be made and significant impacts to existing access are anticipated should this alternative be pursued. LOS will decrease for the intersection, but it will still be failing with an LOS E for both AM and PM peak periods.

Network Traffic Analysis

The results of the corridor traffic operations analysis are illustrated in **Table 9**, represented as Total Network Delay, and Average Network Speed. This analysis represents how the alternative impacts the network as a whole, and full worksheets are contained in **Appendix C** for reference. The traffic was analyzed as if every other intersection along the corridor remained the same while 120th Ave and Main St was updated for the different alternatives.

The No Action alternative provides a baseline to compare to the proposed alternatives. This baseline shows an average network speed is 11/8 mph for the AM/PM peak hours and the total network delay is 187.8/259.8 seconds per hour respectively. Similar or better network delay along the corridor indicate that the proposed alternative will not adversely impact the corridor.

Table 9 - 120th Ave and Main St Network Traffic

ALTERNATIVE	AVERAGE NETWORK SPEED (MPH)		TOTAL 2050 NETWORK DELAY (S/HR)	
	AM	PM	AM	PM
NO ACTION	11	8	187.8	259.8
1	11	11	166.9	186.3
2	11	8	166.9	186.3
3	14	13	145.7	150.1



US 287/120th Ave

MULTIMODAL STUDY

Summary

The results indicated that all proposed alternatives for US 287 and Main St. will improve observed traffic operations above taking no action. Alternative 2 will improve the left turning movement for eastbound to northbound traffic. This turn lane extension will eliminate vehicle overflow into the adjacent through lane which was found to cause mass network failure in the 2050 condition. The LOS for both Alternative 2 and Alternative 3 remained LOS E, but improved delay. Alternative 2 would work best as a less expensive, short-term quick fix. Alternative 3 illustrates a more permanent long-term solution providing greater benefit for the study corridor. Alternative 3 will need to be further investigated to confirm these findings, however, this study team asserts that it must be pursued at some point to prevent greater corridor network failure.

Table 10 on page 45 shows the alternative evaluation matrix.

Table 10: 120th Ave and Main St Analysis Matrix

Description	Operations		Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
	Level of Service & Delay	Total Network Delay	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bicycle Movement Comfort and Safety	Transit Accommodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 - No Action												N/A	N/A	N/A	
Alternative 1 - Signal Timing Adjustment															
Alternative 2- Extending the Eastbound Left Turn Lane															
Alternative 3- Adding Trough Lanes in the North/ South Direction and Left Turn Lanes for the East/ West Direction															

-  - Positive Impact
-  - Neutral Impact
-  - Negative Impact

US 287/120th Ave

MULTIMODAL STUDY

US 287/120th Avenue from Upham St to Nickel St

Introduction

This section of corridor was identified from public involvement comments and the *Existing Conditions and 2050 Baseline Traffic Analysis Report* as an area where there are no existing bicycle facilities, subpar pedestrian facilities, with sidewalks less than 5 feet wide and poor sidewalk connectivity, and significant less traffic following the completion of the CO 128 to Interlocken Loop connector.

General

Based on the *Existing Conditions and 2050 Baseline Analysis Report*, the section of corridor between the intersections of Upham St and Nickel St has an expected to grow from existing volume of 16,000 vehicles per day (veh/day) to approximately 16,720 veh/day in 2050. This is an increase in traffic volumes, but the corridor saw a decrease in vehicles since the US 36 loop was constructed. This portion of the corridor divides residential neighborhoods to the north from businesses to the south.



CO 128 and US 287/120th Ave

The roadway cross section features two lanes in both the north and south direction with a center median that provides middle left turn lanes at intersections. There are no bike facilities along this portion of the corridor. The sidewalk on the east side of the road has sidewalks that are less than 5 feet wide and are missing for a large portion of the corridor. The sidewalks on the west side of the road are broken up by numerous access points and are also missing in large portions, limiting the connectivity of the pedestrian facilities.

Problem Statement

Presently, the whole corridor runs with 187.8/259.8 s/hour of delay respectively for AM/PM peak periods. Crash data shows elevated rear end crashes and sideswipe crashes. There are also no bicycle facilities and limited pedestrian facilities. This section of roadway is designed for a level of traffic that is no longer needed and should be reimagined in a way that better serves the surrounding community through improved pedestrian and bicycle facilities.

Background Analysis

Traffic Safety

During the study period of 2015 to 2020 there were nineteen (19) crashes reported at the intersections between Upham St and Nickel St. There were three (3) crashes resulting in injury at the intersections of Hemlock Way (2) and Marble St (1) during the study period. The main types of crashes were sideswipe (5) and rear end (5) crashes at the intersections between Upham St and Nickel St. These types of crashes are



US 287/120th Ave

MULTIMODAL STUDY

from stopping vehicles making turns and vehicles maneuvering around them. The corridor has a LOSS of 4 and a LOSS Severity of 4.

The corridor has an LTS of 4 on both sides of the corridor at this intersection.

Multimodal Operations

There is only sidewalk on the south side of the roadway near Upham St. No sidewalk exists further north along the corridor.

There are no bicycle lanes on either side of this corridor. 1st Ave, running parallel to this corridor, is being used as a surrogate bike facility.

There are no bus routes running through this corridor in present existing conditions.

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare to the other alternatives. This alternative includes the intersection in its original location and configuration. The corridor includes the following lane configuration:

- Northbound Approach: Two through lanes
- Southbound Approach: Two through lanes

Cost Estimate: There is no construction cost associated with this option.

Alternative 1 – Road Reconfiguration

The lanes on this section of corridor will be reduced from two lanes to one lane in both directions. A 10-foot shared use path will be added to the north side of the road. A 6-foot sidewalk and 6-foot bike lane will be added to the south side of the road. The business accesses will remain in the same locations and will retain parking but will have enhanced safety. There will be a sidewalk connection from the existing facility at Upham St to the new proposed areas. The existing lane configurations will be tied into at both Upham St and Nickel St.

- Northbound Approach: One through lane
- Southbound Approach: One through lane

In addition to the roadway reconfiguration, the intersection of US 287 and Upham St. shall be revised. The westbound right turn lane at Upham St will be shortened to accommodate a safer transition across the bicycle lane. Green paint is also proposed for the bike lane at the westbound right turn lane to provide more visibility to that conflicting movement. The crosswalks shall be raised as a traffic calming measure to improve pedestrian safety.

US 287/120th Ave

MULTIMODAL STUDY

It should be noted that the study team designates these Upham intersection improvements as a temporary fix. A more permanent solution for this intersection would include significant reconstruction of the roadway, retaining wall along the north side of the road, the pedestrian facilities, existing drainage conditions, as well as the possible need to demolish and reconstruct the soundwall along the northern ROW line.

Figure 7A on page 49 displays the proposed overall layout for Alternative 1. This alternative will allow for a better connectivity to the community. It will allow for safe pedestrian and bicycle facilities while keeping the flow of traffic at acceptable level. Safety for the business accesses on the southside of road will also be increased. **Figure 7B** on page 50 displays the sidewalk and turning connection at Upham St.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at \$5,992,000. The cost estimate for the improvements at Upham St. were estimated to be around \$183,000. This cost estimate is a high-level estimate that uses percentages and contingencies to estimate the drainage, fill, and utilities. The cost breakdowns can be found in **Appendix D**.

Preservation of Existing Access Accommodations

All accesses will be maintained with the new configuration and no right-of-way will need to be acquired.

Conclusion: No impacts to existing access are anticipated as a result of this alternative.

Network Traffic Analysis

The results of the corridor traffic operations analysis are illustrated in **Table 11** below. The analysis worksheets are contained in **Appendix C** for reference. The analysis for this section represents how the alternative impacts the network as a whole, not just the intersection itself. The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Results are represented as Total Network Delay and Average Network Speed. The No Action alternative was analyzed as a baseline to compare the developed alternatives to. As a result, the No Action average network speed is 11/8 mph for the AM/PM peak hours and the total network delay is 187.8/259.8 seconds per hour respectively.

Table 11 - US 287 from Upham St to Nickel St Network Traffic

ALTERNATIVE	AVERAGE NETWORK SPEED (MPH)		TOTAL 2050 NETWORK DELAY (S/HR)	
	AM	PM	AM	PM
NO ACTION	11	8	187.8	259.8
1	14	17	189.3	225.6

Summary

The results indicate that alternative 1 will improve pedestrian and bicycle facilities of the corridor, increase network speed, while not negatively impacting observed corridor delays. **Table 12** on page 51 shows the alternative evaluation matrix.



Print Date: 06/14/2023	
File Name:	
Horiz. Scale: As Noted	Vert. Scale: As Noted
Unit Information	
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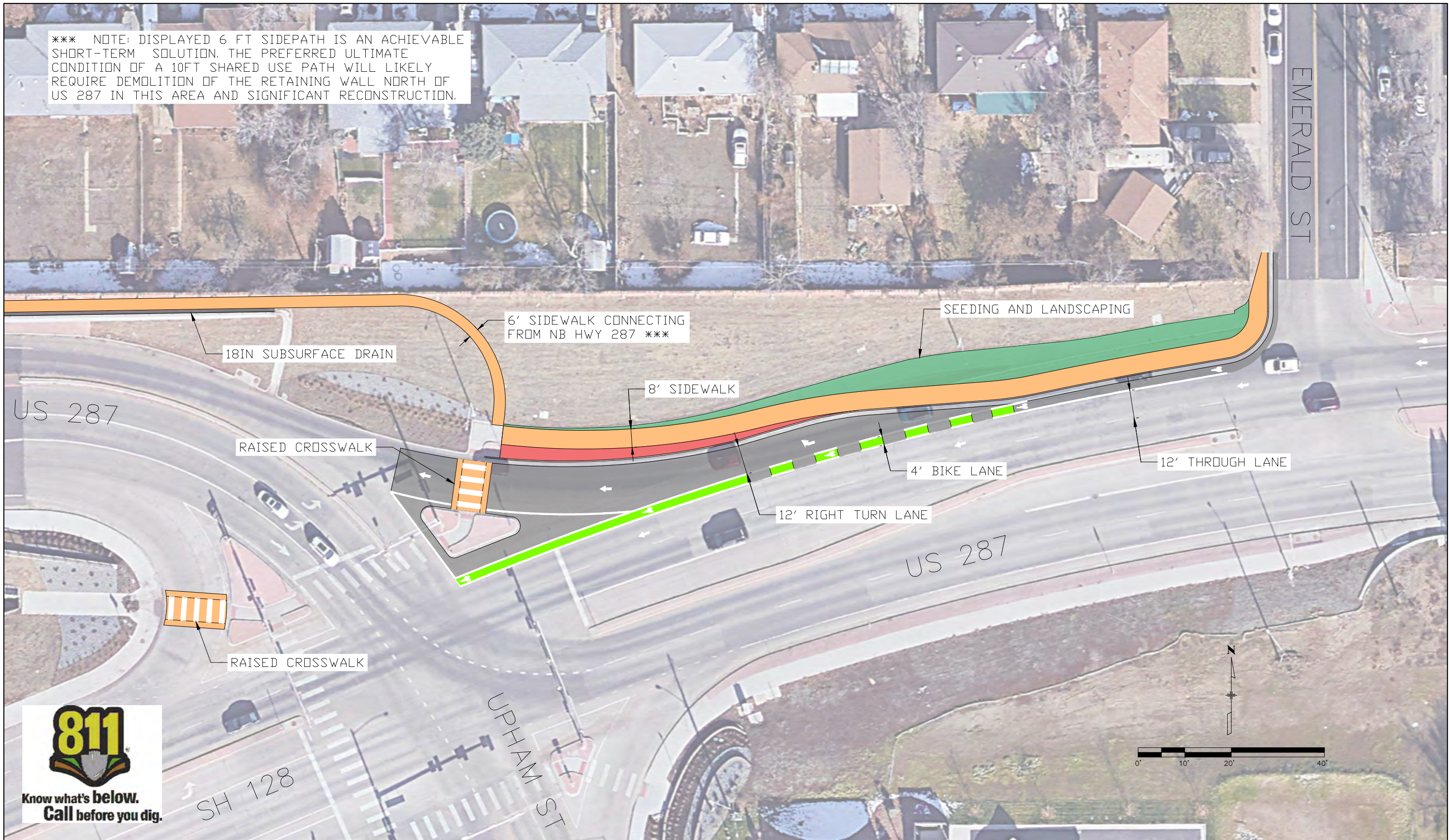
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FIGURE 7A US 287 ROADWAY RECONFIG. EXHIBIT			
Designer:	C. BURGESS	Structure Numbers	
Detailer:	C. HAYSON		
Sheet Subset:		Subset Sheets:	

Project No./Code
COT01
24810
Sheet Number

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*** NOTE: DISPLAYED 6 FT SIDEPATH IS AN ACHIEVABLE SHORT-TERM SOLUTION. THE PREFERRED ULTIMATE CONDITION OF A 10FT SHARED USE PATH WILL LIKELY REQUIRE DEMOLITION OF THE RETAINING WALL NORTH OF US 287 IN THIS AREA AND SIGNIFICANT RECONSTRUCTION.



Print Date: 04/17/2023			Sheet Revisions			Colorado Department of Transportation 4670 Holly Street Denver, CO 80216-6408 Phone: 303-398-6783 FAX: 303-398-6781	As Constructed		FIGURE 7B			Project No./Code		
File Name:			Date:	Comments	Init.		No Revisions:		US 287 AND UPHAM ST INTERSECTION			COT01		
Horiz. Scale: As Noted Vert. Scale: As Noted							Revised:		Designer: C. BURGESS		Structure		24810	
Unit Information Unit Leader Initials							Void:		Detailer: C. HAYSON		Numbers			
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Region 1						RS								

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Table 12: US 287 from Upham St to Nickel St Analysis Matrix

Description	Operations		Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
	Level of Service & Delay	Total Network Delay	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bicycle Movement Comfort and Safety	Transit Accomodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 - No Action	●	●	●	●	●	●	●	●	●	●	●	N/A	N/A	N/A	●
Alternative 1 - Road Diet	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- - Positive Impact
- - Neutral Impact
- - Negative Impact



US 287/120th Ave

MULTIMODAL STUDY

US 287 Slip Ramp to Wadsworth Blvd

Introduction

This ramp was identified from public involvement comments and the *Existing Conditions and 2050 Baseline Traffic Analysis Report* as congested during peak hours with dangerous weave movements. This weave is the result of cars from the US 287 slip ramp trying to cross multiple lanes to turn left onto WB Midway Blvd at the same time as vehicles on Wadsworth Pkwy attempt to weave right into either the Shell gas station entrance or into the right turn lane for EB Midway Boulevard. This full length for this weave condition is only 325 feet long. The Shell gas station entrance is only 160ft from the nose of the US 287 slip ramp, further intensifying this dangerous condition. The grade change of the ramp also contributes to poor visibility. There are also high design speeds for both roadways that make the short merge section dangerous in non-peak period times.

The City and County of Broomfield has an upcoming Midway Blvd Improvement Project that plans on potentially removing the entrance to the Shell gas station from Midway Blvd section and improving the bicycle facilities along Midway Blvd. This plan may conflict with what is proposed in this Report and Study.

Additionally, CDOT has a potential ultimate condition for this area in early conceptual design: the US36/Wadsworth Pkwy Interchange Ultimate Design. This design would remove the US 287 slip ramp entirely, instead passing US 287 underneath Wadsworth Pkwy to connect to Abbot Ave on the western side. The entire existing loop interchange would be replaced with an area detention pond.

There are a couple additional projects in the area being conducted by CDOT and the County of Boulder. CDOT has a project investigating the entrances to the gas station on the southwest side of Wadsworth Pkwy that will possibly impact southbound traffic. The County of Boulder has a BRT safety and operations study that will impact the intersection of Wadsworth Pkwy and Midway Blvd.

Knowing the aforementioned projects may be on the horizon for this intersection, the Study team acknowledges that the alternatives analyzed in this report for this intersection are only temporary fixes and may not be pursued.

US 287/120th Ave

MULTIMODAL STUDY

General

Based on future projected traffic volumes contained in the *Existing Conditions and 2050 Baseline Analysis Report*, the ramps west of Nickel St are expected to grow from existing volume of 20,000 vehicles per day (veh/day) to approximately 21,800 veh/day. The northbound ramp is used to travel north and continue along US 287 as it merges with Wadsworth Parkway.

In this area, Wadsworth Parkway is a north-south divided four-lane Regional Arterial. Wadsworth Pkwy runs north-south through the Denver Metro area and enters the City near the 112th Avenue alignment before terminating at the merge point with US 287. In this short stretch the corridor offers access to US 36, operates as part of Interlocken Loop, and serves business districts and multi-family housing.



CO 121 and US 287/120th Ave

Problem Statement

The observed present day weave pattern creates an unsafe traffic condition, with an existing crash pattern being one of rear end crashes and approach turn crashes. There are no pedestrian or bicycle facilities in the area and there are no options to address them for this project.

Background Analysis

Traffic Safety

During the study period of 2015 to 2020 there were nine (9) crashes reported at the intersection. There were no injury or fatal crashes at the intersection during the study period. Analysis shows that eight (8) rear end crashes make up the vast majority of incidents at this location. The corridor has a LOSS of 3 and a LOSS Severity of 4.

Public comments were also prevalent for the close call crashes that happen at this weave point. The majority of commenters did not like this ramp due to how hard the weave was to complete and the number of close call crashes witnessed.

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare to the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following lane configuration:

- Wadsworth Pkwy Northbound Approach: Two through lanes.
- Slip Ramp Approach: One exclusive merge lane into right through lane.

Cost Estimate: There is no construction cost associated with this option.



US 287/120th Ave MULTIMODAL STUDY

Alternative 1 – Striping and Signing Adjustment

This intersection will maintain the existing configuration while adjusting striping and signing. Two yield signs and yield pavement markings will be added. The junction includes the following lane configuration:

- Wadsworth Pkwy Northbound Approach: Two through lanes, and one exclusive right-turn lane.
- Slip Ramp Approach: One exclusive merge lane into the corresponding right-turn lane.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$5,000. The cost breakdown can be found in **Appendix D**.

Preservation of Existing Access Accommodations

There will be no impacts to the access or any acquisitions of right-of-way for this alternative.

Conclusion: No impacts to existing access are anticipated as a result of this alternative.

Alternative 2 – Remove Conflicting Weave Movements

This alternative alleviates the conflicting weave movement by eliminating the entrance to the Shell gas station on the eastern shoulder of Wadsworth Pkwy. This will result in at least a portion of the weaving traffic being forced to first turn right onto EB Midway Blvd before accessing this gas station. This should extend the weaving section. The intersection includes the following lane configuration:

- Wadsworth Pkwy Northbound Approach: Two through lanes.
- Slip Ramp Approach: One exclusive merge lane into right through lane.

Figure 8 on page 55 displays the proposed layout for Alternative 2.

Cost Estimate: The cost estimate to design and construct this alternative is estimated at around \$306,000. The cost breakdown can be found in **Appendix D**.

Preservation of Existing Access Accommodations

The change in the configuration of the slip ramp will result in the removal of the entrance to the Shell gas station on the east side. The exit will remain as is with a right out only movement.

Conclusion: No acquisitions will need to be made but the removal of an existing ingress point is anticipated as a result of this alternative, which will require negotiation with the affected property owner.

Summary

Alternative 2 will allow for better flow of traffic and improve vehicular safety by eliminating the access point entrance within this weave lane. While elimination of this entrance is an improvement, the study team acknowledges that full closure of this access point will require extensive negotiations with the affected business and that this proposed alternative may not be pursued. **Table 13** on page 56 shows the alternative evaluation matrix.



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File Name: 166182_Midway Concept.dgn	
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Region 1

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FIGURE 8 WADSWORTH PKWY SLIP RAMP ALT2			
Designer:	C. BURGESS	Structure Numbers	
Detailer:	K. CROELL		
Sheet Subset:		Subset Sheets:	

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24810
Sheet Number

Table 13: US 287 Slip Ramp Analysis Matrix

Description	Operations		Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
	Level of Service & Delay	Total Network Delay	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bicycle Movement Comfort and Safety	Transit Accommodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 - No Action	●	●	●	●	●	●	●	●	●	●	●	N/A	N/A	N/A	●
Alternative 1 - Signing and Striping Update	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Alternative 2- Remove Conflicting Weave	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- - Positive Impact
- - Neutral Impact
- - Negative Impact

Summary of Results

As detailed in this document, the following alternatives meet a sufficient ratio of positive benefit to negative cost and construction difficulty factors in order to be recommended for further future design and evaluation. These options improve the most criteria by the greatest combined factor for each intersection:

120th Ave & Lowell Blvd

- Alternative 2 – Larger Islands on the Southside of Intersection
- Alternative 3 – Bus Stop Islands

120th Ave & Vrain St and Greenway Dr

- Alternative 2 – Bicycle Boxes to the North and South Side

120th Ave & Sheridan Blvd

- Alternative 2 – Detached Left Intersection Concept

120th Ave & Main St

- Alternative 2 – Extending the Left Turn Lane in Eastbound Direction

US 287 from Upham St to Nickel St

- Alternative 1 – Road Reconfiguration

US 287 Slip Ramp to Wadsworth Pkwy

- Alternative 2 – Remove Conflicting Weave Movement



US 287/120th Ave MULTIMODAL STUDY

Final Recommendations Report

The forthcoming Recommendations Report will describe each of the recommendations in further detail, illustrate concepts and provide discussion, analysis, and phased implementation considerations. Final Recommendations will be influenced by continued community engagement, agency coordination during the Concept Development Phase, and ultimately be a refined response to the issues that were identified, utilizing analysis conducted during the Inventory & Analysis Phase of the study.

Tables

Table 1 – 120TH Ave and Lowell Blvd Level of Traffic (In report)

Table 2 – 120TH Ave and Lowell Blvd Analysis Matrix (In report)

Table 3 – 120TH Ave and Vrain St Level of Traffic (In report)

Table 4 – 120TH Ave and Vrain St Analysis Matrix (In report)

Table 5 – 120TH Ave and Sheridan Blvd Level of Traffic (In report)

Table 6 – 120TH Ave and Sheridan Blvd Network Traffic (In report)

Table 7 – 120TH Ave and Sheridan Blvd Analysis Matrix (In report)

Table 8 – 120TH Ave and Main St Level of Traffic (In report)

Table 9 – 120TH Ave and Main St Network Traffic (In report)

Table 10 – 120TH Ave and Main St Analysis Matrix (In report)

Table 11 – US 287 from Upham St to Nickel St Network Traffic (In report)

Table 12 – US 287 from Upham St to Nickel St Analysis Matrix (In report)

Table 13 – US 287 Slip Ramp Analysis Matrix (In report)

Figures

Figure 1 – Study Area (In report)

Figure 2 – US 287 and Lowell Blvd Alternative 2 (In report)

Figure 3 – US 287 Ave and Lowell Blvd Alternative 3 (In report)

Figure 4 – US 287 and Vrain St Alternative 2 (In report)

Figure 5 – US 287 and Sheridan Blvd Alternative 2 (In report)

Figure 6 – US 287 and Sheridan Blvd Alternative 3 (In report)

Figure 7A – US 287 Roadway Reconfiguration Alternative 1 (In report)

Figure 7B – US 287 and Upham St Intersection (In report)

Figure 8 – Wadsworth Pkwy Slip Ramp Alternative 2 (In report)

Appendix A

Public Comments



PUBLIC ENGAGEMENT REPORT

US 287/120th Avenue Multimodal and Safety Study

Prepared for SEH, CDOT, and City and County of Broomfield

JULY 2022



Public Engagement Overview

PROJECT BACKGROUND

The Colorado Department of Transportation (CDOT), in partnership with the City and County of Broomfield (Broomfield), is kicking off a multimodal and safety study to develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns since the completion of the 120th Avenue Connection project as well as look for ways to improve multimodal capacity and address safety. 120th Avenue is recognized as part of the High Injury Network and a Critical Corridor by the [Denver Regional Council of Governments' Taking Action on Vision Zero Plan](#).

Significant gaps in infrastructure remain for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#), and the project team will look at options for improving access to transit facilities and operational improvements to increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of City and County of Broomfield residents, business owners, visitors and traveling public.

Project Location Map



Goals and Objectives

- ✓ ***Builds on previous City and County of Broomfield, CDOT, and RTD studies and improvement efforts to develop a comprehensive plan that improves safety, operations, and equity for all modes of travel***
- ✓ ***Increases safety for all travelers***
- ✓ ***Improves accessibility of multimodal transportation facilities for all ages and abilities***
- ✓ ***Identifies multimodal transportation infrastructure gaps within the project area***
- ✓ ***Promotes 120th Avenue as a future Bus Rapid Transit (BRT) corridor***

Public Engagement Overview

PUBLIC OUTREACH

This project is a partnership between CDOT and the City and County of Broomfield. In June Broomfield and CDOT sought input regarding gaps in accessible multimodal travel for all ages and abilities, safety challenges, or where overall multimodal options for residents can be improved throughout the corridor at the Broomfield's Brewhaha Event on June 18th, 2022.

Currently, two more in person events and one virtual event are being planned through October 17, 2022 when the public engagement period will end and a final report will be generated in addition to status reports after each engagement event.

Upcoming Events & Input Being Sought

August 2, 2022: Broomfield Night Out.

The purpose of this event will be project awareness and to promote the upcoming design alternative options based on the feedback collected on existing conditions.

August 3 or 4, 2022: Virtual Business Panel Project Q&A.

This event will inform business owners about the project and allow them to ask questions directly to the project panel. There will be several sessions to meet the needs of the diverse business community (corporate, retail, food, etc.).

August 5, 2022: FISH Event.

This family event will have a greater bilingual attendance to make sure we gather info from these under served communities.

September 17, 2022: Broomfield Days.

The purpose of this event will be to inform and solicit input on the design alternative options.

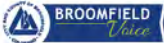
Public Input Project Milestone Schedule

- ✓ Mar 2022 Study Began
- ✓ Apr 2022 Project Area Being Studied
- ✓ May 2022 Project Area Being Studied
- ✓ Jun 2022 Existing Conditions Report is Complete
- ✓ Jun 2022 Public Engagement Period Begins
- ✓ Jun 18, 2022 Public Input Opportunity: Brewhaha Event
- ✓ July, 2022 Public Engagement Update Report #1
- ✓ Aug 2022 Conceptual Design Options Complete
- ✓ Aug 2, 2022 Public Input Opportunity: Night Out Event
- ✓ Aug 3 or 4, 2022 Public Input Opportunity: Business Virtual Project Panel Q&A Session
- ✓ August 5, 2022 Public Input Opportunity: FISH Event
- ✓ Aug 29, 2022 Public Engagement Update Report #2
- ✓ Sep 17, 2022 Public Input Opportunity: Broomfield Days
- ✓ Sep 30, 2022 Public Engagement Update Report #3
- ✓ Oct 17, 2022 Public Engagement Period Ends
- ✓ October 31, 2022 Final Public Engagement Report
- ✓ Apr 2023 Study Completes

Public Engagement Overview

BROOMFIELD VOICE PAGE GENERAL VIEW PAGE

[View the Site](#)

Broomfield.org All Projects Q Search ajwest

120th Ave

MULTIMODAL STUDY



Home » Transportation » US 287/120th Ave Multimodal Project

US 287/120th Ave Multimodal Project

[Take the Survey](#)

Who's Listening

Marc Ambrosi
Senior Transportation Planner
City and County of Broomfield

Phone: 720-794-5002
Email: transportation@broomfield.org

MA

About

Broomfield uses Bang the Table Engagement Platform to engage its citizens for input regarding their infrastructure efforts. The page contains a summary of the project, a schedule of key dates, the purpose and need, summary of public outreach, online survey, a set of collateral in five languages: English, Spanish, Vietnamese, Chinese, and Hmong, and an interactive project map where visitors can place a color-coded pin along with their comment regarding the existing condition concerns they may have along the corridor.

Overview of Visitor Engagement

Engaged

- ✓ 71 Visitors participated in the Online Survey.
- ✓ 7 Visitors Placed Pins with Comments on the map.

Informed

- ✓ 20 Visitors Downloaded a piece of collateral.
- ✓ 13 downloads for the FAQs
- ✓ 10 downloads for the Fact Sheet
- ✓ 2 Downloads for the FAQs (Spanish Version)
- ✓ 10 Visitors viewed the Key Milestone Dates Section.

Aware

- ✓ Total Visits to the Site to date: 572 Visits
- ✓ Overall Page Traffic from Launch to Jul 6, 2022
- ✓ 1 Visitor came from the CDOT Project Page and 99% of Traffic has come from various other methods of engagement.

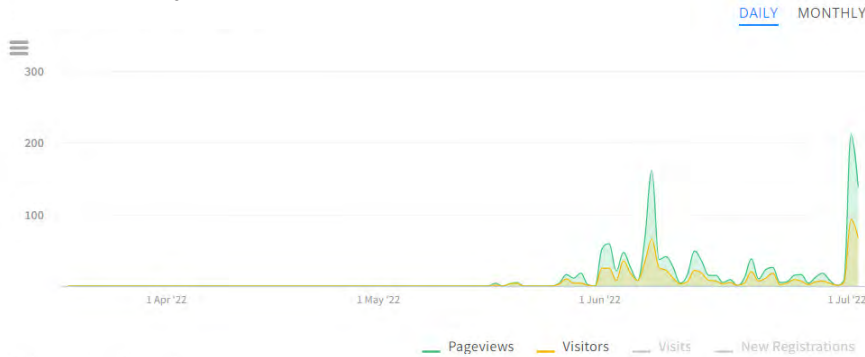
Visits by Source



TRAFFIC CHANNEL	AWARE VISITS	INFORMED VISITS(%)	ENGAGED VISITS(%)
DIRECT	519	231 (44.5%)	55 (10.6%)
SOCIAL	92	26 (28.3%)	13 (14.1%)
EMAIL	10	5 (50%)	1 (10%)
SEARCH ENGINE	38	17 (44.7%)	1 (2.6%)
.GOV SITES	1	1 (100%)	0 (0%)
REFERRALS	32	18 (56.3%)	7 (21.9%)

Public Engagement Overview

Visit Summary



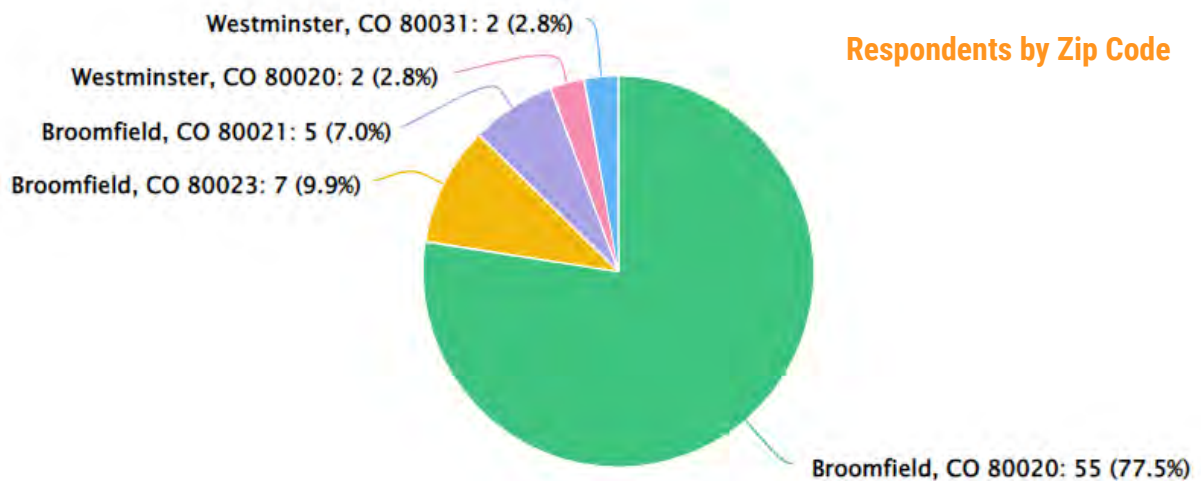
Highlights

TOTAL VISITS	MAX VISITORS PER DAY	NEW REGISTRATIONS
692	93	57
ENGAGED VISITORS	INFORMED VISITORS	AWARE VISITORS
71	251	572

SURVEY RESULTS OVERVIEW

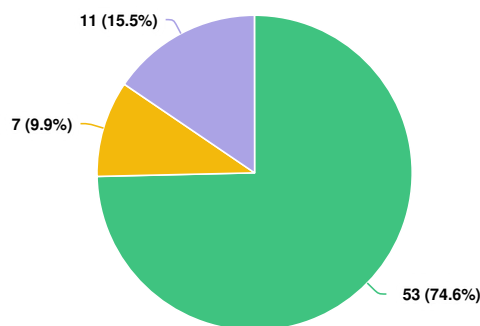
[View the Survey](#)

The online and paper surveys for both residents and business owners asked them a variety of questions as well as having them rank their biggest concerns regarding the existing conditions along the corridor. The survey was viewed 258 times with 71 of those visitors submitting a response.



Questions and Results from the Survey

Q1 Do you live or work along or near the US 287/120th Avenue Corridor in Broomfield (from US 287/Midway to US 287/120th Avenue...

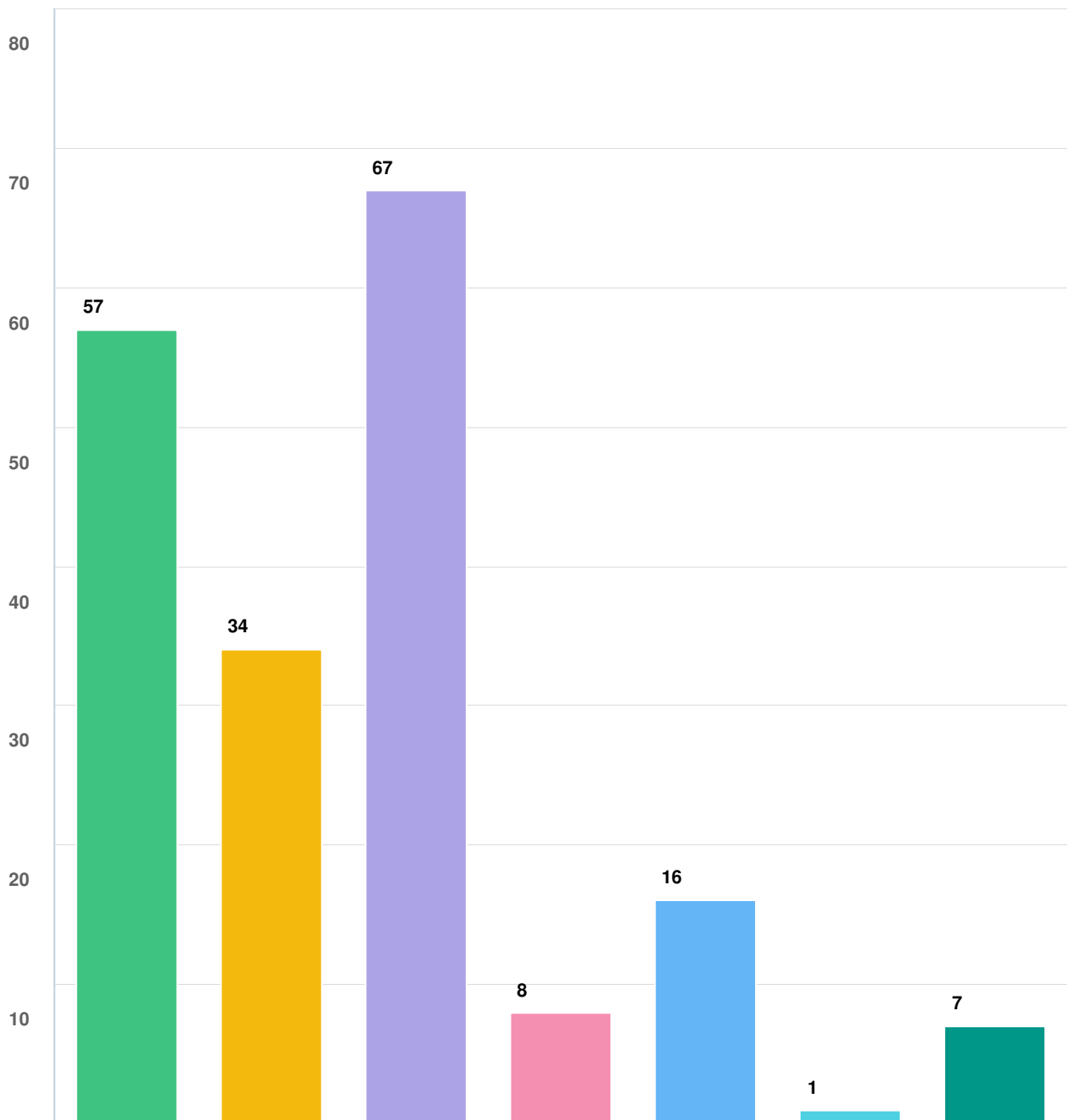


Question options

- Yes, I live along/near the corridor.
- Yes, I work along/near the corridor.
- No, I do not live or work along/near the corridor.

Public Engagement Overview

Q2 How do you use the corridor for travel. Check all that apply.

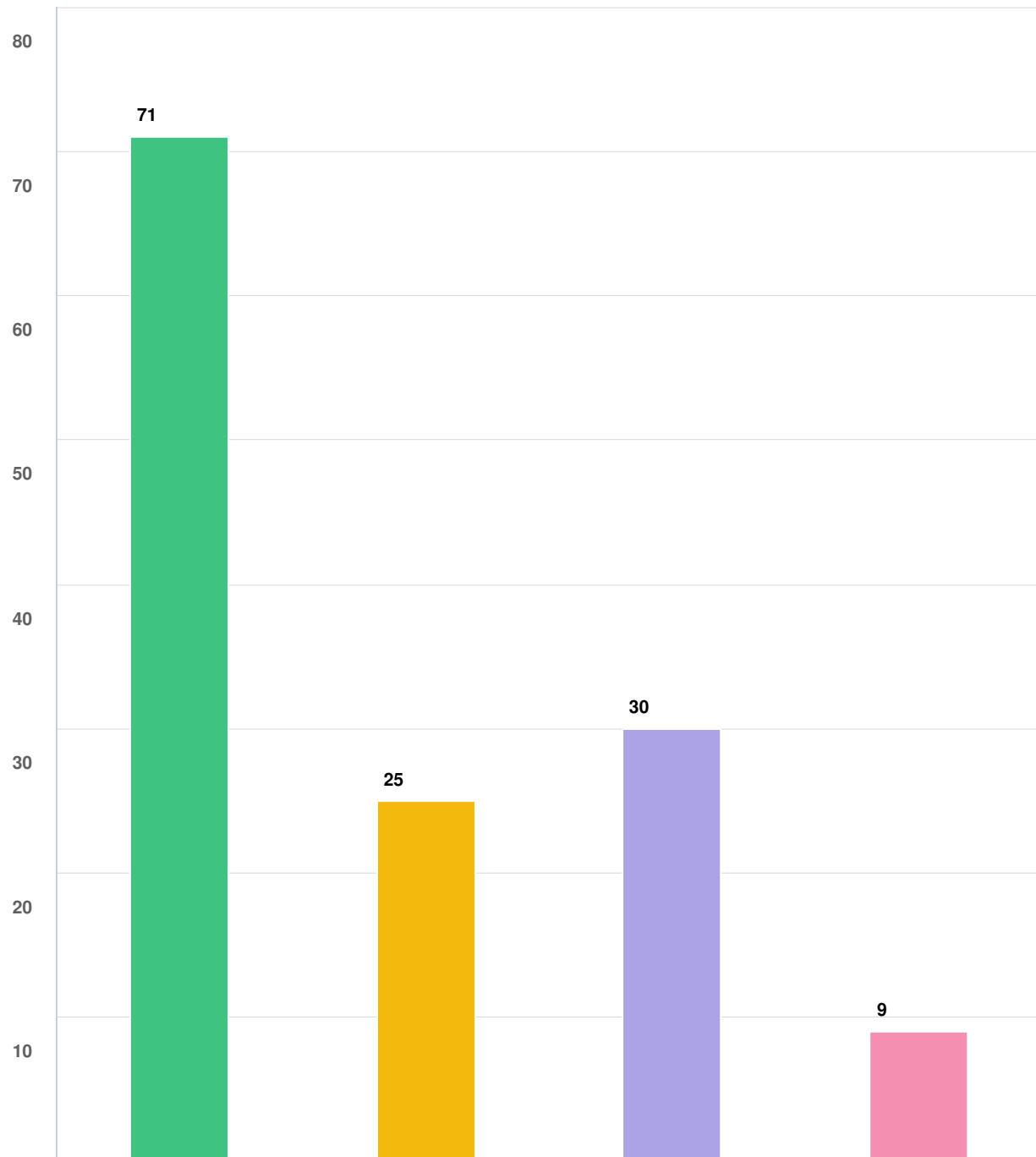


Question options

- To travel home
- To travel to work
- To shop or dine at the businesses
- To get to a transit stop
- To get to an RTD station (US 36 Station, Wagon Road or N-Line)
- I do not use the corridor for travel
- Other (please specify)

Public Engagement Overview

Q3 What modes have you used to travel the 120th Avenue corridor in Broomfield in the last three years? Check all that apply.



Question options

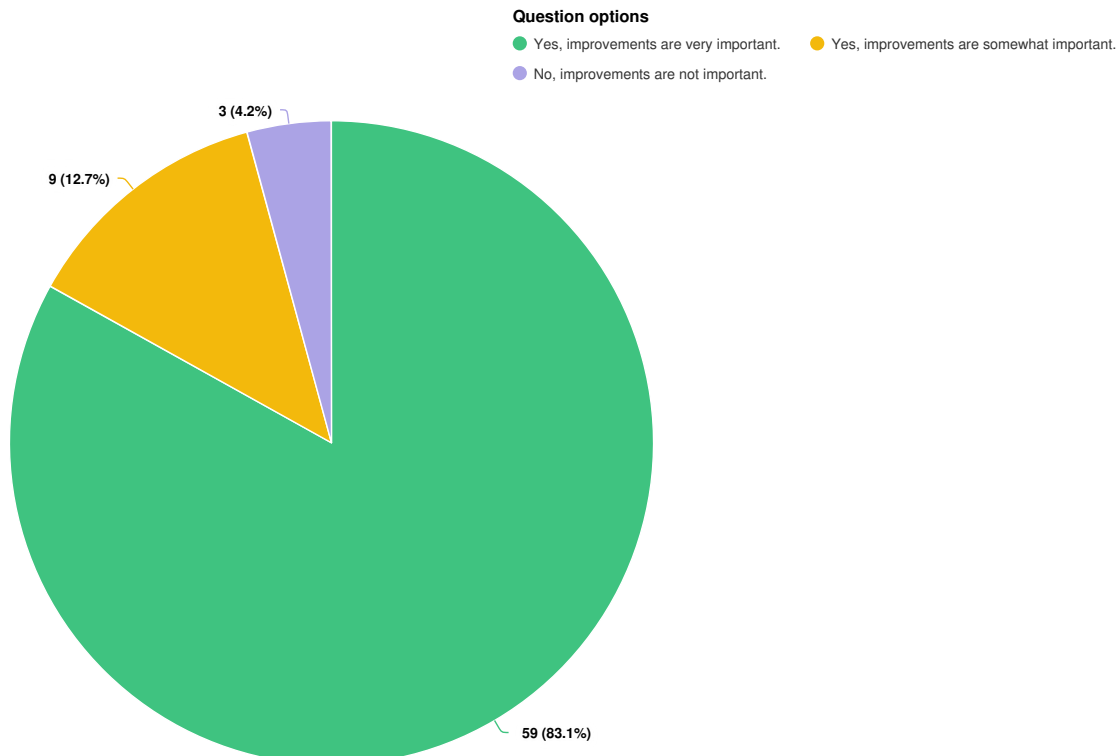
● Drive ● Walk ● Bicycle ● Transit

Public Engagement Overview

Q4 What do you think the corridor's greatest challenges for travel are? Rank in order of greatest to least with 1 being the greatest and 10 being the least.

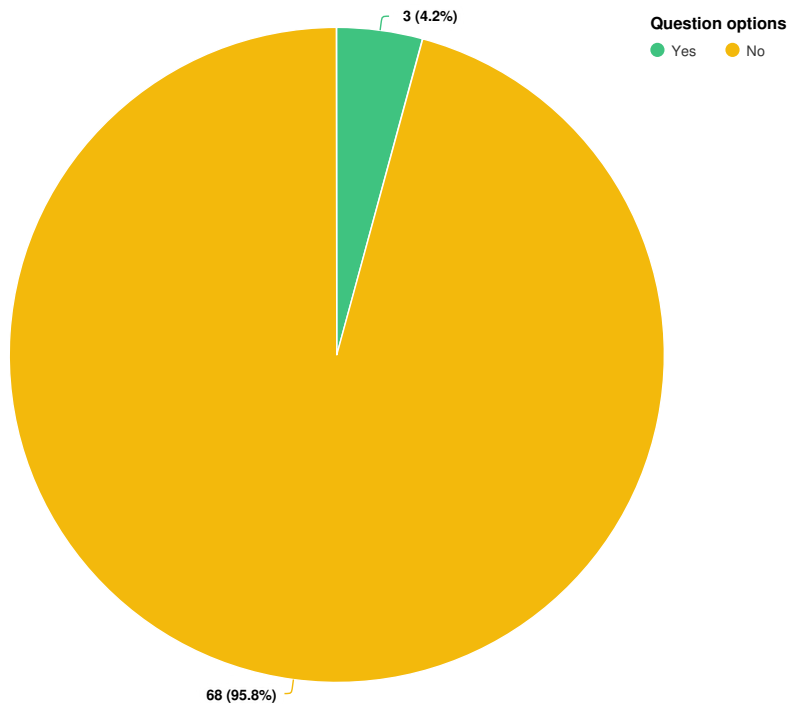
OPTIONS	AVG. RANK
Pedestrian Safety	3.23
Bicyclist Safety	3.92
Pedestrian Gaps	4.92
Bicycle Gaps	5.14
Congestion	5.76
Vehicular Traffic Safety	6.07
Transit Accessibility	6.14
Speeding	6.17
Intersection Accessibility Challenges	6.68
Transit Reliability	6.99

Q5 In general, do you feel improvements for people of all ages and abilities, walking, bicycling, and using transit are important for the US 287/120th Avenue corridor?



Public Engagement Overview

Q6 Do you own a business in Broomfield?



Q7 If yes, what is your business name and address and what is your biggest concern along this corridor as a business owner?

jt_02

6/01/2022 02:44 PM

Accessibility, ease of use, congestion

WStott

6/06/2022 06:55 PM

F1 Systems. Ease of access for vehicles and ped/bikes.

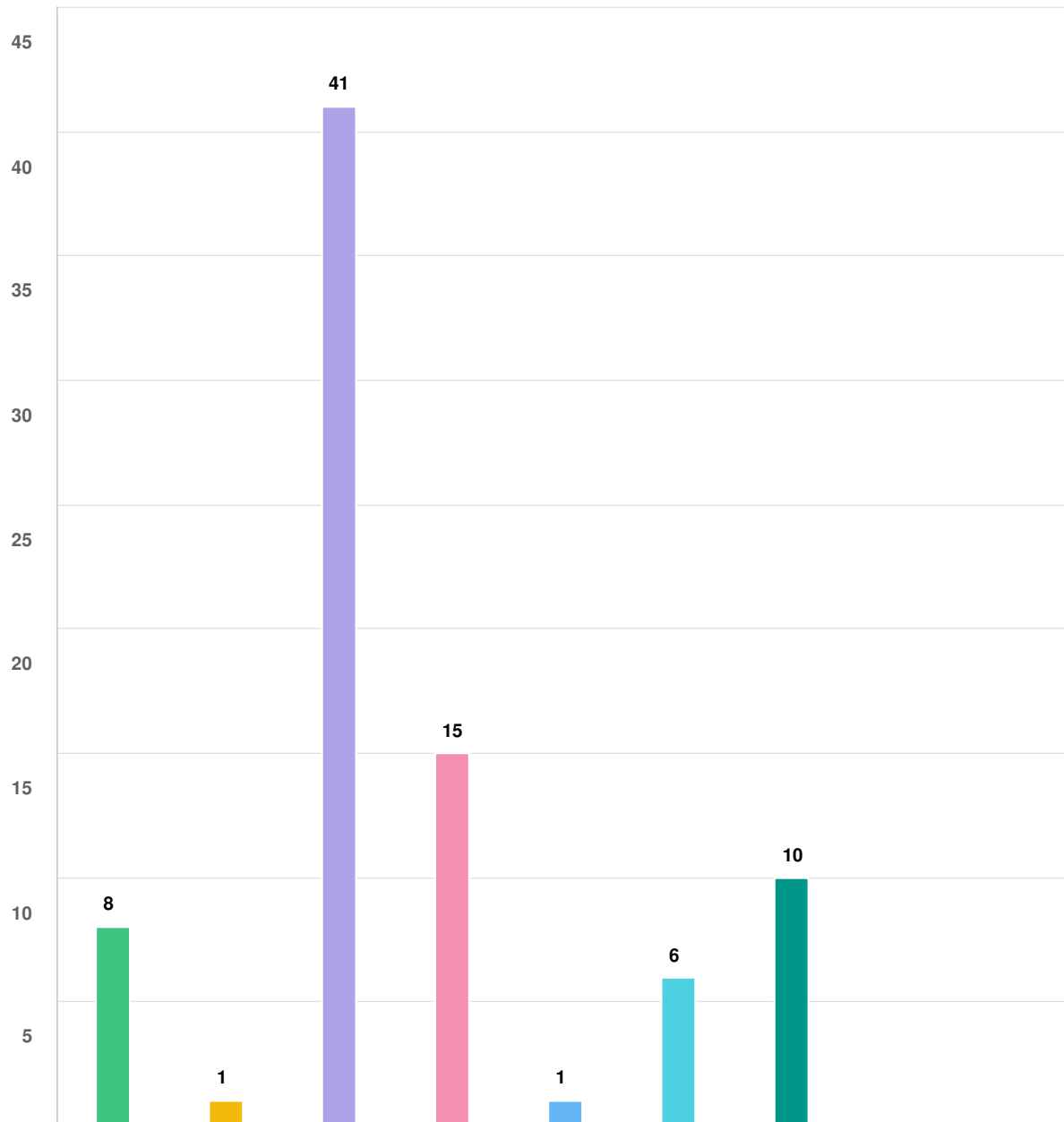
SteveMBecker

6/28/2022 10:46 AM

SPENGA 8181 Arista Pl. Lots of congestion and traffic lights on Hwy 287 to Wadsworth

Public Engagement Overview

Q8 How did you hear about the project? Check all that apply.



Question options

- CDOT Postcard
- CDOT Flyer
- City and County of Broomfield B in the Loop Newsletter
- City and County of Broomfield Social Media
- Event Booth
- Word of Mouth
- Other (please specify)
- CDOT Website
- CDOT Press Release

Public Engagement Overview

Map Results (Online and In Person)

The interactive project map both online and in person gave residents the ability to place a color-coded pin (online) or sticker (in person) along with their comment regarding the existing condition concerns they may have along the corridor. From both maps, 101 comments were received.

Map Categories:

- ✓ Traffic Safety
- ✓ Pedestrian Safety
- ✓ Bicyclist Safety
- ✓ Transit Gap
- ✓ Bottleneck Issue
- ✓ Mobility Challenge



ONLINE AND IN PERSON MAP RESULTS

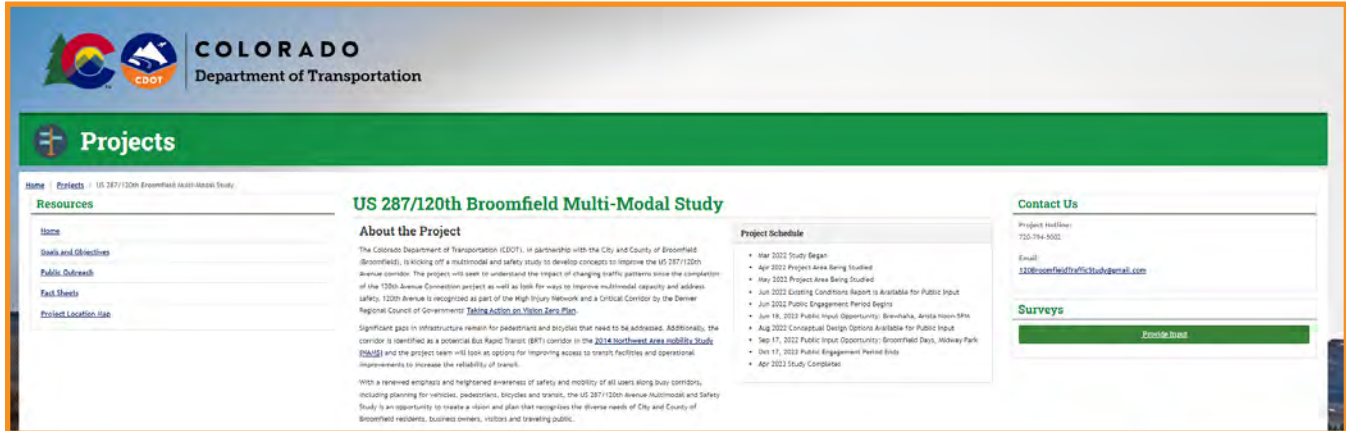
Issue Category	Online Map Total	In Person Map Total	Total for Both
Traffic Safety	22	2	24
Pedestrian Safety	12	4	16
Bottleneck Issue	21	0	21
Bicyclist Safety	23	2	25
Mobility Challenge	4	7	11
Transit Gap	2	2	4

Public Engagement Overview

CDOT PROJECT INFORMATION PAGE VIEW PAGE

[View the Site](#)

The CDOT Project Information page contains mirrored information from the Broomfield Voice page and is set to drive traffic to the engagement page on the Broomfield Voice project page. Only one visitor has come from the CDOT webpage to the Broomfield Voice page. Other data regarding the traffic about this page is not available to Chickenango.



PHONE HOTLINE | 720-794-5002

The project hotline has received no calls as of the date of this report regarding this project.

PROJECT EMAIL | 120thMultimodalStudy@gmail.com

The project email has received no emails as of the date of this report regarding this project.

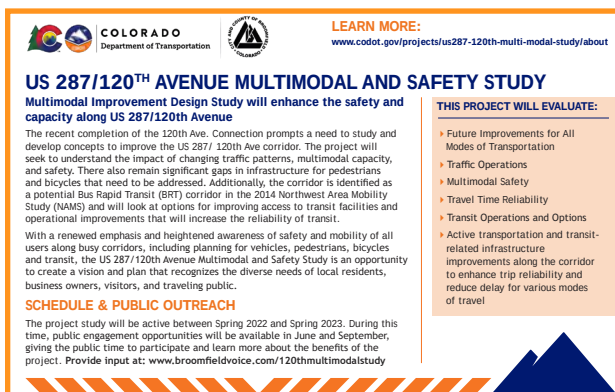
SOCIAL

One project specific social post was made by Broomfield's team on Broomfield's Facebook page on June 3, 2022. Social posts regarding the project will be amped up further for the next round of input. The social post drove 92 visitors to the site, but those visitors did not engage in the survey or with the map.

CDOT PROJECT POSTCARD

Chickenango sent an initial postcard pertaining to the purpose and need and promotion of first round of input for existing conditions was mailed out the Week of May 30th, 2022 to 3,332 stakeholders in the project area.

A second postcard will be sent at least two weeks prior to the September event for solicitation regarding design alternatives.



Front



Back

Public Engagement Overview

CDOT PROJECT PRESS RELEASE

CDOT Region 1 Communications Staff sent a press release on the project at the end of May for increased awareness of the project and partnership with the City and County of Broomfield.

B IN THE LOOP NEWSLETTER (OVER 12,000K SUBSCRIBERS)

The Broomfield team blasted out about the project in six B in the Loop newsletters. The newsletter has been a primary source of traffic for engagement. The team will continue to blast out updates about the project and drive traffic to the Broomfield Voice page until the public engagement period ends.

EVENT PROMOTIONAL FLIER

A promotional flier was created by Chickenango for an increase in non-digital outreach. The flier was placed along the corridor a week before the first June event by Broomfield staff.

May 31, 2022

— PROJECT ANNOUNCEMENT —
US 287/120th Avenue Multimodal and Safety Study Underway



City and County of Broomfield: The Colorado Department of Transportation and the City and County of Broomfield have begun collecting traffic data for the US 287 and 120th Avenue Multimodal and Safety Study Project. The project area is located between US 287/Midway Blvd. traveling approximately three miles east to the eastern terminus at the Lowell Blvd.

The recent completion of the 120th Ave. Connection prompts a need to study and develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns, multimodal capacity & safety. There also remain significant gaps in infrastructure for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#) and will look at options for improving access to transit facilities and operational improvements that will increase the reliability of transit.

The project will analyze current conditions and provide data to better understand and plan for future multimodal improvements. Considerations that will be studied include corridor safety for all modes of transportation, multimodal capacity and operations for vehicular traffic, transit, in addition, the study will evaluate travel time reliability, transit operations, and transit-related infrastructure improvements. The study will develop conceptual plans, cost estimates, prioritize projects, and provide an implementation plan.

Press Release

Your Input **MATTERS**

US 287/120th Ave Multimodal & Safety Study

The Colorado Department of Transportation (CDOT), in partnership with the City and County of Broomfield, is kicking off a multimodal and safety study to develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns since the completion of the 120th Avenue Connection project as well as look for ways to improve multimodal capacity and address safety. Be sure to stop by the Transportation booth at Brevilaha in Arista, Saturday to provide input!

[VISIT PROJECT PAGE](#) [TAKE THE SURVEY](#)

Open Space, Parks, Recreation & Trails Refresh

Do you have thoughts on ways that we can improve the Open Space, Parks, Recreation, and Trails in Broomfield? Broomfield wants to hear from you!

To submit the survey, please visit
[BroomfieldVoice.com/CDPRTMasterPlan](https://broomfieldvoice.com/CDPRTMasterPlan)

[LEAVE YOUR QUESTIONS OR COMMENTS HERE](#)

B in the Loop Newsletter

CDOT & BROOMFIELD WANT YOUR INPUT!

US 287 and 120th Avenue Multimodal and Safety Study

Broomfield and CDOT are seeking your input regarding where there are gaps in accessible multimodal travel for all ages and abilities, safety challenges, or where the US 287 and 120th Avenue corridor overall can be improved for residents.

Goals and Objectives

Join CDOT and Broomfield as we envision a future corridor that:

- Builds on previous City and County of Broomfield, CDOT, and RTD studies and improvement efforts to develop a comprehensive plan that improves safety, operations, and equity for all modes of travel
- Increases safety for all travelers
- Improves accessibility of multimodal transportation facilities for all ages and abilities
- Identifies multimodal transportation infrastructure gaps within the project area
- Promotes 120th Avenue as a future Bus Rapid Transit (BRT) corridor

Upcoming In-Person Public Input Events

The project team will be available at the following events to answer questions, take comments, and provide more information on the project. Find the date and location of the event you want to attend.

JUN 16 Broomfield Broomfield Arista, Noon-5PM
Visit broomfieldvoice.com

SEP 17 Broomfield Days Midway Park, 9AM-5PM
Visit broomfieldvoice.com

WAYS TO PROVIDE INPUT

- 1 Stop by the Project Booth**
Stop by one of the project booths at one of the in-person events in June and September. See the events information listed above or on the project website for where you can engage in person.
- 2 Use the Interactive Project Map**
Go to the Broomfield Voice Project Input Page. Log in below under "Sign In" and use the interactive map to tell Broomfield and CDOT your experience living and working along this study area.
- 3 Take the Project Survey**
Take the project survey by visiting the Broomfield Voice Project Input Page listed below under "Sign In" and fill out the project survey. We want your thoughts on improving mobility and safety along this corridor.

The project team will be collecting public input between now and October 17, 2022. Be sure to use one of the ways mentioned above to have your voice heard about this important project effort.

Stay Informed

Broomfield Voice Project Input: broomfieldvoice.com/2020multimodalstudy
Project Email: 2020multimodalstudy@broomfield.com
Project Website: broomfieldvoice.com
Project Hotline: 1-877-744-5222
Searchable: #wakeupbroomfield / Facebook.com/broomfield

Project Website: cdot.gov/projects/us287-120th-multi-modal-study/about

Promotional Flier



APPENDIX

- **Transcribed Comments from In Person Event**
- **Additional Comments from Online Survey**
- **Collateral to Date**



INTERACTIVE MAP BOARD COMMENTS FROM IN PERSON JUNE EVENT

In Person Map Comments

RED (Traffic Safety)

1. Traffic safety concerns at Soulsbury Street
2. CO 128 and W 119th Place safety concern
3. Merge lane at Midway is an issue
4. Issues out of the Pacific Ocean Market onto Roth
5. Signal operations at Good Times Burgers and Pacific Ocean Market Place causes delays.
6. CO 128 Connection is great!
7. Will use other streets to avoid 120th. Widen the road to eliminate congestion.
8. The SB/EB lane configuration at the intersection of W CO 12
9. traffic accidents just west of Sheridan occur everyday
10. Merge at US 287 interchange to midway is too short.
11. Sheridan and 120th intersection is death.
12. EB needs to do a U turn to access Northside businesses near Bradburn.
13. Hard to access businesses on the west side.
14. Getting onto NB 120th – people don't use the merge lane. They stop.
15. Teller to EB 120th sight distance is terrible.
16. Too many traffic signals.
17. NB US 287 merge is difficult.
18. SB Burbank, left to Midway difficult some times of day. Traffic on midway too fast.
19. Snow in intersection during winter storm events.
20. Safety concerns getting through the corridor.
21. Traffic Safety and speeding in overall corridor.
22. 2 Lanes Both Ways

GREEN (Pedestrian Safety)

1. Emerald to Tello crossing 120th is really tough.

2. Improvement mobility overall for pedestrians along the corridor.
3. Unsuitable for pedestrians thru the whole corridor. For cars, it's a destination and thoroughfare. 120th is a barrier to cross.
4. 120th/Sheridan is a barrier for pedestrians.
5. 120th Path doesn't cross Bradburn
6. Not a lot of space for bike/ped
7. Not good for pedestrians
8. Sidewalk really bad.
9. Pedestrian safety concern
10. Access to pedestrian bridge on 36 sucks. Areas along commerce street have no sidewalks. Access to transit station sucks.
11. No sidewalk on 3rd avenue (sidewalk gap). She is walking to her house from Nickel Street. Add playground in her neighborhood.
12. More sidewalk by W 1st Avenue.

YELLOW (Bottleneck Issue)

1. Sheridan bottleneck SB, signal coordination issues
2. Sheridan bottleneck in all directions.
3. Bottlenecks north and south on 120th
4. Congestion in the PM hours from Sheridan to CO 128. EB is a mess and slow.
5. 120th is becoming Colorado Blvd in Denver. Congestion and turning movements.
6. Chase Street Intersection is a mess. Needs to be widened.
7. Need two right turn lanes on 1st Ave and Sheridan. Need to add a right turn lane from Sheridan onto 120th.
8. EB bottleneck where CO 129 and US 287 meet
9. Signal at 1st and Sheridan is too quick.
10. EB 120th to NB Sheridan – will go thru light and pull a U-Turn and take Sheridan North because congestion is so bad.
11. SB Sheridan to NB 120th – right turn is hard.
12. Sheridan and Chase signals back up and aren't timed well.
13. Bottleneck at Sheridan.

14. All 120th Signal timing, now flow!
15. SB Chase is congested and terrible! EB Chase is always red!
16. Chase/Sheridan Bottleneck. WB Frontage road (right turn) to WB (left) 120th is challenging.
17. 120th Ave needs better signal timing.
18. Bradburn to Lamar EB & WB congested and slow. Avoid it as much as possible.
19. Bottleneck
20. Overall operations between main and Sheridan
21. Bottleneck on Sheridan Intersection.

PINK (Bicyclist Safety)

1. Bike lanes disappear approaching Sheridan from the west.
2. Roth and Chase safety concern SE, signal operations and bicyclist concerns
3. Nickel and 120th intersection not safe for bikes. Tough with the RR Tracks.
4. Really tough to walk and bike, speed is a concern. Not walkable.
5. No good bike facilities EB between CO 128 to Main. No obvious place to ride.
6. Safety issues throughout.
7. SB Main around 120th is tough to ride due to lack of bike lanes.
8. Lots of people bike to Rails End at 116th and Main. Hard to cross 120th and no bike lanes.
9. 118th to Greenway is a nice bypass for biking rather than using 120th. Lower stress.
10. 120th is a barrier to bike anywhere
11. Need better bike facilities on main and crossing 120th
12. Improve bicycle facilities overall along the corridor.
13. 120th as a whole is an issue for bikes.
14. Uses 1st Ave to avoid 120th for bikes.
15. Uses 1st Ave to bypass US 287 section at 120th.
16. A mess for bikes. No good place to cross.
17. Getting to US 287/Midway is difficult to get to
18. Arista to Whole Foods by bike must take Big Dry Creek which is a long way out. Need more direct access.

19. Riding bike on 120th is sketchy. Avoids as much as possible.
20. Overall Bike Safety concern. Will not ride bike on 120th.
21. Getting to burrito place with bike/ped is difficult.
22. Not bike friendly connection
23. Crossing safety on bike and lack of bike lanes south to go play pickleball.

ORANGE (Mobility Challenge) *Some stickers missing from board.*

- 1 & 2. Traffic accident – left out of Soulsbury and sight distance west. Speeds are too high.
3. Monument sign blocks crossing.
4. Nickel/US 287 ADA Issues

BLUE (Transit Gap)

1. Improve bus stops throughout
2. Improve transit throughout.

ONLINE MAP COMMENTS

BLUE (Bicyclist Safety)

1. Along Nickel Street by W 1st Ave: what do these green markings mean? Where can I decode them in the Colorado Driver's Handbook? In my experience, they do not mean anything to drivers who cross them will nilly and stop in them.
2. US 287 and Nickel St: Northbound drivers on Nickel that want to turn right (eastbound) onto 287 here are in a hurry and not looking for bikers or pedestrians. I have had several close calls here.

TEAL (Mobility Challenge)

1. US 287 and Nickel St: The cycle on this signal is insanely long. Results in a very long wait time when trying to cross 287... even more frustrating during off-peak when no traffic is on 287
2. 120th and Hemlock Way: Literally no sidewalk on the north side of 287 here. No possible way to walk or bike along here. I stick to 1st Avenue instead and don't ever patronize the businesses on the other side of 287 (Great Scotts, Dairy Queen) because they are too dangerous to get to crossing 287.
3. At CO 128 and 120th: Many kids in the Broomfield Heights neighborhood walk or bike to the 7-11 store on the south side of 120th here. With drivers going 40+ mph on a road designed for speed, it is dangerous for these kids to simply get to a corner store. This is unacceptable, we must do better in making our city safe for kids to get around!

4. At Lamar and 120th: Traffic light changes for cyclists are very long. When no cars are present, use of pedestrian crossing button is necessary. In that case, one has to use the button, then cross the right-hand turn lane to return to the correct traffic lane, while looking out for people not stopping.

5. Along the 120th Frontage Road and Chase Street: I wish this bus station was stationed a few feet back. The snow piles in the winter on the sidewalk because of its proximity to 120th. Not to mention how close to the road commuters stand while waiting for the bus.

6. At Sheridan and 120th: The EB and NB free right turn movements are a particular barrier to safe non-motorized use. The entire intersection is not attractive to pedestrians and 120th is a major N-S barrier

7. NOT PROJECT RELATED. ~~Regarding the Sprouts Farmers Market development center: This entire development is unattractive and expansive parking is very car-centric. Not an attractive destination on bike or on foot~~

GREEN (Pedestrian Safety)

1. At Lowell and 120th: important crossing for the Academy, needs pedestrian improvements especially removing the slip lanes. Also needs to require less time for pedestrians waiting to cross.

2. At Sheridan and 120th: This is a dangerous intersection for pedestrians to cross. It would be nice to have more corner space with barriers for pedestrians to wait to cross street.

3. 120th and Main St: Many drivers going east/west on 120th run this stoplight when it is red. This results in unsafe crosswalk crossings for people who want to cross 120th.

4. At CO 128 and 120th: Westbound drivers turning right at this stop light treat this intersection like an on-ramp, speeding up instead of approaching the crosswalk with caution. An automated retractable bollard blocking cars, tied to a button for pedestrians, would increase safety at this intersection.

HOT PINK (Traffic Safety)

1. At Emerald and 120th: Turn onto Emerald Street is dangerous with no reserved lane, as traffic continuing onto 120th street is accelerating into the 287 "onramp" and can't distinguish between vehicle right turn signal for Emerald and vehicle right turn signal for 287 turn. Left turn is dangerous across the busy thoroughfare.

2. At 120th and Main St: Hard to take a left turn (going north) onto main st; traffic signal takes awhile. Also, overall I think that the traffic on 120th is way too fast. It think it is 40 mph but I have a hard time getting to 40 in my car, feels too fast even to drive it but then I get passed in an unsafe way so it feels dangerous to go below the speed limit too. Maybe roundabouts at major intersections like this and slowing down the speed overall?

ORANGE (Transit Gap)

1. At N Greenway Dr and 120th: This is such a sad little bus stop. Go sit here for 20 minutes waiting for your bus, listening to the roar of cars traveling 45 miles per hour just a few feet from you, assaulting your senses. And to make it worse, the sidewalk ends here, so you're trapped if you want to go further eastbound on this side of the road. What heartless engineer approved this design?

2. At 120th by Old Chicago before Sheridan: High frequency rapid transit to the hubs at I-25 and 1st Bank would be great.

Q9 Add your additional questions or comments here.

watlocal

5/28/2022 11:12 AM

Given likely vehicle speeds it seems likely that a high quality MUP (grade separated, at least 10', underpasses/overpasses at all major intersections (Sheridan, Main), underpasses/overpasses every mile along 287/120th) is the only option for improving pedestrian and bicycling safety. Bus only lanes from Eastlake station/Wagon Road PnR through the rest of the corridor could help make transit more reliable and comfortable.

alessem

5/31/2022 07:38 PM

In addition to the items to be ranked above, merging right turns (especially with a red light) are extremely dangerous for pedestrians and people on bikes. People are looking backwards to find gaps in traffic and not looking forward to see if anyone or anything is crossing the road.

Chaumania

5/31/2022 11:17 PM

Underpasses would be great

Alex

6/01/2022 12:52 AM

What are the plans and how will it effect my neighborhood, the increase congestion, traffic, speed control, safety for walking?

SNGRanch

6/01/2022 01:54 PM

The yield sign on 287 onramp to 287 is often ignored and I have seen so many close calls as cars think they have the right of way or it is a "merge". The bike and ped along this corridor and connecting to US36/287 don't feel safe. Speeding is a huge issue as some cars are often 10-20 mph over the limit.

Joe Weingart

6/01/2022 02:01 PM

The west bound slip lane to stay on 120th vs continuing onto 128 is incredibly dangerous for pedestrians and cyclists. Motorists can take the turn going over 40 mph

jt_02

6/01/2022 02:44 PM

The merge lane from 120th onto 287 northbound is terrible. Nobody obeys the yield sign from the on-ramp. Similarly, merging from 287 onto Midway eastbound has a yield sign that is very confusing, since there is also a dedicated merge lane.

jwhuffman

6/03/2022 04:30 PM

Transit running only once an hour is a very significant barrier to using it. Especially since it can take up to 10-15m to get to the nearest bus stop from inside a neighborhood like Brandywine. The fact that it also stops running fairly early at night means that it often isn't an option for

returning from an evening trip to downtown Denver, Westminster, or Boulder. Having to cross 8 lanes of traffic can also be quite intimidating and a potential safety hazard for pedestrians trying to cross 120th, even with adequate traffic controls. Drivers aren't always watching out for pedestrians on such a major road.

John with BroomfieldBikes.org

6/03/2022 06:45 PM

Anyone that lives within 1/4 mile of this corridor will tell you that: 1) The cars and trucks on 120th are LOUD and that negatively impacts quality of life. Even from the open space south of Midway near the new community center, you can still hear the vehicles on 120th. 2) The cars and trucks on 120th speed and run red lights, and there is little to no enforcement unless there is a car crash. 3) Pedestrian/cyclist safety at intersections is practically non-existent. Ideally there would be multiple underpasses to prevent at-grade crossings. 4) Even walking along the sidewalk (where it exists!) is unpleasant in some stretches due to vehicle noise, perceived danger from cars traveling 50+mph, no trees for shade/protection. 5) The lanes on the road are far too wide which encourages speeding. 6) The road itself, at 5-6 lanes is too wide to be fully dedicated 100% to cars. Bus Rapid Transit (BRT) lanes would be a game changer! 7) The streetscape is ugly. There is no thought in the design given to aesthetics, only to move cars as quickly as possible. That mindset needs to change!

WStott

6/06/2022 06:55 PM

I do not want to see the old section of 287 (120th) be ignored.

knorr77

6/06/2022 10:38 PM

Not sure if this strictly connected to the corridor survey, but the speed limit (40 miles per hour) for the section of CO-128 leading to the highway (from 120th Ave to Interlocken Loop) is set too low. 45 or 50 mph would be more appropriate and would help cars keep up with the pace of traffic--I've noticed that most cars speed on that stretch, as it's basically an on-ramp to the highway (36 East).

303JL

6/07/2022 12:01 AM

Let's prioritize non-vehicular travel and infrastructure for a change. Before the earth changes it for us.

jimchoff

6/07/2022 05:36 AM

Cyclist here. I simply do not ride on 120th. I cross 120th in 3 places. The wait for traffic light changes is v e r y long at 120th & Greenway/Lamar. If no cars are crossing 120th, the lights do not change. I also cross at Nickel and Lowell Blvd. These are also bad, especially if no cars are present. 120th itself is too dangerous to ride. I also drive on 120th. The most dangerous location is approaching the intersection of 120th east and Sheridan south, where vehicles use

the breakdown lane when the road is congested.

TheMTBER

6/07/2022 09:38 AM

Bike accessibility is important to the safety and health of the community

WalkinginBroomfield

6/07/2022 10:06 AM

As 120/287 business corridor is outlined by a large swath of residential neighborhoods, I believe that it is important to make traveling on 120/287 and surrounding areas accessible and safe to get to by bike or walking(or even by local shuttle buses!). It would be great to see a walking/bike area/lane(s) on these streets that are barricaded from traffic. For instance, using a lane of traffic or the lawn on both sides of 120th and converting it to a beautified sidewalk and bike lane. As someone who lives behind the shopping district, this would be a nice change to see. I am pretty sure I am not the only one! Also, walking/biking north to south across 120th or 287 does not feel safe. There are no barricades at intersections, there is little space to wait for lights to turn green as you are waiting for 45+mph traffic to pass you by.

Khector

6/07/2022 10:10 AM

Separated bike paths along this area would be wonderful

ViewsWithoutViews

6/07/2022 02:25 PM

There are few options to cross major thoroughfares/parkways within Broomfield. Only one underpass on 287 near King Soopers that I can think of. Many of our roads are congested with commuters from Erie, Louisville, and Longmont commuting to and from work. These communities should pay to use 36/470 vs using 287, Sheridan, Lowell and 120th. I don't understand why Dillon Rd. was widened to accommodate more traffic when 470 should be used to travel east/west.

briharp9

6/08/2022 07:52 PM

It would be very helpful to have a continuous sidewalk in place along this corridor on both sides of the street when possible.

every.wall.is.a.gate

6/10/2022 10:08 AM

Our family would LOVE to have a SAFE way to walk from our neighborhood in Greenway Park to the Broomfield Library, etc. Presently, it's unthinkable to send our children across 120th on foot anywhere in the corridor. The crosswalk is so long, it takes a brisk walk to get across in time--and you always have to watch for people running lights. It would be a very short walk, but we always get in the car--and have to take the kids.

Glenda

6/13/2022 02:40 PM

We need a pedestrian crosswalk from Hemlock across the street to the businesses. It is dangerous to cross the street, and there is no pedestrian sidewalk on the north side of the street.

samcthan

6/20/2022 12:52 PM

-If adding bike lanes, detach from the road and not just stick it adjacent to the gutter and travel lane. -Add sidewalk between Greenway Dr north and gray street. -Add connection between Greenway Park trail system mid-block between Greenway Dr. North and Gray St.

korrellc

6/21/2022 08:34 PM

We live back in the odd triangle bordered by Wadsworth, 287, and 120th. I love the area and I love that it is really quite close to so many services. The pool, library, rec center, etc, are all a 15-20 min bike ride away. The problem is getting across Wadsworth safely! Even the bike path requires us to cross 287 at the 36 interchange to reach it! I am not comfortable letting my kids ride on their own, despite being teenagers, because of the challenging conditions for bicyclists.

drsjr1

6/25/2022 12:38 PM

It needs be two lanes when 120 curves NW at emerald.

Seeingl

6/27/2022 07:14 PM

I am visually impaired and it is almost impossible to walk along the north side of 120th from Lowell to Vrain due to a lack of sidewalks or even a safe place to be a pedestrian, especially a blind one with a guide dog that has to walk on my left (next to traffic). Also, RTD service here is pretty awful, with no buses running to the stop on 120th and Lowell on the weekends and only hourly during the week.

SteveMBecker

6/28/2022 10:46 AM

I love that Broomfield has so many bike lanes but they get covered with debris which makes them unsafe for cycling. They need to be cleaned more often. I often have to ride in the vehicular lane to avoid debris. It is difficult to get to the Hwy 36 bike path from this corridor.

Plow Namers of the Century

6/30/2022 08:53 PM

In general, it is hard to use biking and walking as a way to move around Broomfield. Along 120th Ave, there are many gaps in the sidewalk. It does not feel safe to ride my bike on 120th and so I use the sidewalks when biking.

rossedel

7/04/2022 12:48 PM

Many of the businesses on 120th Ave are less than a 10 minute bike ride from my home, but because the corridor feels dangerous and car-centric our family generally avoids the area except to drive through it.

mountainTOD

7/05/2022 06:32 PM

I would love better transit connections in this corridor. pedestrian orientated, higher density development would be helpful in this regard. such as Arista or better yet Bradburn.

Baltimordor

7/05/2022 06:56 PM

120th is simply too busy and congested with cars for bicycling or walking. Priority should go to cars and transit options to make it easier to go through the area.

peggy

7/05/2022 07:05 PM

The speed limit it way to high along 120th and Federal!!!!

artsafact

7/05/2022 09:39 PM

An over pass for pedestrians and cyclists is needed at 120th and Sheridan. A definition of pedestrian and cyclists paths would have benn helpful

dawnyadee

7/06/2022 10:08 AM

The traffice on 120th is at times very dangerous. There really needs to be my patrol for the redlight runners, I don't mean they catch the tailend of a yellow. There are times that I have set at an intersection and I counted 6 cars that blantly go right through likes it is no big deal. That is a major crises in this city. I believe that the city should be been thinking about this situation about 15 years ago. We have been here 32 years and it's can be a nightmare.

AmosJose

7/06/2022 10:58 AM

While this section is congested during morning and afternoon drive time, I don't believe we need significant additional investment in it. However, a different area of our community is in desperate need of help -- crime and lawlessness. I believe we need to move money from the transportation/road improvement budget, and allocate it to address the surge in all areas of crime. I shop at Lowes, Walmart, Kohls, Walgreens and local grocery stores. I SEE people stealing. They have no shame, and don't seem concerned about being caught. The clerks don't (maybe not allowed to) try and stop the thieves. I feel like I have to look over my shoulder everywhere I go in Broomfield. Graffiti on fencing is disgusting to look at. We used to have a safe community, but it's awful now. My neighbors car has been broken into twice. Another had hers stolen. Kids on my block have had their bikes go missing. The crime is like I've never seen it before. Road improvement is nice, but the crime wave in Broomfield makes me feel unsafe. I'd rather drive on a congested road, than live with all the criminals who take what is not theirs and have turned my neighborhood into thug haven.

abrewer

7/06/2022 11:44 AM

I think 120th is overall way too fast; it feels like, at least in the business center, that it should be 35 mph or less at least. I also can't even imagine trying to walk it or ride my bike. I've walked to POM from CCOB and even that was not ideal, not really built for pedestrians. It would be nice if they are doing the new downtown area to include something like a street car or rapid bus to go from downtown and then have a lane all along 120th. It seems like businesses are very set back from 120th so maybe could build a train into that and then have a bike lane so that it is safer from traffic on the other side of the train.

Tasandre

7/06/2022 02:45 PM

Better access to RTD station would encourage more use of transit

Optional question (35 response(s), 36 skipped)

Question type: Essay Question



COLORADO
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LEARN MORE:

www.codot.gov/projects/us287-120th-multi-modal-study/about

US 287/120TH AVENUE MULTIMODAL AND SAFETY STUDY

Multimodal Improvement Design Study will enhance the safety and capacity along US 287/120th Avenue

The recent completion of the 120th Ave. Connection prompts a need to study and develop concepts to improve the US 287/ 120th Ave corridor. The project will seek to understand the impact of changing traffic patterns, multimodal capacity, and safety. There also remain significant gaps in infrastructure for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the 2014 Northwest Area Mobility Study (NAMS) and will look at options for improving access to transit facilities and operational improvements that will increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of local residents, business owners, visitors, and traveling public.

SCHEDULE & PUBLIC OUTREACH

The project study will be active between Spring 2022 and Spring 2023. During this time, public engagement opportunities will be available in June and September, giving the public time to participate and learn more about the benefits of the project. **Provide input at:** www.broomfieldvoice.com/120thmultimodalstudy

THIS PROJECT WILL EVALUATE:

- ▶ Future Improvements for All Modes of Transportation
- ▶ Traffic Operations
- ▶ Multimodal Safety
- ▶ Travel Time Reliability
- ▶ Transit Operations and Options
- ▶ Active transportation and transit-related infrastructure improvements along the corridor to enhance trip reliability and reduce delay for various modes of travel





COLORADO
Department of Transportation



STAY INFORMED!

Project Hotline: 720-794-5002 | **Email:** 120thMultimodalStudy@gmail.com



- Para obtener información sobre el proyecto en español, visite el sitio web del Proyecto
 - Để biết thông tin dự án bằng tiếng Việt, vui lòng truy cập trang web của dự án
 - 中文项目信息请访问项目网站
 - Yog xav paub txog qhov project ua lus Hmoob, thov mus saib hauv qhov project website
- www.codot.gov/projects/us287-120th-multi-modal-study/about

First, Last
Address Line 1
Address Line 2
City, State Zip+4

May 31, 2022

— PROJECT ANNOUNCEMENT — US 287/120th Avenue Multimodal and Safety Study Underway



City and County of Broomfield: The Colorado Department of Transportation and the City and County of Broomfield have begun collecting traffic data for the US 287 and 120th Avenue Multimodal and Safety Study Project. The project area is located between US 287/Midway Blvd. traveling approximately three miles east to the eastern terminus at the Lowell Blvd.

The recent completion of the 120th Ave. Connection prompts a need to study and develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns, multimodal capacity & safety. There also remain significant gaps in infrastructure for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#) and will look at options for improving access to transit facilities and operational improvements that will increase the reliability of transit.

The project will analyze current conditions and provide data to better understand and plan for future multimodal improvements. Considerations that will be studied include corridor safety for all modes of transportation, multimodal capacity and operations for vehicular traffic, transit. In addition, the study will evaluate travel time reliability, transit operations, and transit-related infrastructure improvements. The study will develop conceptual plans, cost estimates, prioritize projects, and provide an implementation plan.

Schedule

- The project study began in Spring 2022 and is expected to be completed in Spring 2023.
- The public will be informed of several engagement opportunities to learn more about the study and to provide input. Engagement opportunities are scheduled for June and September of 2022.



Project Contact Information

For additional information about this project, stay up to date or contact the project team in the following ways:

-
- Project study website: www.codot.gov/projects/us287-120th-multi-modal-study
 - Project study hotline: 720-794-5002
 - Project study email: 120thMultimodalstudy@gmail.com
 - Broomfield Monthly Transportation Newsletter: Broomfield.org/BInTheLoop
 - Para obtener información sobre el proyecto en español, visite el sitio web del Proyecto
 - 中文项目信息请访问项目网站
 - Để biết thông tin dự án bằng tiếng Việt, vui lòng truy cập trang web của dự án
 - Yog xav paub txog qhov project ua lus Hmoob, thov mus saib hauv qhov project website

###



US 287/120th Avenue Multimodal and Safety Study

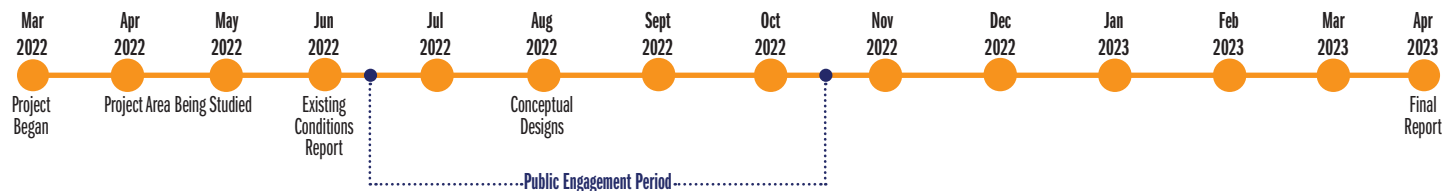


Project Purpose and Need

The Colorado Department of Transportation (CDOT), in partnership with the City and County of Broomfield (Broomfield), is kicking off a multimodal and safety study to develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns since the completion of the 120th Avenue Connection project as well as look for ways to improve multimodal capacity and address safety. 120th Avenue is recognized as part of the High Injury Network and a Critical Corridor by the Denver Regional Council of Governments' [Taking Action on Vision Zero Plan](#). Significant gaps in infrastructure remain for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#) and the project team will look at options for improving access to transit facilities and operational improvements to increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of Broomfield residents, business owners, visitors and traveling public.

Milestone Schedule



Goals and Objectives

Join CDOT and Broomfield as we envision a future corridor that:

- ✓ Builds on previous City and County of Broomfield, CDOT, and RTD studies and improvement efforts to develop a comprehensive plan that improves safety, operations, and equity for all modes of travel
- ✓ Increases safety for all travelers
- ✓ Improves accessibility of multimodal transportation facilities for all ages and abilities
- ✓ Identifies multimodal transportation infrastructure gaps within the project area
- ✓ Promotes 120th Avenue as a future Bus Rapid Transit (BRT) corridor

Stay Informed



US 287/120th Avenue Multimodal and Safety Study

► What is the purpose of this study and why is it needed?

The recent completion of the 120th Avenue Connection prompts a need to study and develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns, multimodal capacity, and safety. Significant gaps in infrastructure remain for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#) and the project team will look at options for improving access to transit facilities and operational improvements to increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles, and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of local residents, business owners, visitors, and traveling public.

► Will the project consider pedestrian, bicycle, and transit needs?

Yes. Currently, the City and County of Broomfield is completing the 120th Avenue Sidewalk Infill Project and the intent is to build on the changes constructed through this project. Facilities for people walking and bicycling are essential within the regional transportation system and have numerous benefits at the local and regional levels. The project will also evaluate the existing transportation infrastructure for the ability to support transit operations with the goal to understand the opportunities to enhance transit service efficiency and reliability for the public. The City and County of Broomfield and CDOT will consider all options for the improvement of mobility and safety.

► What is the timeline?

The projected timeline for the study is Spring 2022 to Spring 2023. After the completion of the study, the project preferred option can move into the design phase in 2024 with construction to follow as funding becomes available. The project team will keep the community up to date on the project's progress. Please stay up to date by visiting the [project website](#).

► What area of the corridor is being studied?

The study will occur between the US 287/Midway Boulevard, and proceed along 120th Avenue/US 287, approximately three miles east to Lowell Boulevard. Visit the [project website](#) for a study area map.

► What types of safety improvements are being evaluated?

The project team is collecting data and information to study that will help form and propose safety improvements along the corridor. They will be evaluating traffic operations, safety, travel time reliability, transit operations, transit options, and transit-related infrastructure improvements along the corridor to improve trip reliability and safety for multimodal travel.

► What types of multimodal alternatives are being evaluated?

This project will evaluate missing multimodal infrastructure capacity, including reviewing existing and planned multimodal connections to the corridor. It will also evaluate existing and projected transit ridership to help identify improvements and enhancements along the corridor for transit reliability, efficiency, and safety. Active transportation facilities will be evaluated for accessibility to all ages and abilities.





US 287/120th Avenue Multimodal and Safety Study

► What types of improvements does CDOT/City and County of Broomfield think will be recommended?

Considerations will include corridor safety for all modes of transportation, and operations for vehicular traffic, transit, and active modes of transportation.

► How is stakeholder input being incorporated into the study and how can I get involved?

There will be several opportunities for the public to engage by learning about the project and providing input. Materials will also be available virtually so the public can participate through an online forum. CDOT and the City and County of Broomfield are partnering to solicit public input at the [Broomfield Voice website](#). The project team will keep you updated on when and where these opportunities will be occurring. Currently, public outreach efforts will begin in June and run through the end of September.

► Can you provide a project presentation to my organization, neighborhood, or business?

Yes. This is a project partnership between CDOT and the City and County of Broomfield. Please reach out to the project team at the contact information listed at the end of these FAQs and the project team would be pleased to present to your organization, neighborhood, or business.

► How much is the project going to cost and where is the funding coming from?

This project was awarded a \$480,000 federal grant from the Denver Regional Council of Governments. CDOT and the City and County of Broomfield are also contributing \$60,000 each as part of the grant's local match requirement.

► How will you keep us informed?

All interested residents should keep up to date on the project in one of the following ways:

- **Project Study Website:** www.codot.gov/projects/us287-120th-multi-modal-study
- **Project Study Email:** 120BroomfieldTrafficStudy@gmail.com
- **Project Hotline:** 720-794-5002
- **Facebook Updates**
- **Twitter Updates**



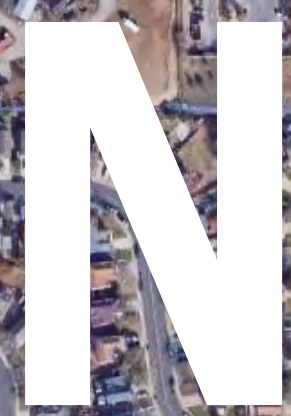
US 287/120th Avenue Multimodal and Safety Study



Place a sticker that corresponds with one of the categories below to indicate where the multimodal gaps are along the corridor.

- Traffic Safety
- Transit Gap
- Pedestrian Safety
- Bottleneck Issue
- Bicyclist Safety
- Mobility Challenge

● Project Limits



Interactive Project Map



COLORADO
Department of Transportation



Midway Blvd.

Sheridan Blvd.

Lowell Blvd.

W 121st Place

Perry Street

Tennyson Way

Wolff Street

120th Avenue

Vrain Street

Bradburn Blvd.

W 118th Place

Place a sticker that corresponds with one of the categories below to indicate where the multimodal gaps are along the corridor.

- **Traffic Safety**
- **Transit Gap**
- **Pedestrian Safety**
- **Bottleneck Issue**
- **Bicyclist Safety**
- **Mobility Challenge**

● **Project Limits**

N

CDOT & BROOMFIELD WANT YOUR INPUT!

US 287 and 120th Avenue Multimodal and Safety Study

Broomfield and CDOT are seeking your input regarding where there are gaps in accessible multimodal travel for all ages and abilities, safety challenges, or where the US 287 and 120th Avenue corridor overall can be improved for residents.

Goals and Objectives

Join CDOT and Broomfield as we envision a future corridor that:

- ▶ Builds on previous City and County of Broomfield, CDOT, and RTD studies and improvement efforts to develop a comprehensive plan that improves safety, operations, and equity for all modes of travel
- ▶ Increases safety for all travelers
- ▶ Improves accessibility of multimodal transportation facilities for all ages and abilities
- ▶ Identifies multimodal transportation infrastructure gaps within the project area
- ▶ Promotes 120th Avenue as a future Bus Rapid Transit (BRT) corridor



Upcoming In-Person Public Input Events

The project team will be available at the following events to answer questions, take comments, and provide more information on this important project. Stop by and see us!

**JUN
18**

Broomfield Brewhaha
Arista, Noon-5PM

Visit broomfield.org/Brewhaha

**SEP
17**

Broomfield Days
Midway Park, 9AM-5PM

Visit broomfield.org/361/Broomfield-Days

WAYS TO PROVIDE INPUT

1 Stop by the Project Booth

Stop by one of the project booths at one of the in person events in June and September. See the events information listed above or on the project website for where you can engage in person.

2 Use the Interactive Project Map

Go to the Broomfield Voice Project Input Page listed below under Stay Informed to use the interactive map to tell Broomfield and CDOT your experience living and working along this study area.

3 Take the Project Survey

Take the project survey by visiting the Broomfield Voice Project Input Page listed below under Stay Informed and let the project team know your thoughts about improving mobility and safety along this corridor.

The project team will be collecting public input between now and October 17, 2022. Be sure to use one of the ways mentioned above to have your voice heard about this important project effort.



COLORADO
Department of Transportation



Stay Informed

Broomfield Voice Project Input: broomfieldvoice.com/120thmultimodalstudy

Project Email: 120thMultimodalStudy@gmail.com

Project Hotline: 720-794-5002

Social Media: twitter.com/broomfield | facebook.com/Broomfield





PUBLIC ENGAGEMENT REPORT

US 287/120th Avenue Multimodal and Safety Study

Prepared for SEH, CDOT, and City and County of Broomfield

AUGUST 2022



Public Engagement Overview

PROJECT BACKGROUND

The Colorado Department of Transportation (CDOT), in partnership with the City and County of Broomfield (Broomfield), is kicking off a multimodal and safety study to develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns since the completion of the 120th Avenue Connection project as well as look for ways to improve multimodal capacity and address safety. 120th Avenue is recognized as part of the High Injury Network and a Critical Corridor by the [Denver Regional Council of Governments' Taking Action on Vision Zero Plan](#).

Significant gaps in infrastructure remain for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#), and the project team will look at options for improving access to transit facilities and operational improvements to increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of City and County of Broomfield residents, business owners, visitors and traveling public.

Project Location Map



Goals and Objectives

- ✓ ***Builds on previous City and County of Broomfield, CDOT, and RTD studies and improvement efforts to develop a comprehensive plan that improves safety, operations, and equity for all modes of travel***
- ✓ ***Increases safety for all travelers***
- ✓ ***Improves accessibility of multimodal transportation facilities for all ages and abilities***
- ✓ ***Identifies multimodal transportation infrastructure gaps within the project area***
- ✓ ***Promotes 120th Avenue as a future Bus Rapid Transit (BRT) corridor***

Public Engagement Overview

PUBLIC OUTREACH

This project is a partnership between CDOT and the City and County of Broomfield. In June Broomfield and CDOT began seeking input regarding gaps in accessible multimodal travel for all ages and abilities, safety challenges, or where overall multimodal options for residents can be improved throughout the corridor.

Currently, there have been three pop up opportunities for collection of existing conditions. Two business outreach events and two more pop up events are being planned through November 2022 when the public engagement period will end and a final report will be generated in addition to status reports after each engagement event. The remaining events will be focused on transitioning from collecting input on existing conditions to garnering support for the design alternatives being finalized.

Upcoming Events & Input Being Sought

Sept 28, 2022: Virtual Business Panel Project Q&A.

This event will inform business owners about the project and allow them to ask questions directly to the project panel. There will be several sessions to meet the needs of the diverse business community (corporate, retail, food, etc.).

Sept 17, 2022: Broomfield Days.

The purpose of this event will be to inform and solicit input on the design alternative options.

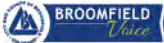
Public Input Project Milestone Schedule

- ✓ Mar 2022 Study Began
- ✓ Apr 2022 Project Area Being Studied
- ✓ May 2022 Project Area Being Studied
- ✓ Jun 2022 Existing Conditions Report is Complete
- ✓ Jun 2022 Public Engagement Period Begins
- ✓ Jun 18, 2022 Public Input Opportunity: Brewhaha Event
- ✓ July, 2022 Public Engagement Update Report #1
- ✓ Aug 2022 Conceptual Design Options Complete
- ✓ Aug 2, 2022 Public Input Opportunity: Night Out Event
- ✓ Aug 3 or 4, 2022 Public Input Opportunity: Business Virtual Project Panel Q&A Session
- ✓ August 5, 2022 Public Input Opportunity: FISH Event
- ✓ Aug 31, 2022 Public Engagement Update Report #2
- ✓ Sep 17, 2022 Public Input Opportunity: Broomfield Days
- ✓ Sep 30, 2022 Public Engagement Update Report #3
- ✓ Oct 17, 2022 Public Engagement Period Ends
- ✓ October 31, 2022 Final Public Engagement Report
- ✓ Apr 2023 Study Completes

Public Engagement Overview

BROOMFIELD VOICE PAGE GENERAL VIEW PAGE

[View the Site](#)



[Broomfield.org](#) [All Projects](#) [ajwest](#)

120th Ave

MULTIMODAL STUDY

[Home](#) [Transportation](#) [US 287/120th Ave Multimodal Project](#)

US 287/120th Ave Multimodal Project

[f](#) [t](#) [in](#) [e](#)

[Take the Survey](#)

Who's Listening

Marc Ambrosi
Senior Transportation Planner
City and County of Broomfield
Phone: 720-794-5002
Email: transportation@broomfield.org

MA

About

Broomfield uses Bang the Table Engagement Platform to engage its citizens for input regarding their infrastructure efforts. The page contains a summary of the project, a schedule of key dates, the purpose and need, summary of public outreach, online survey, a set of collateral in five languages: English, Spanish, Vietnamese, Chinese, and Hmong, and an interactive project map where visitors can place a color-coded pin along with their comment regarding the existing condition concerns they may have along the corridor.

Overview of Visitor Engagement

Engaged

- ✓ 119 Visitors participated in the Online Survey.
- ✓ 8 Visitors Placed Pins with Comments on the map.

Informed

- ✓ 356 Informed Participants
- ✓ 25 Visitors Downloaded a piece of collateral.
- ✓ 17 Visitors viewed the Key Milestone Dates Section.

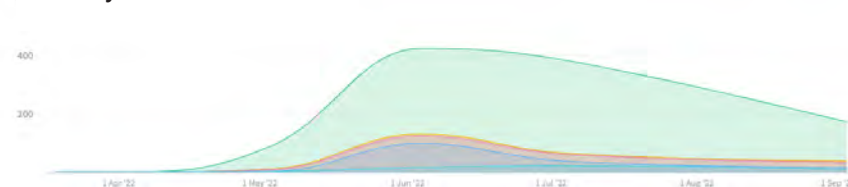
Aware

- ✓ Total Visits to the Site to date: 1.1K Visits
- ✓ Overall Page Traffic from Launch to Aug 31, 2022
- ✓ Average of 93 Visits to the site each day

City of Broomfield from 22 March to 31 Aug 22

DAILY MONTHLY

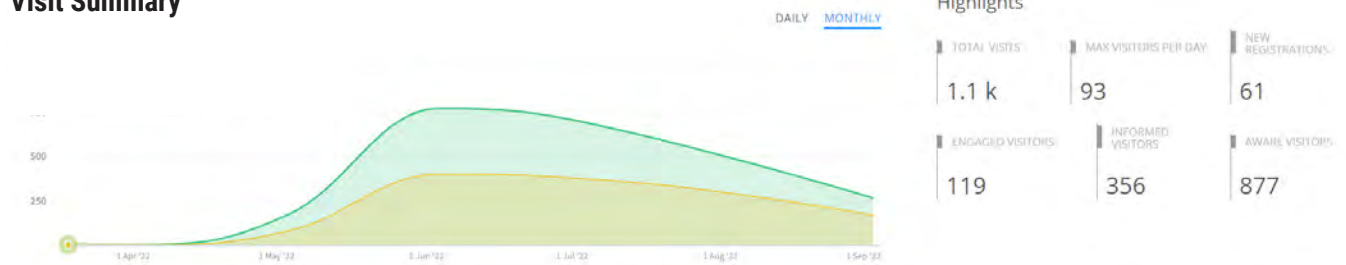
Visits by Source



TRAFFIC CHANNEL	AWARE VISITS	INFORMED VISITS(%)	ENGAGED VISITS(%)
DIRECT	825	341 (41.3%)	97 (11.8%)
SOCIAL	105	31 (29.5%)	17 (16.2%)
EMAIL	16	9 (56.3%)	1 (6.3%)
SEARCH ENGINE	73	28 (38.4%)	2 (2.7%)
.GOV SITES	2	2 (100%)	0 (0%)
REFERRALS	49	26 (53.1%)	10 (20.4%)

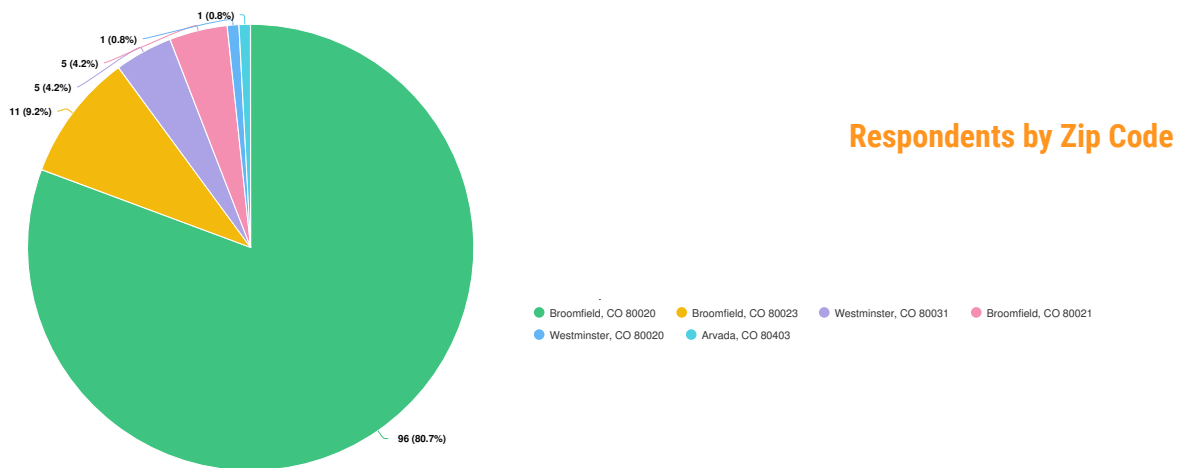
Public Engagement Overview

Visit Summary



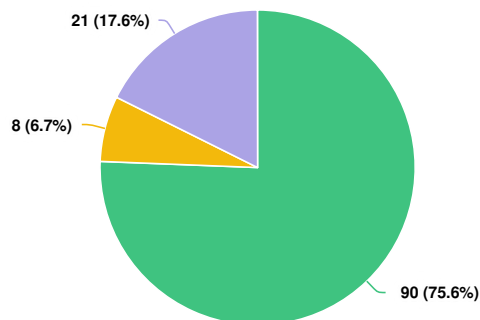
SURVEY RESULTS OVERVIEW: RESIDENTS

The online and paper surveys for residents asked them a variety of questions as well as having them rank their biggest concerns regarding the existing conditions along the corridor. **The survey was viewed 386 times with 120 of those visitors submitting a response.**



Questions and Results from the Survey

Q1 Do you live or work along or near the US 287/120th Avenue Corridor in Broomfield (from US 287/Midway to US 287/120th Avenue...

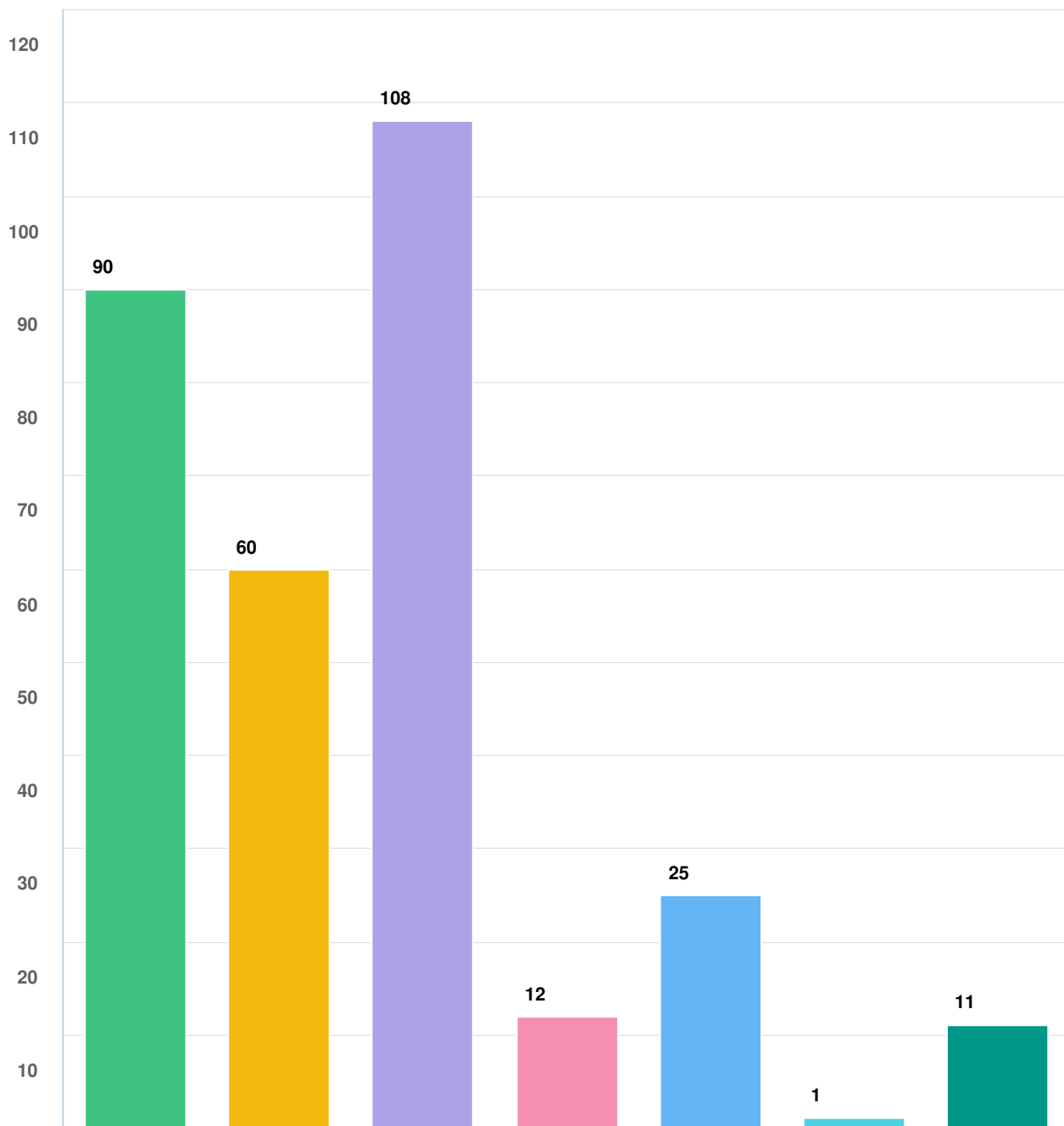


Question options

● Yes, I live along/near the corridor.
 ● Yes, I work along/near the corridor.
 ● No, I do not live or work along/near the corridor.

Public Engagement Overview

Q2 How do you use the corridor for travel. Check all that apply.

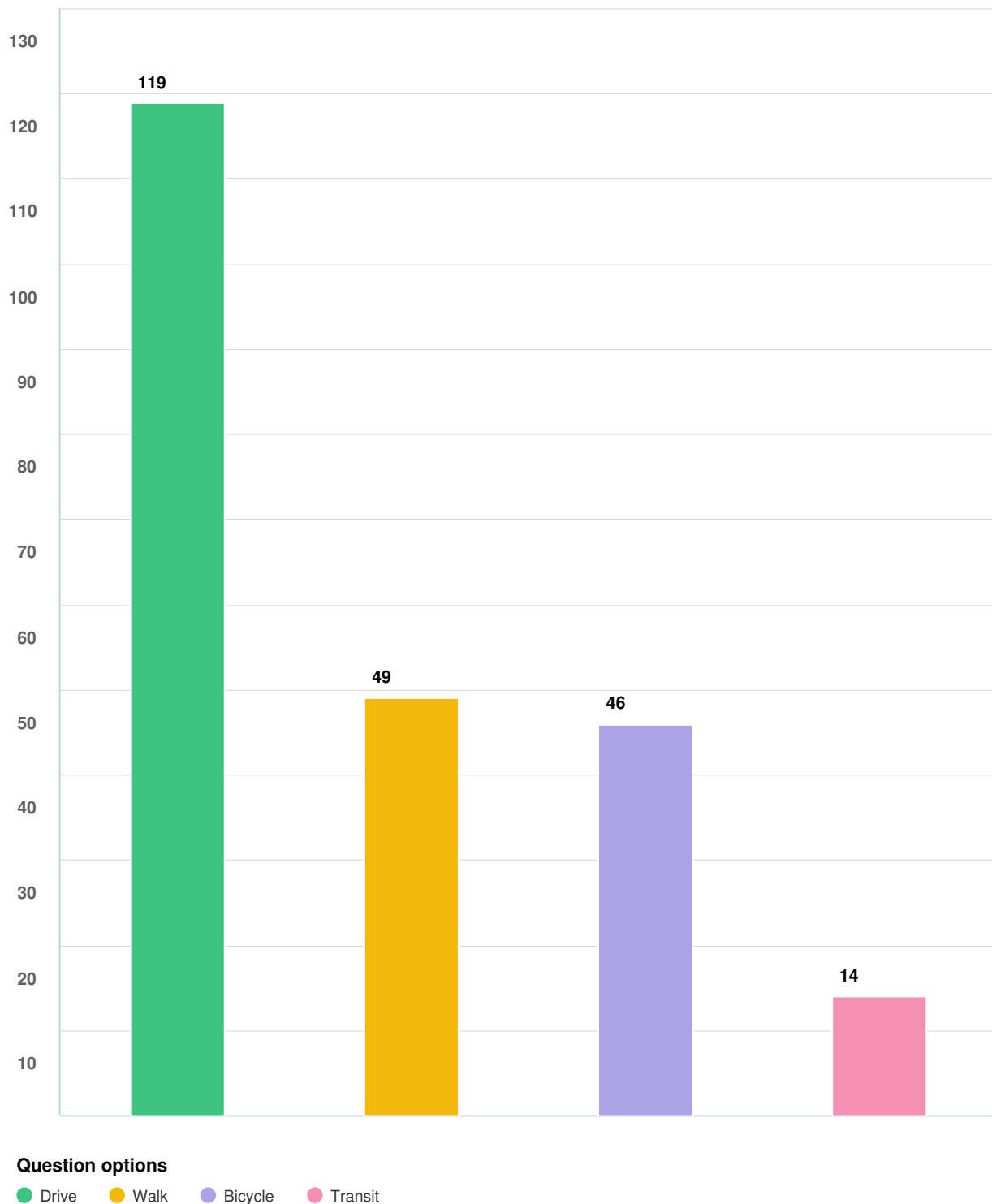


Question options

- To travel home
- To travel to work
- To shop or dine at the businesses
- To get to a transit stop
- To get to an RTD station (US 36 Station, Wagon Road or N-Line)
- I do not use the corridor for travel
- Other (please specify)

Public Engagement Overview

Q3 What modes have you used to travel the 120th Avenue corridor in Broomfield in the last three years? Check all that apply.

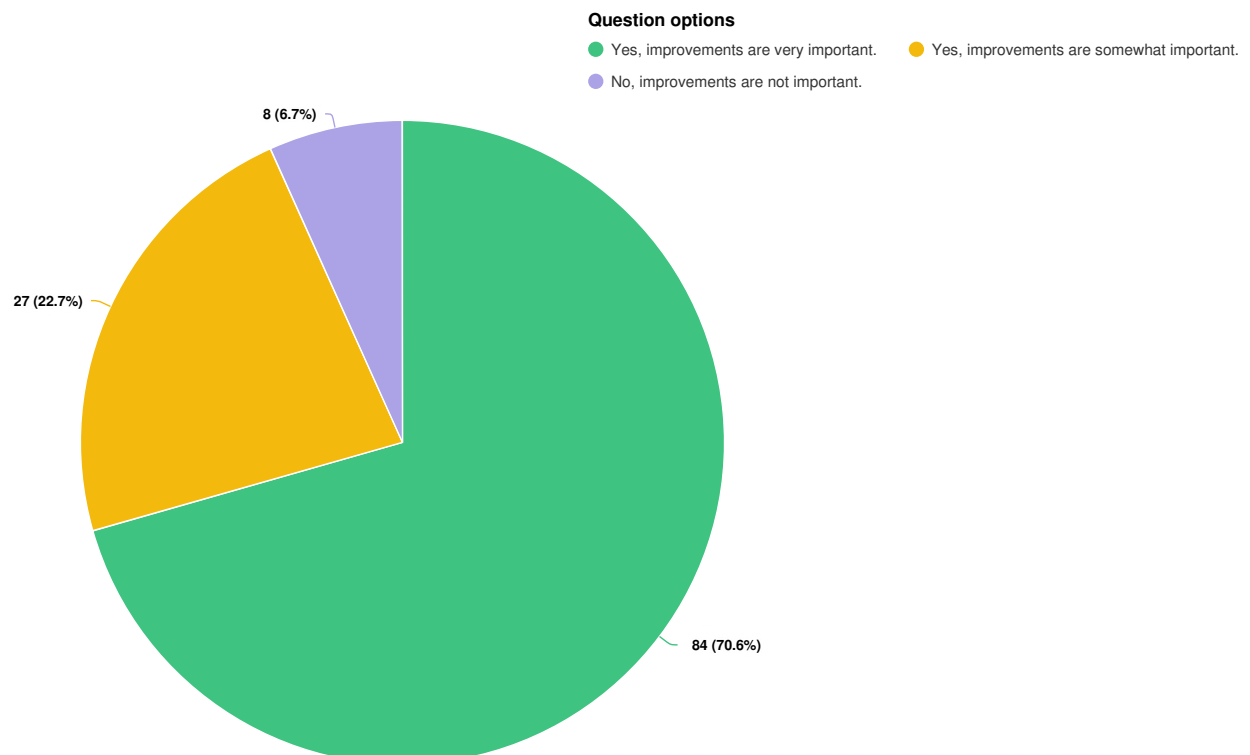


Public Engagement Overview

Q4 What do you think the corridor's greatest challenges for travel are? Rank in order of greatest to least with 1 being the greatest and 10 being the least.

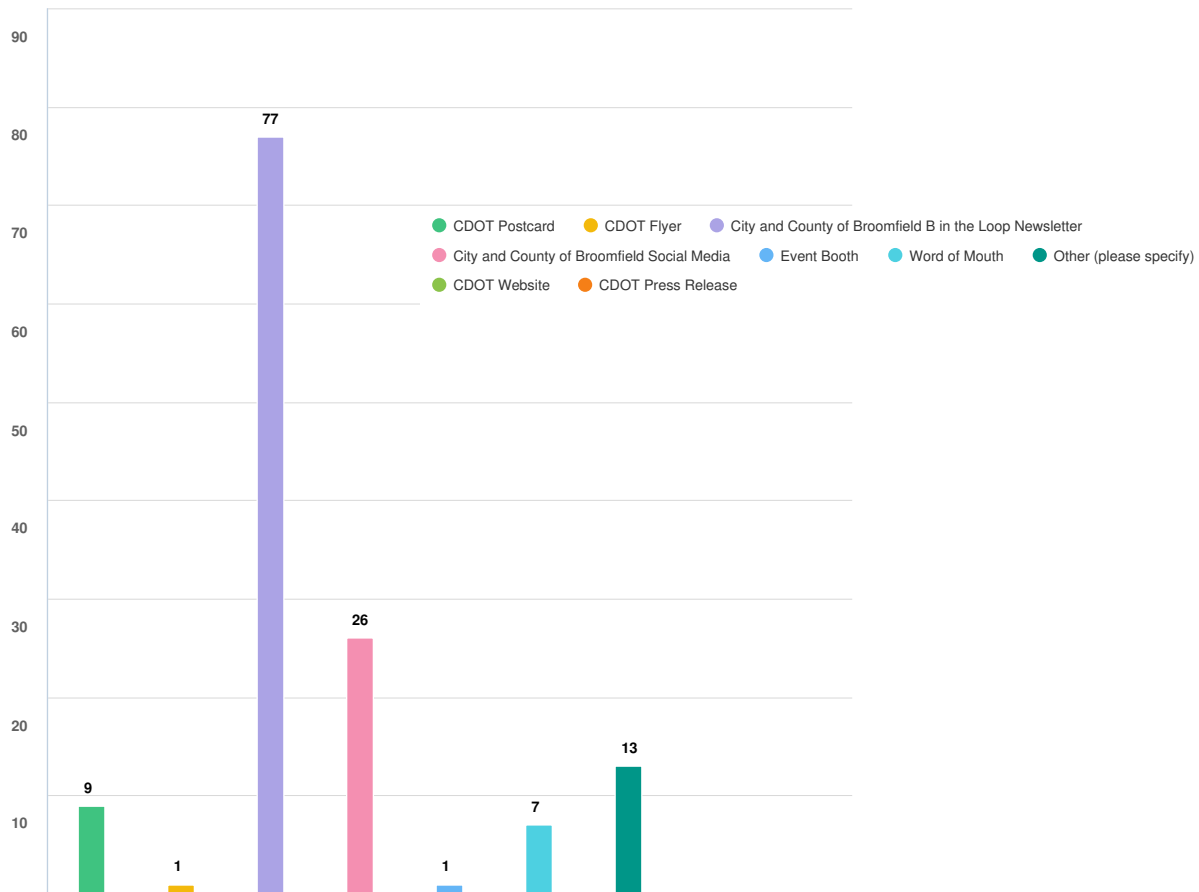
OPTIONS	AVG. RANK
Pedestrian Safety	3.55
Bicyclist Safety	4.17
Congestion	4.79
Pedestrian Gaps	5.30
Vehicular Traffic Safety	5.57
Bicycle Gaps	5.73
Speeding	5.82
Intersection Accessibility Challenges	6.06
Transit Accessibility	6.59
Transit Reliability	7.42

Q5 In general, do you feel improvements for people of all ages and abilities, walking, bicycling, and using transit are important for the US 287/120th Avenue corridor?



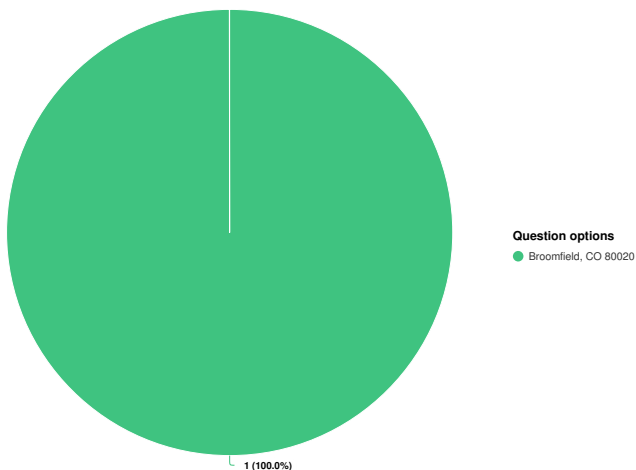
Public Engagement Overview

Q6 How did you hear about the project? Check all that apply.



SURVEY RESULTS OVERVIEW: BUSINESS OWNERS

The online and paper surveys for business owners asked them a variety of questions as well as having them rank their biggest concerns regarding the existing conditions along the corridor. The survey was viewed 1 times with 1 of those visitors submitting a response.

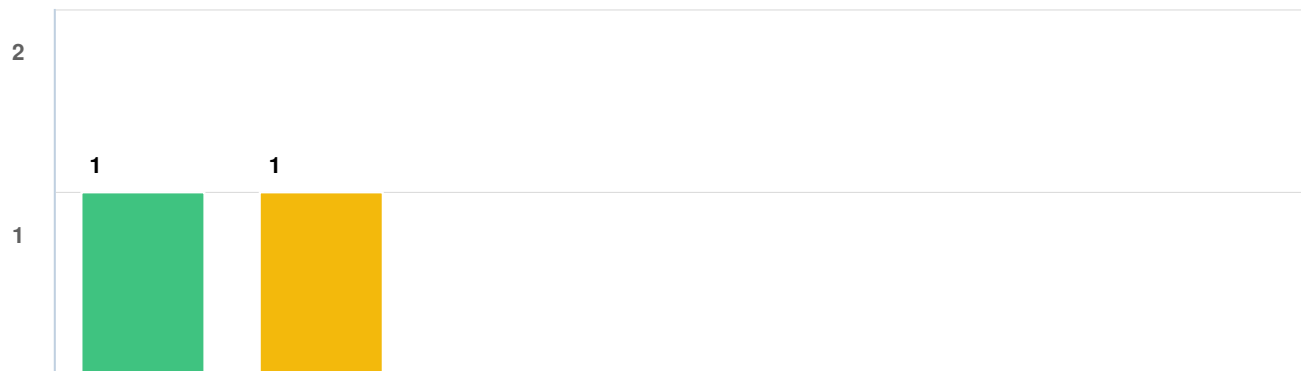


Respondents by Zip Code

Public Engagement Overview

Questions and Results from the Survey

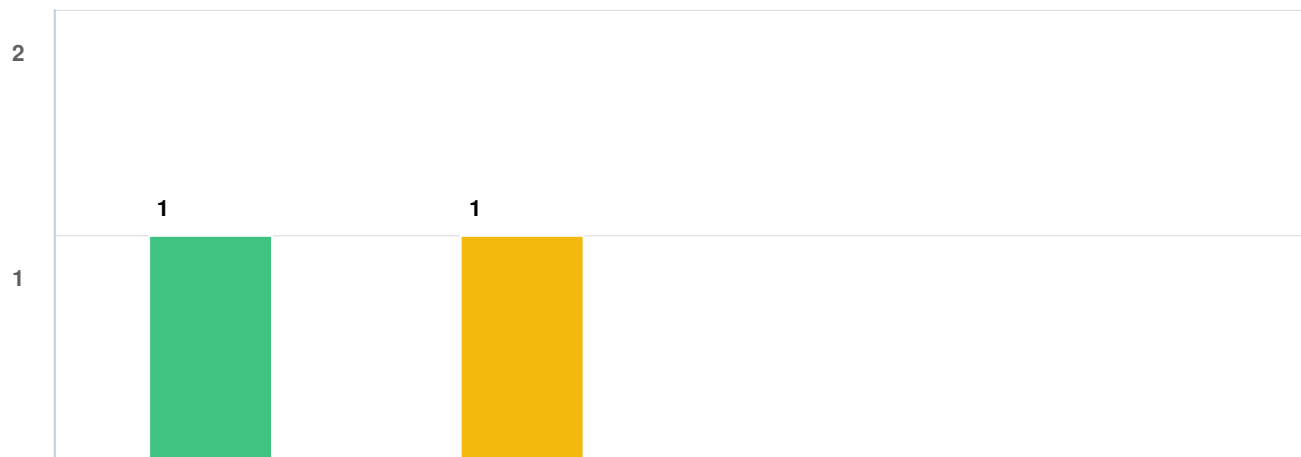
Q1 How do you use the corridor for travel. Check all that apply.



Question options

- ☒ To travel home
- ☒ To travel to work
- ☐ To shop or dine at the businesses
- ☐ To get to a transit stop
- ☐ To get to an RTD station (US 36 Station, Wagon Road or N-Line)
- ☐ I do not use the corridor for travel
- ☐ Other (please specify)

Q2 What modes have you used to travel the 120th Avenue corridor in Broomfield in the last three years? Check all that apply.



Question options

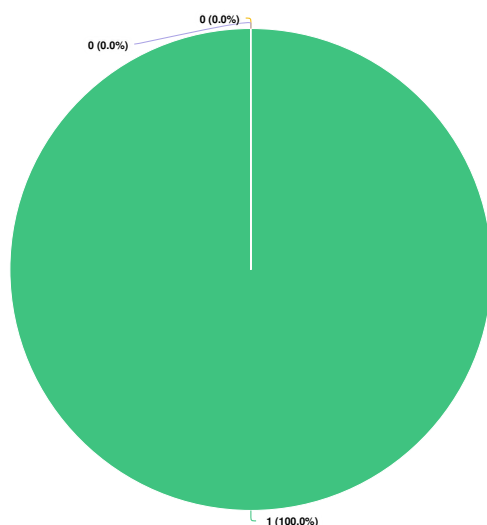
- ☒ Drive
- ☒ Walk
- ☐ Bicycle
- ☐ Transit

Public Engagement Overview

Q3 What do you think the corridor's greatest challenges for your business are? Rank in order of greatest to least with 1 being...

OPTIONS	AVG. RANK
Speeding	1.00
Vehicular Traffic Safety	2.00
Pedestrian Safety	3.00
Bicyclist Safety	4.00
Pedestrian Gaps	5.00
Bicycle Gaps	6.00
Transit Accessibility	7.00
Congestion	8.00
Intersection Accessibility Challenges	9.00
Access/Egress	10.00
Transit Reliability	11.00

Q4 In general, do you feel improvements for people of all ages and abilities, walking, bicycling, and using transit are important for the US 287/120th Avenue corridor?



Question options

- Yes, improvements are very important.
- Yes, improvements are somewhat important.
- No, improvements are not important.

Public Engagement Overview

Q5 As a business owner, rank the following improvements in order of importance to you, 1 being the greatest importance and 7 being the least important.

OPTIONS	AVG. RANK
Access/Egress	1.00
Intersection Improvements	2.00
Crossing Safety Improvements	3.00
Improved Pedestrian Facilities	4.00
Improved Bicycle Facilities	5.00
Capacity Improvements	6.00
Transit Enhancements	7.00

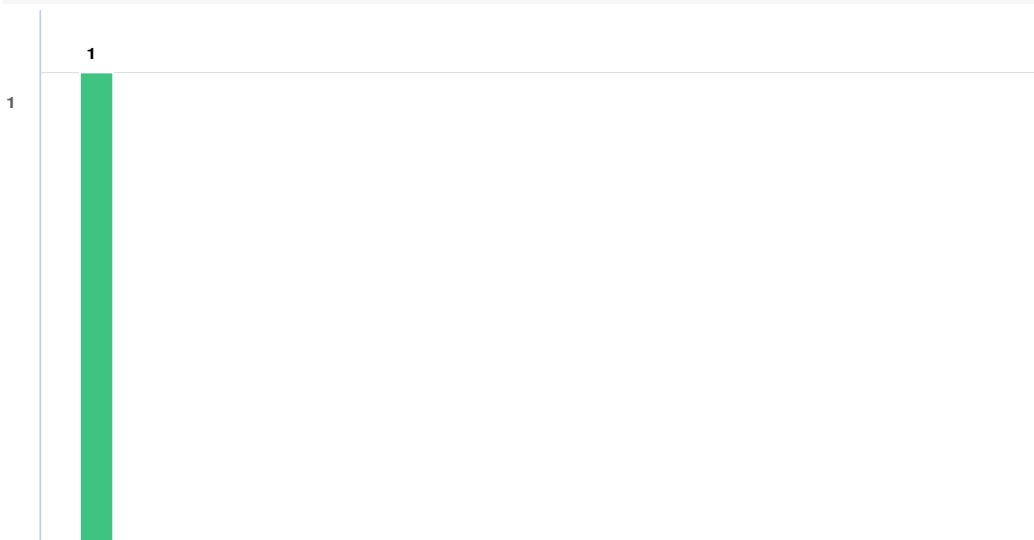
Q6 Are there any other improvements not listed in this survey that you feel are important to you as a business owner? If so, list them below.

Anonymous

8/16/2022 09:07 AM

Speed of traffic, police patrol area, but there are gaps in coverage and enforcement. Improve signage around intersection of 120th and 287 and install cameras to monitor traffic.

Q7 How did you hear about the project? Check all that apply.



Question options

● City and County of Broomfield B in the Loop Newsletter
 ● CDOT Website
 ● CDOT Postcard
 ● CDOT Press Release
 ● CDOT Flyer
 ● City and County of Broomfield Social Media
 ● Event Booth
 ● Word of Mouth

Public Engagement Overview

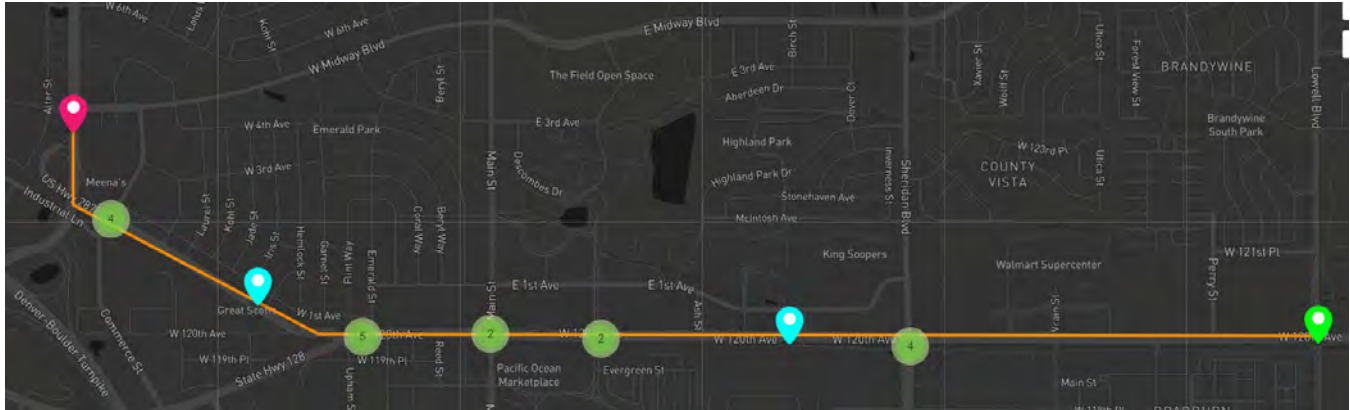
Map Results (Online and In Person)

The interactive project map both online and in person gave residents the ability to place a color-coded pin (online) or sticker (in person) along with their comment regarding the existing condition concerns they may have along the corridor. From both maps, 165 comments were received.

Map Categories:

- ✓ Traffic Safety
- ✓ Pedestrian Safety
- ✓ Bicyclist Safety
- ✓ Transit Gap
- ✓ Bottleneck Issue
- ✓ Mobility Challenge

Interactive Online Map Example



Interactive In Person Map Example



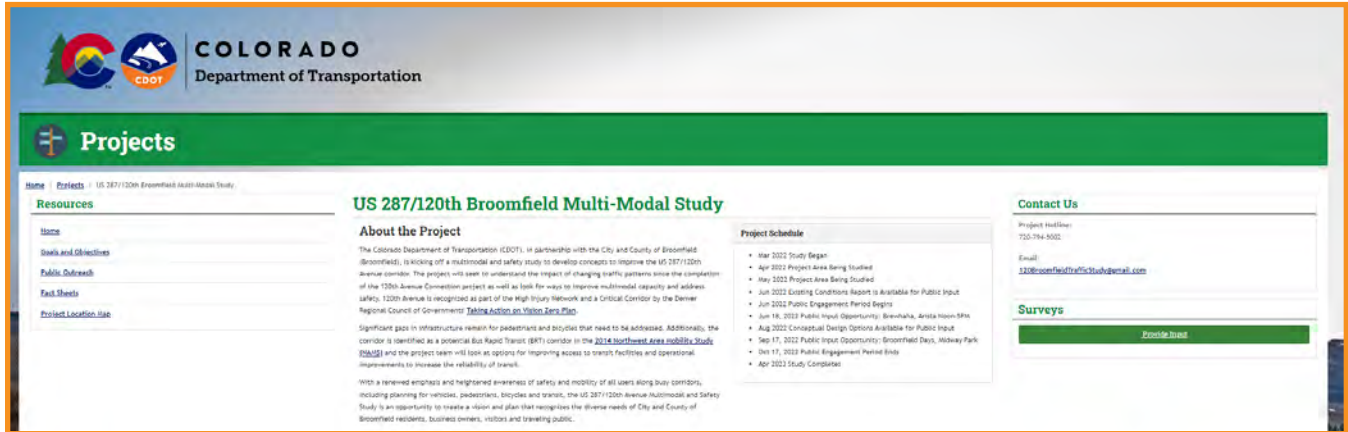
ONLINE AND IN PERSON MAP RESULTS

Issue Category	Online Map Total	In Person Map Total	Total for Both
Traffic Safety	7	48	55
Pedestrian Safety	4	22	26
Bottleneck Issue	0	36	36
Bicyclist Safety	2	30	32
Mobility Challenge	7	4	11
Transit Gap	1	4	5

Public Engagement Overview

CDOT PROJECT INFORMATION PAGE VIEW PAGE

The CDOT Project Information page contains mirrored information from the Broomfield Voice page and is set to drive traffic to the engagement page on the Broomfield Voice project page. Only two visitors have come from the CDOT webpage to the Broomfield Voice page. Other data regarding the traffic about this page is not available to Chickenango.



PHONE HOTLINE | 720-794-5002

The project hotline has received no calls as of the date of this report regarding this project.

PROJECT EMAIL | 120thMultimodalStudy@gmail.com

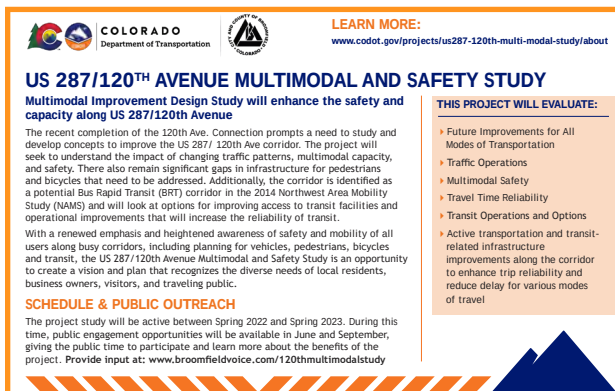
The project email has received no emails as of the date of this report regarding this project.

SOCIAL

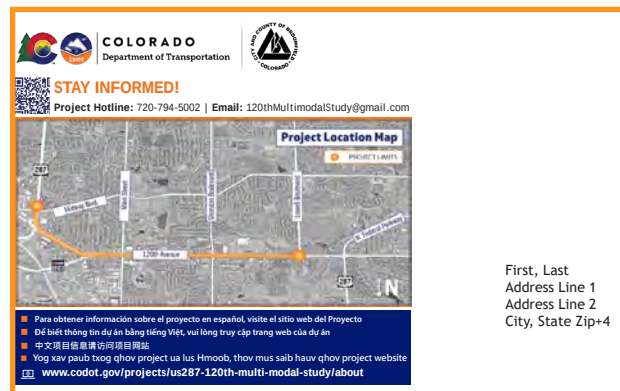
One project specific social post was made by Broomfield's team on Broomfield's Facebook and Twitter accounts in August. There has been 158 visits from Broomfield's social posts to date since the project started.

CDOT PROJECT POSTCARD

Chickenango sent an initial postcard pertaining to the purpose and need and promotion of first round of input for existing conditions was mailed out the Week of May 30th, 2022 to 3,332 stakeholders in the project area.



Front



Back

CDOT PROJECT PRESS RELEASE

CDOT Region 1 Communications Staff sent a press release on the project at the end of May for increased awareness of the project and partnership with the City and County of Broomfield.

Public Engagement Overview

B IN THE LOOP NEWSLETTER (OVER 12,000K SUBSCRIBERS)

The Broomfield team blasted out several B in the Loop newsletters promoting the project. The newsletter has been a primary source of traffic for engagement. The team will continue to blast out updates about the project and drive traffic to the Broomfield Voice page until the public engagement period ends.

EVENT PROMOTIONAL FLIER

A promotional flier was created by Chickenango for an increase in non-digital outreach. The flier was placed along the corridor a week before the first June event by Broomfield staff.

**EXAMPLES OF COLLATERAL CREATED FOR THIS PROJECT CAN BE FOUND IN THE APPENDIX.*



APPENDIX

- **Comments from August In Person Event**
- **Additional Comments from Online Survey**
- **Collateral to Date**



Color: Red Number: 1

Additional Comments or Questions:

Speeding along the Corridor.

Color: Red Number: 2

Additional Comments or Questions:

Traffic Safety / crashes at Lamar & both

Color: yellow Number: 1

Additional Comments or Questions:

Bottleneck (east / west)

Color: yellow Number: 2

Additional Comments or Questions:

Too much traffic at Sheridan / both



Color: Red Number: 6

Additional Comments or Questions:

Merging onto US 287 unsafe.

Color: Yellow Number: 7

Additional Comments or Questions:

Bottleneck on ramps peak times

Color: Yellow Number: 8

Additional Comments or Questions:

Bottleneck. Takes back roads to get around traffic

Color: _____ Number: _____

Additional Comments or Questions:



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Color: Red Number: 3

Additional Comments or Questions:

Traffic Safety with too much confusion
on lane use & turning on Sheridan
& 120th

Color: Red Number: 4

Additional Comments or Questions:

By 287 & 120th Ramp - So many
accidents

Color: Red Number: Traffic Safety - 5

Additional Comments or Questions:

Turning lane safety

Color: Red Number: 6 & 7

Additional Comments or Questions:

At Chase, Bottlenecking & accident
prone



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Color:

~~Red~~ Yellow

Number:

3

Additional Comments or Questions:

10 min Light at Lamar & 120th

Color:

~~Red~~ Green

Number:

1

Additional Comments or Questions:

Trouble getting across Intersections
or people running red lights and
almost getting hit

Color:

Red

Number:

8

Additional Comments or Questions:

Light timing corridor overall

Color:

Green

Number:

2

Additional Comments or Questions:

Slip lanes / SB/EB at Sheridan &
120th**COLORADO**
Department of Transportation

Color: red Number: 9

Additional Comments or Questions:

Traffic Safety - Slipiness & turning

Color: Red Number: 10

Additional Comments or Questions:

W 1st Ave turning left off of
128th → unsafe

Color: Blue Number: 1

Additional Comments or Questions:

Transit gaps overall

Color: pink Number: 1

Additional Comments or Questions:

Overall Bike Safety - avoids
120th. Takes Midway



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Color: Blue Number: 2

Additional Comments or Questions:

Circulator for transit some

Color: Green Number: 3

Additional Comments or Questions:

Lowell & 120th unsafe

Color: Red Number: 11 & 12

Additional Comments or Questions:

Emerald & 120th Turning is unsafe
Sharp right turn. afraid of being
hit → at main street. Unsafe

Color: Red Number: 13

Additional Comments or Questions:

tree & Shenden crashes



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Color: Red Number: 14

Additional Comments or Questions:

Emerald St. Right turn lane
unsafe.

Color: Green Number: 4

Additional Comments or Questions:

Pedestrian friendly needed

Color: Green Number: 5

Additional Comments or Questions:

red crossing berth & safety
when rec center cones

Color: Red Number: 15

Additional Comments or Questions:

Unsafe turning lanes



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Color: Red Number: 16

Additional Comments or Questions:

By Starbucks & 287 → Drive thru
lane traffic backs up.

Color: yellow Number: 4

Additional Comments or Questions:

Chase → Long light.

Color: Green Number: 6

Additional Comments or Questions:

Crossing lines are short

Color: yellow Number: 5

Additional Comments or Questions:

Bottleneck at Sheridan



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Color: Pink Number: 2

Additional Comments or Questions:

Shoulder - Bike crossing

Color: Red Number: 17

Additional Comments or Questions:

Shoulders - Unsafe accidents

Color: ~~Red~~ Red Number: 18

Additional Comments or Questions:

Lowell & 120th. Light timing makes it unsafe.

Color: Pink Number: 3

Additional Comments or Questions:

Conflict zone between Bikes & Cars. main st & Emerald Bike facility aren't great.



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Color: Green Number: 7

Additional Comments or Questions:

walking safely across Lowell.
light times are too short

Color: ~~Green~~ Yellow Number: 6

Additional Comments or Questions:

Bottleneck in a.m. during peak
hours & school pickups.

Color: Yellow Number: 7

Additional Comments or Questions:

Congestion on Lowell during AM

Color: Pink Number: 4

Additional Comments or Questions:

~~get off~~ Bike across 120th Between Bradburn and Vrain



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Color: Pink Number: 5

Additional Comments or Questions:

1st and sheriden hard to navigate ^{on bike} parking lot is hard to navigate going to Jacks

Color: Red Number: 19

Additional Comments or Questions:

chase is really hard to navigate

Color: Red Number: 30

Additional Comments or Questions:

access at storage to 120th is scary

Color: Pink Number: 6

Additional Comments or Questions:

The bike lanes need to be over 6 feet ~~for~~ ~~for~~ for bike trailers. Would like to protected bike lanes



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Color: Red Number: 1

Additional Comments or Questions:

Color: yellow Number: 1

Additional Comments or Questions:

Traffic Bucks up

Color: Red Number: 2

Additional Comments or Questions:

Both → getting onto US 287 - unsafe -
traffic speeds to cut across lanes

Color: Red Number: 3

Additional Comments or Questions:

Inconsistent speeds thruout the
Corridor



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Color: yellow Number: 2

Additional Comments or Questions:

Bottleneck at Midway by Nativity Church

Color: yellow Number: 3

Additional Comments or Questions:

Bottleneck at Sheridan. Right Lane too short.

Color: yellow Number: 4

Additional Comments or Questions:

Bottleneck at Sheridan, 120th & turning to W 1st Avenue due to signal times.

Color: yellow Number: 5

Additional Comments or Questions:

EB Bottleneck at Chase



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Color: Red Number: 4

Additional Comments or Questions:

merge onto US 287 to get to
midway is unsafe.

Color: Green Number: 1

Additional Comments or Questions:

Good pickup Islands & ped refuge

Color: _____ Number: _____

Additional Comments or Questions:

Turning onto Midway (left turns) ~~is~~
unsafe.

Color: yellow Number: 6

Additional Comments or Questions:

Frontage Road traffic trying to get
on to 120th. Road gets congested



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Color: Green Number: 8

Additional Comments or Questions:

inconsistent sidewalk area's

Color: Pink Number: 7

Additional Comments or Questions:

King scoper and home depot parking lot hard to
navigate in a bike

Color: green Number: 9

Additional Comments or Questions:

Green bike lanes

Color: _____ Number: _____

Additional Comments or Questions:



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Q7 Add your additional questions or comments here.

watlocal

5/28/2022 11:12 AM

Given likely vehicle speeds it seems likely that a high quality MUP (grade separated, at least 10', underpasses/overpasses at all major intersections (Sheridan, Main), underpasses/overpasses every mile along 287/120th) is the only option for improving pedestrian and bicycling safety. Bus only lanes from Eastlake station/Wagon Road PnR through the rest of the corridor could help make transit more reliable and comfortable.

allessem

5/31/2022 07:38 PM

In addition to the items to be ranked above, merging right turns (especially with a red light) are extremely dangerous for pedestrians and people on bikes. People are looking backwards to find gaps in traffic and not looking forward to see if anyone or anything is crossing the road.

Chaumania

5/31/2022 11:17 PM

Underpasses would be great

Alex

6/01/2022 12:52 AM

What are the plans and how will it effect my neighborhood, the increase congestion, traffic, speed control, safety for walking?

SNGRanch

6/01/2022 01:54 PM

The yield sign on 287 onramp to 287 is often ignored and I have seen so many close calls as cars think they have the right of way or it is a "merge". The bike and ped along this corridor and connecting to US36/287 don't feel safe. Speeding is a huge issue as some cars are often 10-20 mph over the limit.

Joe Weingart

6/01/2022 02:01 PM

The west bound slip lane to stay on 120th vs continuing onto 128 is incredibly dangerous for pedestrians and cyclists. Motorists can take the turn going over 40 mph

jt_02

6/01/2022 02:44 PM

The merge lane from 120th onto 287 northbound is terrible. Nobody obeys the yield sign from the on-ramp. Similarly, merging from 287 onto Midway eastbound has a yield sign that is very confusing, since there is also a dedicated merge lane.

jwhuffman

6/03/2022 04:30 PM

Transit running only once an hour is a very significant barrier to using it. Especially since it can take up to 10-15m to get to the nearest bus stop from inside a neighborhood like Brandywine. The fact that it also

stops running fairly early at night means that it often isn't an option for returning from an evening trip to downtown Denver, Westminster, or Boulder. Having to cross 8 lanes of traffic can also be quite intimidating and a potential safety hazard for pedestrians trying to cross 120th, even with adequate traffic controls. Drivers aren't always watching out for pedestrians on such a major road.

John with BroomfieldBikes.org

6/03/2022 06:45 PM

Anyone that lives within 1/4 mile of this corridor will tell you that: 1) The cars and trucks on 120th are LOUD and that negatively impacts quality of life. Even from the open space south of Midway near the new community center, you can still hear the vehicles on 120th. 2) The cars and trucks on 120th speed and run red lights, and there is little to no enforcement unless there is a car crash. 3) Pedestrian/cyclist safety at intersections is practically non-existent. Ideally there would be multiple underpasses to prevent at-grade crossings. 4) Even walking along the sidewalk (where it exists!) is unpleasant in some stretches due to vehicle noise, perceived danger from cars traveling 50+mph, no trees for shade/protection. 5) The lanes on the road are far too wide which encourages speeding. 6) The road itself, at 5-6 lanes is too wide to be fully dedicated 100% to cars. Bus Rapid Transit (BRT) lanes would be a game changer! 7) The streetscape is ugly. There is no thought in the design given to aesthetics, only to move cars as quickly as possible. That mindset needs to change!

WStott

6/06/2022 06:55 PM

I do not want to see the old section of 287 (120th) be ignored.

knorr77

6/06/2022 10:38 PM

Not sure if this strictly connected to the corridor survey, but the speed limit (40 miles per hour) for the section of CO-128 leading to the highway (from 120th Ave to Interlocken Loop) is set too low. 45 or 50 mph would be more appropriate and would help cars keep up with the pace of traffic--I've noticed that most cars speed on that stretch, as it's basically an on-ramp to the highway (36 East).

303JL

6/07/2022 12:01 AM

Let's prioritize non-vehicular travel and infrastructure for a change. Before the earth changes it for us.

jimchoff

6/07/2022 05:36 AM

Cyclist here. I simply do not ride on 120th. I cross 120th in 3 places. The wait for traffic light changes is v e r y long at 120th & Greenway/Lamar. If no cars are crossing 120th, the lights do not change. I also cross at Nickel and Lowell Blvd. These are also bad, especially if no cars are present. 120th itself is too dangerous to ride. I also drive on 120th. The most dangerous location is approaching

the intersection of 120th east and Sheridan south, where vehicles use the breakdown lane when the road is congested.

TheMTBER

6/07/2022 09:38 AM

Bike accessibility is important to the safety and health of the community

WalkinginBroomfield

6/07/2022 10:06 AM

As 120/287 business corridor is outlined by a large swath of residential neighborhoods, I believe that it is important to make traveling on 120/287 and surrounding areas accessible and safe to get to by bike or walking(or even by local shuttle buses!). It would be great to see a walking/bike area/lane(s) on these streets that are barricaded from traffic. For instance, using a lane of traffic or the lawn on both sides of 120th and converting it to a beautified sidewalk and bike lane. As someone who lives behind the shopping district, this would be a nice change to see. I am pretty sure I am not the only one! Also, walking/biking north to south across 120th or 287 does not feel safe. There are no barricades at intersections, there is little space to wait for lights to turn green as you are waiting for 45+mph traffic to pass you by.

Khector

6/07/2022 10:10 AM

Separated bike paths along this area would be wonderful

ViewsWithoutViews

6/07/2022 02:25 PM

There are few options to cross major thoroughfares/parkways within Broomfield. Only one underpass on 287 near King Soopers that I can think of. Many of our roads are congested with commuters from Erie, Louisville, and Longmont commuting to and from work. These communities should pay to use 36/470 vs using 287, Sheridan, Lowell and 120th. I don't understand why Dillon Rd. was widened to accommodate more traffic when 470 should be used to travel east/west.

briharp9

6/08/2022 07:52 PM

It would be very helpful to have a continuous sidewalk in place along this corridor on both sides of the street when possible.

every.wall.is.a.gate

6/10/2022 10:08 AM

Our family would LOVE to have a SAFE way to walk from our neighborhood in Greenway Park to the Broomfield Library, etc. Presently, it's unthinkable to send our children across 120th on foot anywhere in the corridor. The crosswalk is so long, it takes a brisk walk to get across in time--and you always have to watch for people running lights. It would be a very short walk, but we always get in the car--and have to take the kids.

Glenda

6/13/2022 02:40 PM

We need a pedestrian crosswalk from Hemlock across the street to the businesses. It is dangerous to cross the street, and there is no pedestrian sidewalk on the north side of the street.

samcthane

6/20/2022 12:52 PM

-If adding bike lanes, detach from the road and not just stick it adjacent to the gutter and travel lane. -Add sidewalk between Greenway Dr north and gray street. -Add connection between Greenway Park trail system mid-block between Greenway Dr. North and Gray St.

korrellc

6/21/2022 08:34 PM

We live back in the odd triangle bordered by Wadsworth, 287, and 120th. I love the area and I love that it is really quite close to so many services. The pool, library, rec center, etc, are all a 15-20 min bike ride away. The problem is getting across Wadsworth safely! Even the bike path requires us to cross 287 at the 36 interchange to reach it! I am not comfortable letting my kids ride on their own, despite being teenagers, because of the challenging conditions for bicyclists.

drsjr1

6/25/2022 12:38 PM

It needs be two lanes when 120 curves NW at emerald.

Seeingl

6/27/2022 07:14 PM

I am visually impaired and it is almost impossible to walk along the north side of 120th from Lowell to Vrain due to a lack of sidewalks or even a safe place to be a pedestrian, especially a blind one with a guide dog that has to walk on my left (next to traffic). Also, RTD service here is pretty awful, with no buses running to the stop on 120th and Lowell on the weekends and only hourly during the week.

SteveMBecker

6/28/2022 10:46 AM

I love that Broomfield has so many bike lanes but they get covered with debris which makes them unsafe for cycling. They need to be cleaned more often. I often have to ride in the vehicular lane to avoid debris. It is difficult to get to the Hwy 36 bike path from this corridor.

Plow Namers of the Century

6/30/2022 08:53 PM

In general, it is hard to use biking and walking as a way to move around Broomfield. Along 120th Ave, there are many gaps in the sidewalk. It does not feel safe to ride my bike on 120th and so I use the sidewalks when biking.

rossedel

7/04/2022 12:48 PM

Many of the businesses on 120th Ave are less than a 10 minute bike ride from my home, but because the corridor feels dangerous and car-centric our family generally avoids the area except to drive

through it.

mountainTOD

7/05/2022 06:32 PM

I would love better transit connections in this corridor. pedestrian orientated, higher density development would be helpful in this regard. such as Arista or better yet Bradburn.

Baltimordor

7/05/2022 06:56 PM

120th is simply too busy and congested with cars for bicycling or walking. Priority should go to cars and transit options to make it easier to go through the area.

peggy

7/05/2022 07:05 PM

The speed limit it way to high along 120th and Federal!!!!

artsafact

7/05/2022 09:39 PM

An over pass for pedestrians and cyclists is needed at 120th and Sheridan. A definition of pedestrian and cyclists paths would have benn helpful

dawnyadee

7/06/2022 10:08 AM

The traffice on 120th is at times very dangerous. There really needs to be my patrol for the redlight runners, I don't mean they catch the tailend of a yellow. There are times that I have set at an intersection and I counted 6 cars that blantly go right through likes it is no big deal. That is a major crises in this city. I believe that the city should be been thinking about this situation about 15 years ago. We have been here 32 years and it's can be a nightmare.

AmosJose

7/06/2022 10:58 AM

While this section is congested during morning and afternoon drive time, I don't believe we need significant additional investment in it. However, a different area of our community is in desperate need of help -- crime and lawlessness. I believe we need to move money from the transportation/road improvement budget, and allocate it to address the surge in all areas of crime. I shop at Lowes, Walmart, Kohls, Walgreens and local grocery stores. I SEE people stealing. They have no shame, and don't seem concerned about being caught. The clerks don't (maybe not allowed to) try and stop the thieves. I feel like I have to look over my shoulder everywhere I go in Broomfield. Graffiti on fencing is disgusting to look at. We used to have a safe community, but it's awful now. My neighbors car has been broken into twice. Another had hers stolen. Kids on my block have had their bikes go missing. The crime is like I've never seen it before. Road improvement is nice, but the crime wave in Broomfield makes me feel unsafe. I'd rather drive on a congested road, than live with all the criminals who take what is not theirs and have turned my neighborhood into thug haven.

abrewer

7/06/2022 11:44 AM

I think 120th is overall way too fast; it feels like, at least in the business center, that it should be 35 mph or less at least. I also can't even imagine trying to walk it or ride my bike. I've walked to POM from CCOB and even that was not ideal, not really built for pedestrians. It would be nice if they are doing the new downtown area to include something like a street car or rapid bus to go from downtown and then have a lane all along 120th. It seems like businesses are very set back from 120th so maybe could build a train into that and then have a bike lane so that it is safer from traffic on the other side of the train.

Tasandre

7/06/2022 02:45 PM

Better access to RTD station would encourage more use of transit

brian.meyer

7/11/2022 11:39 AM

The sidewalk ramps on 120th, where it meets 287 are bent in such a way that it is hard for bikes to navigate. If I am biking west down 120th to get to the 1st Bank Center RTD station, getting across 120th is the biggest problem. Crossing at the 120th/287 intersection or the Wadsworth Dr. intersection is cumbersome and the most harrowing part of the journey.

vromano

7/15/2022 09:03 PM

There is still a lot of traffic that runs on east 120th even after the new bridge to 287 opened. Could the 36 on ramp at 120th be blocked to encourage more traffic up the hill toward 287 and discourage the volume of traffic heading west on 120th to 287?

mcurtin52

7/15/2022 09:24 PM

More traffic needs to be diverted and encourage to continue on hwy 128 at Emerald and 120th to access 287 north and south at Wadsworth and I-36. Cars speed excessively on 120th, and there is a huge blind spot at 120th and Hemlock. Hwy 128 was expanded under the RR tracks to remove congestion, and it clearly is a waste because traffic is not using it. The traffic continues on 120th, and it is not designed to manage the traffic volume.

Resselka

7/19/2022 09:25 AM

Lowel to Sheridan is very dangerous . Fast speeds and volume cause urgent sudden stops. I would not like to be a pedestrian or cyclist on that road during heavy traffic hours!

Anonymous

7/20/2022 03:06 PM

Need to be more financially responsible in the City

Anonymous

7/20/2022 10:01 PM

120th/Sheridan is so pedestrian & bike unfriendly & unsafe

Kdot

7/21/2022 08:43 PM

I know it's difficult to enforce, but there are enough people that run the red lights at intersections that I find I need to check all ways to make sure there's no one coming through at the last minute that will hit me. Would intersection cameras be too costly to help catch those endangering others?

Anonymous

7/25/2022 01:13 PM

I would like to travel by bicycle more often, so am interested to see what new corridors might be established.

Anonymous

7/25/2022 07:11 PM

I am interested in obtaining an E-Bike and using it frequently to cut down on car use.

Anonymous

7/26/2022 03:30 AM

Thank you. I live and work on 287 and would love to bike to work but feel it is unsafe. Please consider adding multiuse sidewalks down 287 to 104th. South pass the airport there are no sidewalks!! I see people especially students walking up from Standley Lake High School to the Arista area along the side of the road which is unsafe.

Anonymous

7/26/2022 09:08 AM

Timing On the lights does not promote efficient traffic movement. Left turn arrows off the corridor don't allow enough time to clear more than four cars. Also, there should be red light cameras at every intersection and running red lights should be punishable by a fine.

Anonymous

7/30/2022 01:03 PM

Long waits for green lights to cross 120th.

Anonymous

7/31/2022 10:56 PM

The road doesn't need any changes but maybe side walk put in on the south side of 120th. It would be nice but not a have to item.

Anonymous

8/01/2022 10:56 PM

I must admit I extremely dislike being on 120th , period , although necessary. It unnerves me whether I am in my car or on my bike. Speeding and running red lights, bikers and pedestrians are taking their lives in their hands! No Idea what the solution might be.

Anonymous

8/02/2022 03:30 AM

Make a sidewalk south on Wadsworth to 104th and making a sidewalk north on 287 from Miramonte to the Hospital

CalenShoen

8/02/2022 02:08 PM

This entire corridor is largely inaccessible and very dangerous to cyclists and pedestrians which is concerning because it has so many businesses and public resources. It also acts as a wall to any non driver trying to cross to the other side with the infrequency of crosswalks, long signals, and dangerous right turn yield lanes. Transit access is subpar too, given that it is such a major road, half hour bus service between two lines is not enough. If rapid transit is considered in the area, or transit is improved in any way, please consider that very few people live within a reasonable walk of a 120th bus stop so they will typically need a connecting bus. If schedules are not frequent and well planned to keep wait times short, ridership will stay low.

Anonymous

8/08/2022 07:20 PM

I think W 120 St/287 as it carries too much multilane fast traffic with too many busy driveways too allow safe pedestrian and bike improvements to be effective. Better to redevelop E 1st Ave to the north and Frontage Road to the south for walking and bicycle paths. Extend the E 1st St. corridor thru the Safeway redevelopment as denser more pedestrian path and continue across the Walmart center, Laurel Blvd and Metzger Farm trails and into Westminster and the existing commercial center east of Federal Blvd. On the Frontage Road side extend a pedestrian/bike path into Bradburn Village streets. Provide plenty of shade trees along any paths.

Anonymous

8/23/2022 02:25 AM

120th and 287 are remnants from a prior era where the car was king. Because these roadways are key to our community, they also need to afford pedestrians and bikes to use these corridors SAFELY. This will require rethinking how these "thoroughfares" function to accommodate pedestrians/bikes SAFELY. Slapping bike lanes on won't work as they won't get used if pedestrians and bikers don't feel safe.

Anonymous

8/23/2022 11:45 AM

Traffic congestion is a major problem city wide. Roads that were here in 1998 when I moved here and the population was 29K have not been updated to handle the doubling of the population since that time.

Jeff134

8/24/2022 04:25 PM

The proposed plan ignores the existing needs of homeowners who rely on parking along 120th. Many of them have no other place to park if they own more than one vehicle (personal or work) It also eliminates the funeral coach parking needed for funerals at Nativity church.

Q8 Add your additional questions or comments here.

Anonymous

8/16/2022 09:07 AM

As owner of Jus' Burritos, I value continued accessibility and traffic flow to my business located 7502 US Highway 287. Please do not downgrade or eliminate access to the businesses along this stretch of highway.

Optional question (1 response(s), 0 skipped)

Question type: Essay Question



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LEARN MORE:

www.codot.gov/projects/us287-120th-multi-modal-study/about

US 287/120TH AVENUE MULTIMODAL AND SAFETY STUDY

Multimodal Improvement Design Study will enhance the safety and capacity along US 287/120th Avenue

The recent completion of the 120th Ave. Connection prompts a need to study and develop concepts to improve the US 287/ 120th Ave corridor. The project will seek to understand the impact of changing traffic patterns, multimodal capacity, and safety. There also remain significant gaps in infrastructure for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the 2014 Northwest Area Mobility Study (NAMS) and will look at options for improving access to transit facilities and operational improvements that will increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of local residents, business owners, visitors, and traveling public.

SCHEDULE & PUBLIC OUTREACH

The project study will be active between Spring 2022 and Spring 2023. During this time, public engagement opportunities will be available in June and September, giving the public time to participate and learn more about the benefits of the project. **Provide input at:** www.broomfieldvoice.com/120thmultimodalstudy

THIS PROJECT WILL EVALUATE:

- ▶ Future Improvements for All Modes of Transportation
- ▶ Traffic Operations
- ▶ Multimodal Safety
- ▶ Travel Time Reliability
- ▶ Transit Operations and Options
- ▶ Active transportation and transit-related infrastructure improvements along the corridor to enhance trip reliability and reduce delay for various modes of travel





COLORADO
Department of Transportation



STAY INFORMED!

Project Hotline: 720-794-5002 | **Email:** 120thMultimodalStudy@gmail.com



- Para obtener información sobre el proyecto en español, visite el sitio web del Proyecto
 - Để biết thông tin dự án bằng tiếng Việt, vui lòng truy cập trang web của dự án
 - 中文项目信息请访问项目网站
 - Yog xav paub txog qhov project ua lus Hmoob, thov mus saib hauv qhov project website
-  www.codot.gov/projects/us287-120th-multi-modal-study/about

First, Last
Address Line 1
Address Line 2
City, State Zip+4

May 31, 2022

— PROJECT ANNOUNCEMENT — US 287/120th Avenue Multimodal and Safety Study Underway



City and County of Broomfield: The Colorado Department of Transportation and the City and County of Broomfield have begun collecting traffic data for the US 287 and 120th Avenue Multimodal and Safety Study Project. The project area is located between US 287/Midway Blvd. traveling approximately three miles east to the eastern terminus at the Lowell Blvd.

The recent completion of the 120th Ave. Connection prompts a need to study and develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns, multimodal capacity & safety. There also remain significant gaps in infrastructure for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#) and will look at options for improving access to transit facilities and operational improvements that will increase the reliability of transit.

The project will analyze current conditions and provide data to better understand and plan for future multimodal improvements. Considerations that will be studied include corridor safety for all modes of transportation, multimodal capacity and operations for vehicular traffic, transit. In addition, the study will evaluate travel time reliability, transit operations, and transit-related infrastructure improvements. The study will develop conceptual plans, cost estimates, prioritize projects, and provide an implementation plan.

Schedule

- The project study began in Spring 2022 and is expected to be completed in Spring 2023.
- The public will be informed of several engagement opportunities to learn more about the study and to provide input. Engagement opportunities are scheduled for June and September of 2022.



Project Contact Information

For additional information about this project, stay up to date or contact the project team in the following ways:

-
- Project study website: www.codot.gov/projects/us287-120th-multi-modal-study
 - Project study hotline: 720-794-5002
 - Project study email: 120thMultimodalstudy@gmail.com
 - Broomfield Monthly Transportation Newsletter: Broomfield.org/BInTheLoop
 - Para obtener información sobre el proyecto en español, visite el sitio web del Proyecto
 - 中文项目信息请访问项目网站
 - Để biết thông tin dự án bằng tiếng Việt, vui lòng truy cập trang web của dự án
 - Yog xav paub txog qhov project ua lus Hmoob, thov mus saib hauv qhov project website

###



US 287/120th Avenue Multimodal and Safety Study

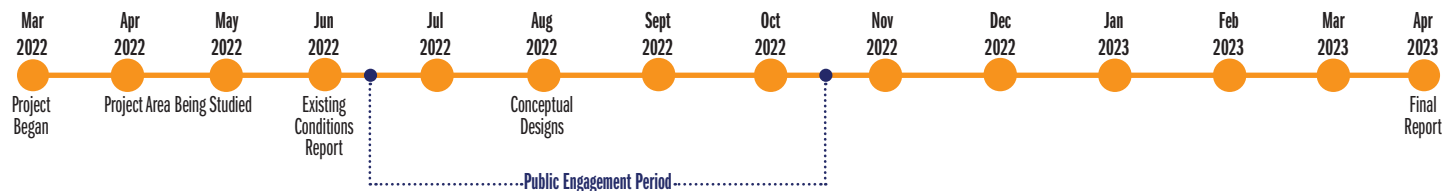


Project Purpose and Need

The Colorado Department of Transportation (CDOT), in partnership with the City and County of Broomfield (Broomfield), is kicking off a multimodal and safety study to develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns since the completion of the 120th Avenue Connection project as well as look for ways to improve multimodal capacity and address safety. 120th Avenue is recognized as part of the High Injury Network and a Critical Corridor by the Denver Regional Council of Governments' [Taking Action on Vision Zero Plan](#). Significant gaps in infrastructure remain for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#) and the project team will look at options for improving access to transit facilities and operational improvements to increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of Broomfield residents, business owners, visitors and traveling public.

Milestone Schedule



Goals and Objectives

Join CDOT and Broomfield as we envision a future corridor that:

- ✓ Builds on previous City and County of Broomfield, CDOT, and RTD studies and improvement efforts to develop a comprehensive plan that improves safety, operations, and equity for all modes of travel
- ✓ Increases safety for all travelers
- ✓ Improves accessibility of multimodal transportation facilities for all ages and abilities
- ✓ Identifies multimodal transportation infrastructure gaps within the project area
- ✓ Promotes 120th Avenue as a future Bus Rapid Transit (BRT) corridor

Stay Informed



US 287/120th Avenue Multimodal and Safety Study

► What is the purpose of this study and why is it needed?

The recent completion of the 120th Avenue Connection prompts a need to study and develop concepts to improve the US 287/120th Avenue corridor. The project will seek to understand the impact of changing traffic patterns, multimodal capacity, and safety. Significant gaps in infrastructure remain for pedestrians and bicycles that need to be addressed. Additionally, the corridor is identified as a potential Bus Rapid Transit (BRT) corridor in the [2014 Northwest Area Mobility Study \(NAMS\)](#) and the project team will look at options for improving access to transit facilities and operational improvements to increase the reliability of transit.

With a renewed emphasis and heightened awareness of safety and mobility of all users along busy corridors, including planning for vehicles, pedestrians, bicycles, and transit, the US 287/120th Avenue Multimodal and Safety Study is an opportunity to create a vision and plan that recognizes the diverse needs of local residents, business owners, visitors, and traveling public.

► Will the project consider pedestrian, bicycle, and transit needs?

Yes. Currently, the City and County of Broomfield is completing the 120th Avenue Sidewalk Infill Project and the intent is to build on the changes constructed through this project. Facilities for people walking and bicycling are essential within the regional transportation system and have numerous benefits at the local and regional levels. The project will also evaluate the existing transportation infrastructure for the ability to support transit operations with the goal to understand the opportunities to enhance transit service efficiency and reliability for the public. The City and County of Broomfield and CDOT will consider all options for the improvement of mobility and safety.

► What is the timeline?

The projected timeline for the study is Spring 2022 to Spring 2023. After the completion of the study, the project preferred option can move into the design phase in 2024 with construction to follow as funding becomes available. The project team will keep the community up to date on the project's progress. Please stay up to date by visiting the [project website](#).

► What area of the corridor is being studied?

The study will occur between the US 287/Midway Boulevard, and proceed along 120th Avenue/US 287, approximately three miles east to Lowell Boulevard. Visit the [project website](#) for a study area map.

► What types of safety improvements are being evaluated?

The project team is collecting data and information to study that will help form and propose safety improvements along the corridor. They will be evaluating traffic operations, safety, travel time reliability, transit operations, transit options, and transit-related infrastructure improvements along the corridor to improve trip reliability and safety for multimodal travel.

► What types of multimodal alternatives are being evaluated?

This project will evaluate missing multimodal infrastructure capacity, including reviewing existing and planned multimodal connections to the corridor. It will also evaluate existing and projected transit ridership to help identify improvements and enhancements along the corridor for transit reliability, efficiency, and safety. Active transportation facilities will be evaluated for accessibility to all ages and abilities.





US 287/120th Avenue Multimodal and Safety Study

► What types of improvements does CDOT/City and County of Broomfield think will be recommended?

Considerations will include corridor safety for all modes of transportation, and operations for vehicular traffic, transit, and active modes of transportation.

► How is stakeholder input being incorporated into the study and how can I get involved?

There will be several opportunities for the public to engage by learning about the project and providing input. Materials will also be available virtually so the public can participate through an online forum. CDOT and the City and County of Broomfield are partnering to solicit public input at the [Broomfield Voice website](#). The project team will keep you updated on when and where these opportunities will be occurring. Currently, public outreach efforts will begin in June and run through the end of September.

► Can you provide a project presentation to my organization, neighborhood, or business?

Yes. This is a project partnership between CDOT and the City and County of Broomfield. Please reach out to the project team at the contact information listed at the end of these FAQs and the project team would be pleased to present to your organization, neighborhood, or business.

► How much is the project going to cost and where is the funding coming from?

This project was awarded a \$480,000 federal grant from the Denver Regional Council of Governments. CDOT and the City and County of Broomfield are also contributing \$60,000 each as part of the grant's local match requirement.

► How will you keep us informed?

All interested residents should keep up to date on the project in one of the following ways:

- **Project Study Website:** www.codot.gov/projects/us287-120th-multi-modal-study
- **Project Study Email:** 120BroomfieldTrafficStudy@gmail.com
- **Project Hotline:** 720-794-5002
- **Facebook Updates**
- **Twitter Updates**



US 287/120th Avenue Multimodal and Safety Study



Interactive Project Map



COLORADO
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Midway Blvd.

Sheridan Blvd.

Lowell Blvd.

W 121st Place

Perry Street

Tennyson Way

Wolff Street

120th Avenue

Vrain Street

Bradburn Blvd.

W 118th Place

Place a sticker that corresponds with one of the categories below to indicate where the multimodal gaps are along the corridor.

- **Traffic Safety**
- **Transit Gap**
- **Pedestrian Safety**
- **Bottleneck Issue**
- **Bicyclist Safety**
- **Mobility Challenge**

● **Project Limits**

N

CDOT & BROOMFIELD WANT YOUR INPUT!

US 287 and 120th Avenue Multimodal and Safety Study

Broomfield and CDOT are seeking your input regarding where there are gaps in accessible multimodal travel for all ages and abilities, safety challenges, or where the US 287 and 120th Avenue corridor overall can be improved for residents.

Goals and Objectives

Join CDOT and Broomfield as we envision a future corridor that:

- ▶ Builds on previous City and County of Broomfield, CDOT, and RTD studies and improvement efforts to develop a comprehensive plan that improves safety, operations, and equity for all modes of travel
- ▶ Increases safety for all travelers
- ▶ Improves accessibility of multimodal transportation facilities for all ages and abilities
- ▶ Identifies multimodal transportation infrastructure gaps within the project area
- ▶ Promotes 120th Avenue as a future Bus Rapid Transit (BRT) corridor



Upcoming In-Person Public Input Events

The project team will be available at the following events to answer questions, take comments, and provide more information on this important project. Stop by and see us!

**JUN
18**

Broomfield Brewhaha
Arista, Noon-5PM

Visit broomfield.org/Brewhaha

**SEP
17**

Broomfield Days
Midway Park, 9AM-5PM

Visit broomfield.org/361/Broomfield-Days

WAYS TO PROVIDE INPUT

1 Stop by the Project Booth

Stop by one of the project booths at one of the in person events in June and September. See the events information listed above or on the project website for where you can engage in person.

2 Use the Interactive Project Map

Go to the Broomfield Voice Project Input Page listed below under Stay Informed to use the interactive map to tell Broomfield and CDOT your experience living and working along this study area.

3 Take the Project Survey

Take the project survey by visiting the Broomfield Voice Project Input Page listed below under Stay Informed and let the project team know your thoughts about improving mobility and safety along this corridor.

The project team will be collecting public input between now and October 17, 2022. Be sure to use one of the ways mentioned above to have your voice heard about this important project effort.



COLORADO
Department of Transportation



Stay Informed

Broomfield Voice Project Input: broomfieldvoice.com/120thmultimodalstudy

Project Email: 120thMultimodalStudy@gmail.com

Project Hotline: 720-794-5002

Social Media: twitter.com/broomfield | facebook.com/Broomfield



Appendix B

Existing Traffic Operational Reports

HCM 6th Signalized Intersection Summary

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

2022 AM Peak Hour
Existing Conditions

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (veh/h)	20	58	182	468	195	132	272	1445	226	97	1656	43			
Future Volume (veh/h)	20	58	182	468	195	132	272	1445	226	97	1656	43			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.98		1.00	0.99		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No			No					
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811			
Adj Flow Rate, veh/h	26	74	0	503	210	0	283	1505	0	100	1707	0			
Peak Hour Factor	0.78	0.78	0.78	0.93	0.93	0.93	0.96	0.96	0.96	0.97	0.97	0.97			
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6			
Cap, veh/h	167	143		639	352		325	1766		221	1895				
Arrive On Green	0.02	0.08	0.00	0.13	0.19	0.00	0.10	0.51	0.00	0.13	0.55	0.00			
Sat Flow, veh/h	1725	1811	1535	3346	1811	0	3346	3441	1535	1725	3441	1535			
Grp Volume(v), veh/h	26	74	0	503	210	0	283	1505	0	100	1707	0			
Grp Sat Flow(s),veh/h/ln	1725	1811	1535	1673	1811	0	1673	1721	1535	1725	1721	1535			
Q Serve(g_s), s	2.1	5.9	0.0	20.0	15.9	0.0	12.5	56.7	0.0	8.1	66.4	0.0			
Cycle Q Clear(g_c), s	2.1	5.9	0.0	20.0	15.9	0.0	12.5	56.7	0.0	8.1	66.4	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	167	143		639	352		325	1766		221	1895				
V/C Ratio(X)	0.16	0.52		0.79	0.60		0.87	0.85		0.45	0.90				
Avail Cap(c_a), veh/h	216	278		639	435		357	1766		221	1895				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	62.1	66.4	0.0	53.4	55.1	0.0	66.8	31.6	0.0	60.6	30.1	0.0			
Incr Delay (d2), s/veh	0.2	1.1	0.0	6.0	0.6	0.0	17.6	5.4	0.0	0.5	7.4	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.9	2.8	0.0	9.2	7.3	0.0	6.1	23.7	0.0	3.6	28.4	0.0			
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh	62.3	67.4	0.0	59.4	55.7	0.0	84.3	37.0	0.0	61.1	37.5	0.0			
LnGrp LOS	E	E		E	E		F	D		E	D				
Approach Vol, veh/h	100			A			713			A					
Approach Delay, s/veh	66.1						58.3			44.5					
Approach LOS	E						E			D					
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	25.2	83.0	25.0	16.8	19.6	88.6	7.7	34.1							
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0							
Max Green Setting (Gmax), s	9.0	* 77	20.0	23.0	16.0	70.0	7.0	36.0							
Max Q Clear Time (g_c+I1), s	10.1	0.0	22.0	7.9	14.5	0.0	4.1	17.9							
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2							

Intersection Summary

HCM 6th Ctrl Delay 44.9
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

3: Nickel St & US 287

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	235	114	173	643	70	62	51	75	42	73	42
Future Volume (veh/h)	4	235	114	173	643	70	62	51	75	42	73	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	250	121	186	691	75	77	86	78	52	91	52
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.81	0.81	0.81	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	1070	477	503	1329	593	526	547	463	512	629	336
Arrive On Green	0.01	0.30	0.30	0.08	0.37	0.37	0.06	0.29	0.29	0.05	0.28	0.28
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	2238	1194
Grp Volume(v), veh/h	4	250	121	186	691	75	77	86	78	52	71	72
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1777	1655
Q Serve(g_s), s	0.1	3.4	3.7	4.4	9.7	2.0	1.9	2.2	2.3	1.3	1.9	2.1
Cycle Q Clear(g_c), s	0.1	3.4	3.7	4.4	9.7	2.0	1.9	2.2	2.3	1.3	1.9	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.72
Lane Grp Cap(c), veh/h	278	1070	477	503	1329	593	526	547	463	512	500	466
V/C Ratio(X)	0.01	0.23	0.25	0.37	0.52	0.13	0.15	0.16	0.17	0.10	0.14	0.15
Avail Cap(c_a), veh/h	408	1070	477	503	1329	593	561	547	463	567	500	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	16.8	16.9	12.7	15.6	13.2	14.6	16.8	16.9	14.9	17.2	17.3
Incr Delay (d2), s/veh	0.0	0.5	1.3	0.5	1.5	0.4	0.1	0.6	0.8	0.1	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.3	1.4	1.6	3.7	0.7	0.7	1.0	0.9	0.5	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	17.3	18.2	13.1	17.0	13.6	14.8	17.4	17.6	15.0	17.8	18.0
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h	375		952			241			195			
Approach Delay, s/veh	17.6		16.0			16.6			17.1			
Approach LOS	B		B			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	23.8	8.2	22.5	4.8	28.4	7.5	23.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0				
Max Q Clear Time (g_c+10), s	10.4	5.7	3.9	4.1	2.1	11.7	3.3	4.3				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.6	0.0	2.5	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay 16.5

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	39	123	9	37	141
Future Vol, veh/h	32	39	123	9	37	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	45	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	83	83	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	59	148	11	43	164
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	404	154	0	0	159	0
Stage 1	154	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	603	892	-	-	1420	-
Stage 1	874	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	585	892	-	-	1420	-
Mov Cap-2 Maneuver	585	-	-	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.9	0	1.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	721	1420	-	
HCM Lane V/C Ratio	-	-	0.149	0.03	-	
HCM Control Delay (s)	-	-	10.9	7.6	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

Intersection													
Int Delay, s/veh	1												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	7	341	0	21	0	861	16	0	0	0	14	0	32
Future Vol, veh/h	7	341	0	21	0	861	16	0	0	0	14	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	90	90	90	90	92	92	92	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	383	0	23	0	957	18	0	0	0	17	0	39

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	975	0	0	383	383	0	0	924	1420	192	1220	1411	488
Stage 1	-	-	-	-	-	-	-	399	399	-	1012	1012	-
Stage 2	-	-	-	-	-	-	-	525	1021	-	208	399	-
Critical Hdwy	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	703	-	-	821	1172	-	-	224	135	817	136	137	526
Stage 1	-	-	-	-	-	-	-	598	601	-	256	315	-
Stage 2	-	-	-	-	-	-	-	504	312	-	775	601	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	703	-	-	821	821	-	-	201	130	817	132	132	526
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	201	130	-	132	132	-
Stage 1	-	-	-	-	-	-	-	591	594	-	253	306	-
Stage 2	-	-	-	-	-	-	-	454	303	-	766	594	-

Approach	EB			WB			NB			SB			
HCM Control Delay, s	0.2			0.2			0			21.3			
HCM LOS							A			C			

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	703	-	-	821	-	-	276
HCM Lane V/C Ratio	-	0.011	-	-	0.028	-	-	0.203
HCM Control Delay (s)	0	10.2	-	-	9.5	-	-	21.3
HCM Lane LOS	A	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0.1	-	-	0.7

HCM 6th Signalized Intersection Summary
6: Upham St/US 287 & SH 128/120th Ave (US 287)

2022 AM Peak Hour
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	557	62	31	953	888	53	48	15	300	43	32
Future Volume (veh/h)	14	557	62	31	953	888	53	48	15	300	43	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	626	70	32	982	0	62	56	0	319	46	0
Peak Hour Factor	0.89	0.89	0.89	0.97	0.97	0.97	0.85	0.85	0.85	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	2262	1007	68	2336		191	74		383	200	
Arrive On Green	0.02	0.64	0.64	0.04	0.66	0.00	0.04	0.04	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1781	3554	1583	1781	3554	1585	1781	1870	0	3456	1870	0
Grp Volume(v), veh/h	16	626	70	32	982	0	62	56	0	319	46	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1585	1781	1870	0	1728	1870	0
Q Serve(g_s), s	1.1	9.3	2.0	2.1	15.7	0.0	4.0	3.6	0.0	10.8	2.7	0.0
Cycle Q Clear(g_c), s	1.1	9.3	2.0	2.1	15.7	0.0	4.0	3.6	0.0	10.8	2.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	31	2262	1007	68	2336		191	74		383	200	
V/C Ratio(X)	0.52	0.28	0.07	0.47	0.42		0.32	0.76		0.83	0.23	
Avail Cap(c_a), veh/h	104	2262	1007	104	2336		217	140		576	343	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.5	9.6	8.3	56.5	9.7	0.0	52.3	57.1	0.0	52.2	49.1	0.0
Incr Delay (d2), s/veh	5.0	0.3	0.1	1.9	0.6	0.0	0.4	5.9	0.0	4.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.4	0.7	1.0	5.8	0.0	1.8	1.8	0.0	4.9	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	9.9	8.4	58.4	10.3	0.0	52.7	63.0	0.0	56.2	49.3	0.0
LnGrp LOS	E	A	A	E	B		D	E		E	D	
Approach Vol, veh/h		712			1014	A		118	A		365	A
Approach Delay, s/veh		11.0			11.8			57.6			55.3	
Approach LOS		B			B			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	82.4	10.2	17.8	7.1	84.9	18.3	9.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	63.0	7.0	22.0	7.0	63.0	20.0	9.0				
Max Q Clear Time (g_c+I1), s	4.1	11.3	6.0	4.7	3.1	17.7	12.8	5.6				
Green Ext Time (p_c), s	0.0	6.1	0.0	0.1	0.0	9.8	0.5	0.0				

Intersection Summary

HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	72	705	72	82	1523	128	182	193	84	188	188	196	
Future Volume (veh/h)	72	705	72	82	1523	128	182	193	84	188	188	196	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	77	758	77	86	1603	135	214	227	0	229	229	239	
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.85	0.85	0.85	0.82	0.82	0.82	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	98	1747	777	204	1988	885	399	255		415	264	223	
Arrive On Green	0.05	0.49	0.49	0.23	1.00	1.00	0.07	0.14	0.00	0.07	0.14	0.14	
Sat Flow, veh/h	1781	3554	1580	1781	3554	1583	3456	1870	1585	3456	1870	1582	
Grp Volume(v), veh/h	77	758	77	86	1603	135	214	227	0	229	229	239	
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1583	1728	1870	1585	1728	1870	1582	
Q Serve(g_s), s	5.1	16.5	2.1	4.9	0.0	0.0	6.3	14.3	0.0	6.7	14.4	16.9	
Cycle Q Clear(g_c), s	5.1	16.5	2.1	4.9	0.0	0.0	6.3	14.3	0.0	6.7	14.4	16.9	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	98	1747	777	204	1988	885	399	255		415	264	223	
V/C Ratio(X)	0.79	0.43	0.10	0.42	0.81	0.15	0.54	0.89		0.55	0.87	1.07	
Avail Cap(c_a), veh/h	104	1747	777	204	1988	885	446	281		504	312	264	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	56.0	19.7	7.6	42.9	0.0	0.0	41.2	50.9	0.0	41.0	50.5	51.5	
Incr Delay (d2), s/veh	27.9	0.8	0.3	0.4	3.0	0.3	0.4	24.5	0.0	0.4	17.8	75.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	8.0	6.9	1.2	2.1	0.8	0.1	2.7	8.4	0.0	2.9	8.1	11.3	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	83.9	20.5	7.8	43.3	3.0	0.3	41.6	75.4	0.0	41.4	68.2	126.8	
LnGrp LOS	F	C	A	D	A	A	D	E		D	E	F	
Approach Vol, veh/h	912			1824			441			A			697
Approach Delay, s/veh	24.8			4.7			59.0			79.5			
Approach LOS	C			A			E			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	19.7	65.0	13.4	21.9	11.6	73.1	13.9	21.4					
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0					
Max Green Setting (Gmax), s	10.0	* 59	10.0	20.0	7.0	62.0	12.0	18.0					
Max Q Clear Time (g_c+10), s	10.0	0.0	8.3	16.4	7.1	0.0	8.7	16.3					
Green Ext Time (p_c), s	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1					

Intersection Summary

HCM 6th Ctrl Delay 29.1
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	951	14	9	1706	16	6	0	5	4	0	12
Future Volume (veh/h)	8	951	14	9	1706	16	6	0	5	4	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	980	14	9	1723	16	10	0	8	6	0	17
Peak Hour Factor	0.97	0.97	0.97	0.99	0.99	0.99	0.61	0.61	0.61	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	302	2960	1320	543	2962	1321	83	0	43	91	0	43
Arrive On Green	0.01	1.00	1.00	0.01	1.00	1.00	0.03	0.00	0.03	0.03	0.00	0.03
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1384	0	1571	1393	0	1571
Grp Volume(v), veh/h	8	980	14	9	1723	16	10	0	8	6	0	17
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1585	1384	0	1571	1393	0	1571
Q Serve(g_s), s	0.1	0.0	0.0	0.1	0.0	0.0	0.9	0.0	0.6	0.5	0.0	1.3
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.1	0.0	0.0	2.1	0.0	0.6	1.1	0.0	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	302	2960	1320	543	2962	1321	83	0	43	91	0	43
V/C Ratio(X)	0.03	0.33	0.01	0.02	0.58	0.01	0.12	0.00	0.19	0.07	0.00	0.40
Avail Cap(c_a), veh/h	395	2960	1320	636	2962	1321	149	0	118	158	0	118
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.65	0.65	0.65	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.6	0.0	0.0	1.5	0.0	0.0	58.4	0.0	57.1	57.6	0.0	57.4
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.5	0.0	0.2	0.0	0.8	0.1	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.2	0.0	0.3	0.0	0.2	0.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	0.3	0.0	1.5	0.5	0.0	58.7	0.0	57.8	57.7	0.0	59.6
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	E
Approach Vol, veh/h	1002			1748			18			23		
Approach Delay, s/veh	0.3			0.5			58.3			59.1		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	105.9		8.3	5.7	106.0		8.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	88.0			9.0	7.0	88.0		9.0				
Max Q Clear Time (g_c+I), s	0.0			3.3	2.1	0.0		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	1.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

9: Greenway Dr/Lamar St & 120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	875	22	48	1678	79	32	46	49	24	27	39
Future Volume (veh/h)	64	875	22	48	1678	79	32	46	49	24	27	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	893	22	50	1748	82	46	67	71	34	38	55
Peak Hour Factor	0.98	0.98	0.98	0.96	0.96	0.96	0.69	0.69	0.69	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	2589	1155	539	2578	1150	149	98	83	124	82	69
Arrive On Green	0.05	1.00	1.00	0.02	0.73	0.73	0.03	0.05	0.05	0.02	0.04	0.04
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1576	1781	1870	1574
Grp Volume(v), veh/h	65	893	22	50	1748	82	46	67	71	34	38	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1576	1781	1870	1574
Q Serve(g_s), s	1.2	0.0	0.0	0.9	31.9	1.8	2.9	4.2	5.4	2.2	2.4	4.2
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.9	31.9	1.8	2.9	4.2	5.4	2.2	2.4	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	2589	1155	539	2578	1150	149	98	83	124	82	69
V/C Ratio(X)	0.30	0.34	0.02	0.09	0.68	0.07	0.31	0.68	0.86	0.28	0.46	0.80
Avail Cap(c_a), veh/h	281	2589	1155	607	2578	1150	195	187	158	185	187	157
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.3	0.0	0.0	4.0	8.9	4.8	52.6	55.9	56.4	53.2	56.0	56.9
Incr Delay (d2), s/veh	0.5	0.4	0.0	0.1	1.5	0.1	0.9	6.1	16.9	0.9	3.0	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	0.0	0.2	9.8	0.6	1.4	2.2	2.5	1.0	1.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	0.4	0.0	4.0	10.4	4.9	53.5	62.0	73.3	54.1	59.0	71.3
LnGrp LOS	A	A	A	A	B	A	D	E	E	D	E	E
Approach Vol, veh/h	980		1880				184			127		
Approach Delay, s/veh	1.0		10.0				64.2			63.0		
Approach LOS	A		A				E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	93.4	8.9	10.2	7.8	93.1	7.8	11.3				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	73.0	7.0	12.0	7.0	73.0	7.0	12.0					
Max Q Clear Time (g_c+12, s)	0.0	4.9	4.4	3.2	0.0	4.2	6.2					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay 12.5

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

10: Chase St & 120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	839	17	20	1649	148	26	24	14	103	14	149
Future Volume (veh/h)	63	839	17	20	1649	148	26	24	14	103	14	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	932	19	21	1700	153	32	30	18	116	16	167
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.80	0.80	0.80	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	2464	1097	427	2416	1077	152	48	29	217	181	153
Arrive On Green	0.03	0.69	0.69	0.03	1.00	1.00	0.02	0.04	0.04	0.08	0.10	0.10
Sat Flow, veh/h	1781	3554	1583	1781	3554	1584	1781	1095	657	1781	1870	1585
Grp Volume(v), veh/h	70	932	19	21	1700	153	32	0	48	116	16	167
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1584	1781	0	1752	1781	1870	1585
Q Serve(g_s), s	1.4	13.1	0.4	0.4	0.0	0.0	2.1	0.0	3.2	7.2	0.9	11.6
Cycle Q Clear(g_c), s	1.4	13.1	0.4	0.4	0.0	0.0	2.1	0.0	3.2	7.2	0.9	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	275	2464	1097	427	2416	1077	152	0	77	217	181	153
V/C Ratio(X)	0.25	0.38	0.02	0.05	0.70	0.14	0.21	0.00	0.63	0.53	0.09	1.09
Avail Cap(c_a), veh/h	333	2464	1097	509	2416	1077	261	0	117	231	181	153
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.4	7.6	5.7	6.2	0.0	0.0	53.3	0.0	56.4	48.1	49.4	54.2
Incr Delay (d2), s/veh	0.2	0.4	0.0	0.0	0.2	0.0	0.7	0.0	3.1	0.8	0.1	98.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.2	0.2	0.1	0.1	0.0	1.0	0.0	1.5	3.3	0.4	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	8.1	5.7	6.2	0.2	0.0	54.0	0.0	59.5	48.9	49.4	152.6
LnGrp LOS	A	A	A	A	A	A	D	A	E	D	D	F
Approach Vol, veh/h	1021		1874			80			299			
Approach Delay, s/veh	7.9		0.2			57.3			106.8			
Approach LOS	A		A			E			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	89.2	7.7	16.6	8.1	87.6	14.0	10.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	74.0	10.0	8.0	7.0	74.0	10.0	8.0				
Max Q Clear Time (g_c+I1), s	12.4	0.0	4.1	2.9	3.4	0.0	9.2	5.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 13.7

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	0	0	0	5	55	0	0	0	43	0	16
Future Vol, veh/h	4	0	0	0	5	55	0	0	0	43	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	92	92	88	80	92	92	92	64	92	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	0	0	6	69	0	0	0	67	0	25

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	185	147	-	-	159	0	25	0	0	0	0	0
Stage 1	147	147	-	-	0	-	-	-	-	-	-	-
Stage 2	38	0	-	-	159	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	-	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	776	744	0	0	733	-	1589	-	-	-	-	-
Stage 1	856	775	0	0	-	-	-	-	-	-	-	-
Stage 2	977	-	0	0	766	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	744	-	-	733	-	1589	-	-	-	-	-
Mov Cap-2 Maneuver	-	744	-	-	733	-	-	-	-	-	-	-
Stage 1	856	775	-	-	-	-	-	-	-	-	-	-
Stage 2	977	-	-	-	766	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0			
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1589	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-

HCM 6th Signalized Intersection Summary

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	661	136	295	1357	124	325	577	221	156	676	153
Future Volume (veh/h)	83	661	136	295	1357	124	325	577	221	156	676	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	734	0	324	1491	136	339	601	0	171	743	168
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	1205		388	1460	650	317	1064		228	787	178
Arrive On Green	0.08	0.68	0.00	0.11	0.41	0.41	0.09	0.30	0.00	0.07	0.27	0.27
Sat Flow, veh/h	3456	3554	1585	3456	3554	1583	3456	3554	1585	3456	2875	650
Grp Volume(v), veh/h	92	734	0	324	1491	136	339	601	0	171	459	452
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1583	1728	1777	1585	1728	1777	1748
Q Serve(g_s), s	3.1	13.6	0.0	11.0	49.3	6.6	11.0	17.1	0.0	5.8	30.4	30.4
Cycle Q Clear(g_c), s	3.1	13.6	0.0	11.0	49.3	6.6	11.0	17.1	0.0	5.8	30.4	30.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	140	1205		388	1460	650	317	1064		228	486	478
V/C Ratio(X)	0.66	0.61		0.84	1.02	0.21	1.07	0.56		0.75	0.94	0.94
Avail Cap(c_a), veh/h	173	1205		518	1460	650	317	1064		346	503	495
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	15.0	0.0	52.2	35.4	22.8	54.5	35.4	0.0	55.1	42.7	42.7
Incr Delay (d2), s/veh	3.1	2.1	0.0	7.9	29.2	0.7	70.4	0.7	0.0	1.9	25.9	26.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.0	0.0	5.0	25.6	2.6	7.8	7.3	0.0	2.6	16.4	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	17.1	0.0	60.0	64.5	23.5	124.9	36.1	0.0	57.0	68.5	68.9
LnGrp LOS	E	B		E	F	C	F	D		E	E	E
Approach Vol, veh/h	826		A	1951			940		A	1082		
Approach Delay, s/veh	21.6			60.9			68.2			66.8		
Approach LOS	C			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.5	46.7	16.0	38.8	9.9	55.3	12.9	41.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	18.0	35.0	11.0	34.0	6.0	47.0	12.0	33.0				
Max Q Clear Time (g_c+I1), s	13.0	0.0	13.0	32.4	5.1	0.0	7.8	19.1				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.3	0.0	0.0	0.1	2.1				

Intersection Summary

HCM 6th Ctrl Delay	56.9
HCM 6th LOS	E

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary 13: Vrain St & 120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↗	↑↑	↗	↗	↑	↗	↔↔	↑	↗
Traffic Volume (veh/h)	75	957	41	97	1675	118	36	22	53	64	12	59
Future Volume (veh/h)	75	957	41	97	1675	118	36	22	53	64	12	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	1040	45	107	1841	130	43	26	63	74	14	68
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	366	3355	1042	131	2191	977	189	105	88	360	117	98
Arrive On Green	0.11	0.66	0.66	0.07	0.62	0.62	0.03	0.06	0.06	0.04	0.06	0.06
Sat Flow, veh/h	3456	5106	1585	1781	3554	1585	1781	1870	1577	3456	1870	1577
Grp Volume(v), veh/h	82	1040	45	107	1841	130	43	26	63	74	14	68
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1777	1585	1781	1870	1577	1728	1870	1577
Q Serve(g_s), s	2.6	10.5	1.2	7.1	49.4	2.7	2.7	1.6	4.7	2.4	0.8	4.0
Cycle Q Clear(g_c), s	2.6	10.5	1.2	7.1	49.4	2.7	2.7	1.6	4.7	2.4	0.8	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	366	3355	1042	131	2191	977	189	105	88	360	117	98
V/C Ratio(X)	0.22	0.31	0.04	0.81	0.84	0.13	0.23	0.25	0.71	0.21	0.12	0.69
Avail Cap(c_a), veh/h	366	3355	1042	134	2191	977	266	109	92	487	117	98
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.57	0.57	0.57	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.1	8.9	7.3	54.8	18.3	4.2	51.2	54.2	55.7	50.3	53.1	34.3
Incr Delay (d2), s/veh	0.1	0.2	0.1	17.9	2.4	0.2	0.2	0.5	18.6	0.1	0.2	15.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.4	0.4	3.7	17.9	1.4	1.2	0.8	2.3	1.0	0.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	9.1	7.3	72.7	20.7	4.4	51.4	54.7	74.3	50.4	53.3	50.1
LnGrp LOS	D	A	A	E	C	A	D	D	E	D	D	D
Approach Vol, veh/h	1167		2078			132			156			
Approach Delay, s/veh	11.9		22.3			63.0			50.6			
Approach LOS	B		C			E			D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	84.9	8.8	12.5	18.7	80.0	9.6	11.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	* 6	5.0	5.0				
Max Green Setting (Gmax), s	9.0	74.0	9.0	7.0	9.0	* 74	9.0	7.0				
Max Q Clear Time (g_c+I), s	19.1	0.0	4.7	2.8	4.6	0.0	4.4	6.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 21.6
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

14: Bradburn Blvd & 120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1029	48	88	1963	25	29	3	106	16	2	8
Future Volume (veh/h)	9	1029	48	88	1963	25	29	3	106	16	2	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	1319	62	93	2066	26	40	4	145	21	3	10
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.73	0.73	0.73	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	24	3021	938	272	2655	33	162	2	79	97	16	53
Arrive On Green	0.03	1.00	1.00	0.15	0.74	0.74	0.03	0.05	0.05	0.02	0.04	0.04
Sat Flow, veh/h	1781	5106	1585	1781	3594	45	1781	42	1540	1781	379	1264
Grp Volume(v), veh/h	12	1319	62	93	1019	1073	40	0	149	21	0	13
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1777	1862	1781	0	1582	1781	0	1643
Q Serve(g_s), s	0.8	0.0	0.0	5.6	42.2	42.6	2.6	0.0	6.2	1.3	0.0	0.9
Cycle Q Clear(g_c), s	0.8	0.0	0.0	5.6	42.2	42.6	2.6	0.0	6.2	1.3	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.97	1.00		0.77
Lane Grp Cap(c), veh/h	24	3021	938	272	1313	1376	162	0	81	97	0	69
V/C Ratio(X)	0.49	0.44	0.07	0.34	0.78	0.78	0.25	0.00	1.83	0.22	0.00	0.19
Avail Cap(c_a), veh/h	163	3021	938	272	1313	1376	271	0	81	223	0	82
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.9	0.0	0.0	45.5	9.6	9.7	52.8	0.0	56.9	53.4	0.0	55.5
Incr Delay (d2), s/veh	5.4	0.4	0.1	0.3	4.6	4.4	0.3	0.0	417.6	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.0	2.4	13.5	14.2	1.2	0.0	11.9	0.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	0.4	0.1	45.7	14.1	14.1	53.1	0.0	474.5	53.9	0.0	56.0
LnGrp LOS	E	A	A	D	B	B	D	A	F	D	A	E
Approach Vol, veh/h	1393		2185			189			34			
Approach Delay, s/veh	1.0		15.5			385.3			54.7			
Approach LOS	A		B			F			D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.3	77.0	8.7	10.0	6.6	94.7	7.5	11.2				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	11.0	* 71	11.0	6.0	11.0	71.0	11.0	6.0				
Max Q Clear Time (g_c+I1), s	17.6	0.0	4.6	2.9	2.8	0.0	3.3	8.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 28.9

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

15: Lowell Blvd & 120th Ave (SH 287)

2022 AM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	966	27	185	1725	183	27	36	147	237	74	267
Future Volume (veh/h)	127	966	27	185	1725	183	27	36	147	237	74	267
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	131	996	0	197	1835	0	49	65	0	258	80	0
Peak Hour Factor	0.97	0.97	0.97	0.94	0.94	0.94	0.55	0.55	0.55	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	2692		257	1599		184	94		312	202	
Arrive On Green	0.16	0.59	0.00	0.08	0.50	0.00	0.04	0.06	0.00	0.10	0.12	0.00
Sat Flow, veh/h	3110	4595	1427	3110	3198	1427	1603	1683	1427	3110	1683	1427
Grp Volume(v), veh/h	131	996	0	197	1835	0	49	65	0	258	80	0
Grp Sat Flow(s),veh/h/ln	1555	1532	1427	1555	1599	1427	1603	1683	1427	1555	1683	1427
Q Serve(g_s), s	4.4	13.8	0.0	7.4	60.0	0.0	3.4	4.5	0.0	9.8	5.3	0.0
Cycle Q Clear(g_c), s	4.4	13.8	0.0	7.4	60.0	0.0	3.4	4.5	0.0	9.8	5.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	2692		257	1599		184	94		312	202	
V/C Ratio(X)	0.26	0.37		0.77	1.15		0.27	0.69		0.83	0.40	
Avail Cap(c_a), veh/h	498	2692		700	1599		259	140		544	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.2	13.1	0.0	53.9	30.0	0.0	51.0	55.6	0.0	53.0	48.8	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	3.6	74.2	0.0	0.3	3.3	0.0	2.1	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.3	0.0	2.9	37.1	0.0	1.4	2.0	0.0	3.8	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	13.5	0.0	57.5	104.2	0.0	51.2	58.9	0.0	55.1	50.0	0.0
LnGrp LOS	D	B		E	F		D	E		E	D	
Approach Vol, veh/h	1127		A	2032		A	114		A	338		A
Approach Delay, s/veh	17.1			99.7			55.6			53.9		
Approach LOS	B			F			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	76.3	9.4	19.4	25.2	66.0	17.0	11.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	* 6	5.0	5.0				
Max Green Setting (Gmax), s	27.0	41.0	10.0	21.0	8.0	* 60	21.0	10.0				
Max Q Clear Time (g_c+I), s	19.4	0.0	5.4	7.3	6.4	0.0	11.8	6.5				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.1	0.0	0.0	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay 68.2

HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

2022 PM Peak Hour
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	121	265	245	93	148	129	1602	533	172	1586	18
Future Volume (veh/h)	47	121	265	245	93	148	129	1602	533	172	1586	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	57	148	0	272	103	0	140	1741	0	183	1687	0
Peak Hour Factor	0.82	0.82	0.82	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	219	173		398	247		185	1789		273	2166	
Arrive On Green	0.04	0.10	0.00	0.08	0.14	0.00	0.06	0.52	0.00	0.16	0.63	0.00
Sat Flow, veh/h	1725	1811	1535	3346	1811	0	3346	3441	1535	1725	3441	1535
Grp Volume(v), veh/h	57	148	0	272	103	0	140	1741	0	183	1687	0
Grp Sat Flow(s),veh/h/ln	1725	1811	1535	1673	1811	0	1673	1721	1535	1725	1721	1535
Q Serve(g_s), s	4.4	12.1	0.0	10.8	7.8	0.0	6.2	73.7	0.0	15.0	53.5	0.0
Cycle Q Clear(g_c), s	4.4	12.1	0.0	10.8	7.8	0.0	6.2	73.7	0.0	15.0	53.5	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	173		398	247		185	1789		273	2166	
V/C Ratio(X)	0.26	0.86		0.68	0.42		0.76	0.97		0.67	0.78	
Avail Cap(c_a), veh/h	232	181		398	247		379	1789		276	2166	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.1	66.8	0.0	54.5	59.3	0.0	69.9	35.0	0.0	59.5	20.2	0.0
Incr Delay (d2), s/veh	0.2	28.7	0.0	4.0	0.4	0.0	2.4	15.8	0.0	5.0	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	7.0	0.0	4.8	3.6	0.0	2.7	32.9	0.0	6.9	21.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	95.6	0.0	58.5	59.7	0.0	72.3	50.7	0.0	64.4	23.0	0.0
LnGrp LOS	E	F		E	E		E	D		E	C	
Approach Vol, veh/h	205			A			375			A		
Approach Delay, s/veh	85.2			58.8			52.3			27.1		
Approach LOS	F			E			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.7	84.0	17.0	19.3	13.3	100.4	10.8	25.5				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	24.0	* 78	12.0	15.0	17.0	85.0	7.0	20.0				
Max Q Clear Time (g_c+I1), s	17.0	0.0	12.8	14.1	8.2	0.0	6.4	9.8				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 43.6
HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

3: Nickel St & US 287

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	349	118	147	355	69	117	155	227	71	93	37
Future Volume (veh/h)	12	349	118	147	355	69	117	155	227	71	93	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	453	153	155	374	73	126	225	206	78	102	41
Peak Hour Factor	0.77	0.77	0.77	0.95	0.95	0.95	0.93	0.93	0.93	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	400	1022	453	401	1230	545	551	551	467	406	707	270
Arrive On Green	0.02	0.29	0.29	0.08	0.35	0.35	0.07	0.29	0.29	0.06	0.28	0.28
Sat Flow, veh/h	1781	3554	1577	1781	3554	1574	1781	1870	1585	1781	2512	962
Grp Volume(v), veh/h	16	453	153	155	374	73	126	225	206	78	71	72
Grp Sat Flow(s),veh/h/ln	1781	1777	1577	1781	1777	1574	1781	1870	1585	1781	1777	1697
Q Serve(g_s), s	0.4	6.7	4.9	3.7	4.9	2.0	3.2	6.2	6.7	1.9	1.9	2.0
Cycle Q Clear(g_c), s	0.4	6.7	4.9	3.7	4.9	2.0	3.2	6.2	6.7	1.9	1.9	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	400	1022	453	401	1230	545	551	551	467	406	500	477
V/C Ratio(X)	0.04	0.44	0.34	0.39	0.30	0.13	0.23	0.41	0.44	0.19	0.14	0.15
Avail Cap(c_a), veh/h	505	1022	453	401	1230	545	562	551	467	441	500	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	18.6	18.0	13.8	15.3	14.3	14.4	18.1	18.3	14.8	17.2	17.3
Incr Delay (d2), s/veh	0.0	1.4	2.0	0.6	0.6	0.5	0.2	2.2	3.0	0.2	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.7	1.9	1.4	1.9	0.7	1.2	2.8	2.7	0.7	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	20.0	20.0	14.5	15.9	14.9	14.7	20.3	21.3	15.1	17.8	17.9
LnGrp LOS	B	C	C	B	B	B	B	C	C	B	B	B
Approach Vol, veh/h	622			602			557			221		
Approach Delay, s/veh	19.9			15.4			19.4			16.9		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	22.9	9.1	22.5	5.7	26.7	8.3	23.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0				
Max Q Clear Time (g_c+I), s	8.7	8.7	5.2	4.0	2.4	6.9	3.9	8.7				
Green Ext Time (p_c), s	0.0	2.4	0.0	0.6	0.0	1.9	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay 18.1

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection

Int Delay, s/veh 3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	46	231	16	96	162
Future Vol, veh/h	30	46	231	16	96	162
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	45	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	85	85	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	58	272	19	112	188

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	694	282	0
Stage 1	282	-	-
Stage 2	412	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	409	757	-
Stage 1	766	-	-
Stage 2	669	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	373	757	-
Mov Cap-2 Maneuver	373	-	-
Stage 1	766	-	-
Stage 2	610	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	538	1271
HCM Lane V/C Ratio	-	-	0.179	0.088
HCM Control Delay (s)	-	-	13.1	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.3

Intersection													
Int Delay, s/veh	0.8												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	23	626	0	13	0	581	20	0	0	0	18	0	11
Future Vol, veh/h	23	626	0	13	0	581	20	0	0	0	18	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	92	90	90	90	92	92	92	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	673	0	14	0	646	22	0	0	0	22	0	14

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	668	0	0	673	673	0	0	1074	1419	337	1072	1408	334
Stage 1	-	-	-	-	-	-	-	723	723	-	685	685	-
Stage 2	-	-	-	-	-	-	-	351	696	-	387	723	-
Critical Hdwy	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	918	-	-	537	914	-	-	174	136	659	175	138	662
Stage 1	-	-	-	-	-	-	-	384	429	-	404	447	-
Stage 2	-	-	-	-	-	-	-	639	441	-	608	429	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	918	-	-	537	537	-	-	164	129	659	168	131	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	164	129	-	168	131	-
Stage 1	-	-	-	-	-	-	-	374	417	-	393	435	-
Stage 2	-	-	-	-	-	-	-	610	430	-	591	417	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	0	23.1
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	918	-	-	537	-	-	234
HCM Lane V/C Ratio	-	0.027	-	-	0.026	-	-	0.153
HCM Control Delay (s)	0	9	-	-	11.9	-	-	23.1
HCM Lane LOS	A	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	0.5

HCM 6th Signalized Intersection Summary
6: Upham St/US 287 & SH 128/120th Ave (US 287)

2022 PM Peak Hour
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	1124	53	21	576	536	48	61	39	603	58	31
Future Volume (veh/h)	28	1124	53	21	576	536	48	61	39	603	58	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	1183	56	23	626	0	56	72	0	648	62	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	1896	844	56	1915		196	93		727	413	
Arrive On Green	0.03	0.53	0.53	0.03	0.54	0.00	0.04	0.05	0.00	0.21	0.22	0.00
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	1870	0	3456	1870	0
Grp Volume(v), veh/h	29	1183	56	23	626	0	56	72	0	648	62	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1870	0	1728	1870	0
Q Serve(g_s), s	1.9	27.9	2.1	1.5	11.8	0.0	3.5	4.6	0.0	21.9	3.2	0.0
Cycle Q Clear(g_c), s	1.9	27.9	2.1	1.5	11.8	0.0	3.5	4.6	0.0	21.9	3.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	46	1896	844	56	1915		196	93		727	413	
V/C Ratio(X)	0.63	0.62	0.07	0.41	0.33		0.29	0.77		0.89	0.15	
Avail Cap(c_a), veh/h	134	1896	844	134	1915		230	109		1008	546	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.9	19.6	13.5	57.0	15.5	0.0	51.4	56.3	0.0	46.0	37.7	0.0
Incr Delay (d2), s/veh	5.2	1.6	0.2	1.8	0.5	0.0	0.3	20.5	0.0	6.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	11.2	0.8	0.7	4.8	0.0	1.6	2.7	0.0	9.9	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.1	21.1	13.7	58.9	15.9	0.0	51.7	76.9	0.0	52.2	37.7	0.0
LnGrp LOS	E	C	B	E	B		D	E		D	D	
Approach Vol, veh/h	1268			649			A			128		
Approach Delay, s/veh	21.8			17.5			65.9			51.0		
Approach LOS	C			B			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	70.0	9.7	31.5	8.1	70.7	30.2	11.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	9.0	48.0	7.0	35.0	9.0	48.0	35.0	7.0				
Max Q Clear Time (g_c+I1), s	3.5	29.9	5.5	5.2	3.9	13.8	23.9	6.6				
Green Ext Time (p_c), s	0.0	9.2	0.0	0.1	0.0	5.2	1.4	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	30.3											
HCM 6th LOS	C											

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	1398	130	145	906	140	122	222	156	168	212	122
Future Volume (veh/h)	161	1398	130	145	906	140	122	222	156	168	212	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	169	1472	137	158	985	152	144	261	0	215	272	156
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	193	1629	726	239	1750	780	357	290		398	322	272
Arrive On Green	0.11	0.46	0.46	0.27	0.99	0.99	0.05	0.15	0.00	0.07	0.17	0.17
Sat Flow, veh/h	1781	3554	1583	1781	3554	1584	3456	1870	1585	3456	1870	1577
Grp Volume(v), veh/h	169	1472	137	158	985	152	144	261	0	215	272	156
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1584	1728	1870	1585	1728	1870	1577
Q Serve(g_s), s	11.2	46.0	4.5	9.5	1.1	0.2	4.1	16.4	0.0	6.2	16.9	10.9
Cycle Q Clear(g_c), s	11.2	46.0	4.5	9.5	1.1	0.2	4.1	16.4	0.0	6.2	16.9	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	1629	726	239	1750	780	357	290		398	322	272
V/C Ratio(X)	0.88	0.90	0.19	0.66	0.56	0.19	0.40	0.90		0.54	0.84	0.57
Avail Cap(c_a), veh/h	193	1629	726	239	1750	780	495	312		475	322	272
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	30.1	10.4	41.5	0.5	0.5	40.4	49.8	0.0	39.8	48.1	45.6
Incr Delay (d2), s/veh	32.2	8.6	0.6	4.9	1.2	0.5	0.3	25.3	0.0	0.4	17.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	20.7	2.3	4.0	0.5	0.2	1.8	9.7	0.0	2.7	9.5	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.9	38.7	11.0	46.3	1.7	1.0	40.7	75.1	0.0	40.2	65.3	47.5
LnGrp LOS	F	D	B	D	A	A	D	E		D	E	D
Approach Vol, veh/h	1778				1295		405		A		643	
Approach Delay, s/veh	41.0				7.0		62.9				52.6	
Approach LOS	D				A		E				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.1	61.0	11.2	25.7	18.0	65.1	13.3	23.6				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	* 55	11.0	20.0	13.0	55.0	11.0	20.0				
Max Q Clear Time (g_c+1), s	11.5	0.0	6.1	18.9	13.2	0.0	8.2	18.4				
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1				

Intersection Summary

HCM 6th Ctrl Delay 34.3
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	1619	67	40	1139	25	33	4	66	32	6	22
Future Volume (veh/h)	29	1619	67	40	1139	25	33	4	66	32	6	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	1722	71	41	1174	26	45	5	87	41	8	28
Peak Hour Factor	0.94	0.94	0.94	0.97	0.97	0.97	0.73	0.76	0.76	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	2650	1182	290	2658	1186	173	9	155	122	37	131
Arrive On Green	0.03	1.00	1.00	0.04	1.00	1.00	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1372	87	1511	1304	365	1276
Grp Volume(v), veh/h	31	1722	71	41	1174	26	45	0	92	41	0	36
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1372	0	1598	1304	0	1641
Q Serve(g_s), s	0.5	0.0	0.0	0.7	0.0	0.0	3.7	0.0	6.6	3.7	0.0	2.4
Cycle Q Clear(g_c), s	0.5	0.0	0.0	0.7	0.0	0.0	6.2	0.0	6.6	10.3	0.0	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.78
Lane Grp Cap(c), veh/h	436	2650	1182	290	2658	1186	173	0	164	122	0	168
V/C Ratio(X)	0.07	0.65	0.06	0.14	0.44	0.02	0.26	0.00	0.56	0.34	0.00	0.21
Avail Cap(c_a), veh/h	511	2650	1182	360	2658	1186	204	0	200	152	0	205
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.52	0.52	0.52	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.4	0.0	0.0	3.4	0.0	0.0	52.2	0.0	51.3	56.2	0.0	49.4
Incr Delay (d2), s/veh	0.0	0.7	0.1	0.1	0.5	0.0	0.3	0.0	1.1	0.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.0	0.2	0.2	0.0	1.3	0.0	2.7	1.3	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.4	0.7	0.1	3.4	0.5	0.0	52.5	0.0	52.4	56.8	0.0	49.7
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	A	D
Approach Vol, veh/h												
1824												
Approach Delay, s/veh												
0.7												
Approach LOS												
A												
Timer - Assigned Phs												
1 2 4 5 6 8												
Phs Duration (G+Y+Rc), s												
7.2 95.5 17.3 6.9 95.8 17.3												
Change Period (Y+Rc), s												
5.0 6.0 5.0 5.0 6.0 5.0												
Max Green Setting (Gmax), s												
82.0 82.0 15.0 7.0 82.0 15.0												
Max Q Clear Time (g_c+I), s												
0.0 0.0 12.3 2.5 0.0 8.6												
Green Ext Time (p_c), s												
0.0 0.0 0.0 0.0 0.0 0.1												
Intersection Summary												
HCM 6th Ctrl Delay												
4.0												
HCM 6th LOS												
A												

HCM 6th Signalized Intersection Summary

9: Greenway Dr/Lamar St & 120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1582	51	95	1118	70	26	28	93	119	58	72
Future Volume (veh/h)	54	1582	51	95	1118	70	26	28	93	119	58	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.97	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	1701	55	98	1153	72	35	37	124	143	70	87
Peak Hour Factor	0.93	0.93	0.93	0.97	0.97	0.97	0.75	0.75	0.75	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2435	1086	305	2468	1101	153	76	63	205	155	130
Arrive On Green	0.05	1.00	1.00	0.03	0.69	0.69	0.02	0.04	0.04	0.07	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1538	1781	1870	1562
Grp Volume(v), veh/h	58	1701	55	98	1153	72	35	37	124	143	70	87
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1538	1781	1870	1562
Q Serve(g_s), s	1.2	0.0	0.0	2.0	17.6	1.7	2.2	2.3	4.9	8.0	4.3	6.5
Cycle Q Clear(g_c), s	1.2	0.0	0.0	2.0	17.6	1.7	2.2	2.3	4.9	8.0	4.3	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2435	1086	305	2468	1101	153	76	63	205	155	130
V/C Ratio(X)	0.17	0.70	0.05	0.32	0.47	0.07	0.23	0.48	1.97	0.70	0.45	0.67
Avail Cap(c_a), veh/h	458	2435	1086	351	2468	1101	228	203	167	205	203	169
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.74	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.4	0.0	0.0	5.1	8.3	5.9	53.5	56.3	57.6	50.7	52.4	53.4
Incr Delay (d2), s/veh	0.1	1.3	0.1	0.4	0.6	0.1	0.6	3.5	469.4	9.4	1.5	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.4	0.0	0.6	5.7	0.6	1.0	1.2	10.1	0.9	2.1	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	1.3	0.1	5.5	8.9	6.0	54.0	59.8	527.0	60.1	53.9	58.5
LnGrp LOS	A	A	A	A	A	A	D	E	F	E	D	E
Approach Vol, veh/h	1814		1323			196			300			
Approach Delay, s/veh	1.4		8.5			354.3			58.2			
Approach LOS	A		A			F			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	88.2	7.9	15.0	7.8	89.3	13.0	9.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	71.0	8.0	13.0	10.0	68.0	8.0	13.0					
Max Q Clear Time (g_c+14), s	0.0	4.2	6.3	3.2	0.0	10.0	4.3					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay 27.7

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

10: Chase St & 120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	1466	75	38	1127	145	30	33	42	156	37	137
Future Volume (veh/h)	133	1466	75	38	1127	145	30	33	42	156	37	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	1576	81	41	1225	158	32	35	45	170	40	149
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	2313	1032	206	2219	990	175	47	61	246	249	211
Arrive On Green	0.05	0.65	0.65	0.04	1.00	1.00	0.02	0.06	0.06	0.09	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	741	953	1781	1870	1581
Grp Volume(v), veh/h	143	1576	81	41	1225	158	32	0	80	170	40	149
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	0	1694	1781	1870	1581
Q Serve(g_s), s	3.4	33.4	2.3	1.0	0.0	0.0	2.0	0.0	5.6	10.5	2.3	10.8
Cycle Q Clear(g_c), s	3.4	33.4	2.3	1.0	0.0	0.0	2.0	0.0	5.6	10.5	2.3	10.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	385	2313	1032	206	2219	990	175	0	108	246	249	211
V/C Ratio(X)	0.37	0.68	0.08	0.20	0.55	0.16	0.18	0.00	0.74	0.69	0.16	0.71
Avail Cap(c_a), veh/h	453	2313	1032	276	2219	990	269	0	127	246	249	211
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.60	0.60	0.60	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	13.1	7.7	12.0	0.0	0.0	51.1	0.0	55.2	45.8	46.1	49.8
Incr Delay (d2), s/veh	0.2	1.6	0.1	0.1	0.6	0.2	0.5	0.0	13.8	6.8	0.1	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	11.6	0.8	0.3	0.2	0.1	0.9	0.0	2.8	5.1	1.1	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	14.8	7.8	12.1	0.6	0.2	51.6	0.0	69.0	52.5	46.2	58.7
LnGrp LOS	A	B	A	B	A	A	D	A	E	D	D	E
Approach Vol, veh/h	1800			1424			112			359		
Approach Delay, s/veh	13.9			0.9			64.0			54.4		
Approach LOS	B			A			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.3	84.1	7.6	21.0	10.4	80.9	16.0	12.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	72.0	9.0	11.0	10.0	69.0	11.0	9.0				
Max Q Clear Time (g_c+I1), s	13.0	0.0	4.0	4.3	5.4	0.0	12.5	7.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 14.3

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	36	13	0	0	8	93	0	0	0	139	0	19
Future Vol, veh/h	36	13	0	0	8	93	0	0	0	139	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	94	94	94	92	92	92	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	16	0	0	9	99	0	0	0	158	0	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	381	327	-	-	338	0	22	0	0	0	0	0
Stage 1	327	327	-	-	0	-	-	-	-	-	-	-
Stage 2	54	0	-	-	338	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	-	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	577	591	0	0	583	-	1593	-	-	-	-	-
Stage 1	686	648	0	0	-	-	-	-	-	-	-	-
Stage 2	958	-	0	0	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	591	-	-	583	-	1593	-	-	-	-	-
Mov Cap-2 Maneuver	-	591	-	-	583	-	-	-	-	-	-	-
Stage 1	686	648	-	-	-	-	-	-	-	-	-	-
Stage 2	958	-	-	-	641	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0											
HCM LOS	-		-									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1593	-	-	-	-	-	-	-				
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-				
HCM Control Delay (s)	0	-	-	-	-	-	-	-				
HCM Lane LOS	A	-	-	-	-	-	-	-				
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-				

HCM 6th Signalized Intersection Summary 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	200	1267	236	337	880	267	263	771	423	364	697	110		
Future Volume (veh/h)	200	1267	236	337	880	267	263	771	423	364	697	110		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	206	1306	0	340	889	270	283	829	0	387	741	117		
Peak Hour Factor	0.97	0.97	0.97	0.99	0.99	0.99	0.93	0.93	0.93	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2		
Cap, veh/h	325	1311		346	1303	580	317	880		346	787	124		
Arrive On Green	0.19	0.74	0.00	0.10	0.37	0.37	0.09	0.25	0.00	0.10	0.26	0.26		
Sat Flow, veh/h	3456	3554	1585	3456	3554	1582	3456	3554	1585	3456	3072	485		
Grp Volume(v), veh/h	206	1306	0	340	889	270	283	829	0	387	428	430		
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1582	1728	1777	1585	1728	1777	1780		
Q Serve(g_s), s	6.6	43.6	0.0	11.8	25.4	10.9	9.7	27.5	0.0	12.0	28.4	28.4		
Cycle Q Clear(g_c), s	6.6	43.6	0.0	11.8	25.4	10.9	9.7	27.5	0.0	12.0	28.4	28.4		
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27		
Lane Grp Cap(c), veh/h	325	1311		346	1303	580	317	880		346	455	456		
V/C Ratio(X)	0.63	1.00		0.98	0.68	0.47	0.89	0.94		1.12	0.94	0.94		
Avail Cap(c_a), veh/h	346	1311		346	1303	580	317	888		346	459	460		
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.68	0.68	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	46.8	15.6	0.0	53.9	32.1	14.1	53.9	44.3	0.0	54.0	43.8	43.8		
Incr Delay (d2), s/veh	1.7	19.6	0.0	43.9	2.9	2.7	25.1	17.7	0.0	84.9	27.4	27.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.6	9.1	0.0	7.0	10.8	4.1	5.3	13.9	0.0	9.2	15.6	15.6		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	48.5	35.2	0.0	97.8	35.0	16.8	79.0	62.0	0.0	138.9	71.2	71.3		
LnGrp LOS	D	D		F	D	B	E	E		F	E	E		
Approach Vol, veh/h	1512		A	1499			1112		A	1245				
Approach Delay, s/veh	37.0			46.0			66.3			92.3				
Approach LOS	D			D			E			F				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	17.0	50.3	16.0	36.7	17.3	50.0	17.0	35.7						
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0						
Max Green Setting (Gmax), s	12.0	44.0	11.0	31.0	12.0	* 44	12.0	30.0						
Max Q Clear Time (g_c+I1), s	13.8	0.0	11.7	30.4	8.6	0.0	14.0	29.5						
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2						

Intersection Summary

HCM 6th Ctrl Delay 58.4
HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary 13: Vrain St & 120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	1651	94	151	1250	211	94	55	146	319	59	128
Future Volume (veh/h)	186	1651	94	151	1250	211	94	55	146	319	59	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	192	1702	97	156	1289	218	103	60	160	326	60	131
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.91	0.91	0.91	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	2851	883	182	2121	945	249	152	127	493	167	140
Arrive On Green	0.07	0.56	0.56	0.20	1.00	1.00	0.07	0.08	0.08	0.08	0.09	0.09
Sat Flow, veh/h	3456	5106	1582	1781	3554	1583	1781	1870	1556	3456	1870	1558
Grp Volume(v), veh/h	192	1702	97	156	1289	218	103	60	160	326	60	131
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1781	1777	1583	1781	1870	1556	1728	1870	1558
Q Serve(g_s), s	6.6	26.5	2.2	10.1	0.0	0.0	6.3	3.7	7.7	9.0	3.6	10.0
Cycle Q Clear(g_c), s	6.6	26.5	2.2	10.1	0.0	0.0	6.3	3.7	7.7	9.0	3.6	10.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	2851	883	182	2121	945	249	152	127	493	167	140
V/C Ratio(X)	0.77	0.60	0.11	0.86	0.61	0.23	0.41	0.39	1.26	0.66	0.36	0.94
Avail Cap(c_a), veh/h	346	2851	883	193	2121	945	264	156	130	493	167	140
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	17.6	5.1	46.9	0.0	0.0	46.2	52.3	34.3	47.8	51.4	54.3
Incr Delay (d2), s/veh	4.3	0.9	0.3	22.0	1.0	0.4	0.4	0.6	167.4	2.7	0.5	57.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	9.6	1.3	5.0	0.3	0.1	2.8	1.8	8.8	0.7	1.7	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	18.5	5.4	68.9	1.0	0.4	46.7	52.9	201.7	50.5	51.9	111.4
LnGrp LOS	E	B	A	E	A	A	D	D	F	D	D	F
Approach Vol, veh/h	1991		1663				323			517		
Approach Delay, s/veh	21.8		7.3				124.6			66.1		
Approach LOS	C		A				F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.2	73.0	13.0	15.7	13.6	77.6	14.0	14.8				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	* 67	9.0	10.0	12.0	68.0	9.0	10.0				
Max Q Clear Time (g_c+1/2), s	11.5	0.0	8.3	5.6	8.6	0.0	11.0	9.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 28.9

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary 14: Bradburn Blvd & 120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	2008	54	126	1567	36	42	4	146	43	7	10
Future Volume (veh/h)	6	2008	54	126	1567	36	42	4	146	43	7	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	2070	56	130	1615	37	45	4	157	48	8	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	13	2936	911	267	2577	59	186	2	89	120	42	58
Arrive On Green	0.02	1.00	1.00	0.15	0.73	0.73	0.03	0.06	0.06	0.03	0.06	0.06
Sat Flow, veh/h	1781	5106	1584	1781	3551	81	1781	39	1520	1781	713	981
Grp Volume(v), veh/h	6	2070	56	130	806	846	45	0	161	48	0	19
Grp Sat Flow(s),veh/h/ln	1781	1702	1584	1781	1777	1856	1781	0	1559	1781	0	1694
Q Serve(g_s), s	0.4	0.0	0.0	8.0	27.4	27.6	2.8	0.0	7.0	3.0	0.0	1.3
Cycle Q Clear(g_c), s	0.4	0.0	0.0	8.0	27.4	27.6	2.8	0.0	7.0	3.0	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.98	1.00		0.58
Lane Grp Cap(c), veh/h	13	2936	911	267	1289	1347	186	0	91	120	0	101
V/C Ratio(X)	0.45	0.71	0.06	0.49	0.63	0.63	0.24	0.00	1.77	0.40	0.00	0.19
Avail Cap(c_a), veh/h	193	2936	911	267	1289	1347	276	0	91	208	0	101
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.8	0.0	0.0	46.8	8.3	8.3	50.9	0.0	56.5	51.1	0.0	53.7
Incr Delay (d2), s/veh	6.4	1.1	0.1	0.5	2.3	2.2	0.2	0.0	387.4	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	3.5	8.8	9.2	1.3	0.0	12.6	1.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.2	1.1	0.1	47.3	10.6	10.5	51.1	0.0	443.9	51.9	0.0	54.0
LnGrp LOS	E	A	A	D	B	B	D	A	F	D	A	D
Approach Vol, veh/h	2132					1782		206		67		
Approach Delay, s/veh	1.3					13.2		358.1		52.5		
Approach LOS	A					B		F		D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	75.0	8.9	12.1	5.9	93.1	9.0	12.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	* 69	10.0	7.0	13.0	69.0	10.0	7.0				
Max Q Clear Time (g_c+10), s	10.0	0.0	4.8	3.3	2.4	0.0	5.0	9.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 24.7

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

15: Lowell Blvd & 120th Ave (SH 287)

2022 PM Peak Hour
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑↑	↗	↔↔	↑↑	↗	↗	↑	↗	↔↔	↑	↗
Traffic Volume (veh/h)	323	1885	12	82	1445	297	10	37	85	269	41	262
Future Volume (veh/h)	323	1885	12	82	1445	297	10	37	85	269	41	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	340	1984	0	85	1505	0	16	58	0	280	43	0
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.64	0.64	0.64	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	668	2953		146	1493		141	88		259	210	
Arrive On Green	0.21	0.64	0.00	0.05	0.47	0.00	0.01	0.05	0.00	0.08	0.12	0.00
Sat Flow, veh/h	3110	4595	1427	3110	3198	1427	1603	1683	1427	3110	1683	1427
Grp Volume(v), veh/h	340	1984	0	85	1505	0	16	58	0	280	43	0
Grp Sat Flow(s),veh/h/ln	1555	1532	1427	1555	1599	1427	1603	1683	1427	1555	1683	1427
Q Serve(g_s), s	11.6	32.6	0.0	3.2	56.0	0.0	1.1	4.1	0.0	10.0	2.8	0.0
Cycle Q Clear(g_c), s	11.6	32.6	0.0	3.2	56.0	0.0	1.1	4.1	0.0	10.0	2.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	668	2953		146	1493		141	88		259	210	
V/C Ratio(X)	0.51	0.67		0.58	1.01		0.11	0.66		1.08	0.21	
Avail Cap(c_a), veh/h	668	2953		596	1493		351	196		259	210	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.5	13.5	0.0	56.0	32.0	0.0	53.2	55.8	0.0	55.0	47.2	0.0
Incr Delay (d2), s/veh	0.3	1.2	0.0	2.7	25.3	0.0	0.1	3.2	0.0	78.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	9.8	0.0	1.3	24.8	0.0	0.5	1.8	0.0	6.7	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	14.7	0.0	58.7	57.3	0.0	53.4	59.0	0.0	133.9	47.7	0.0
LnGrp LOS	D	B		E	F		D	E		F	D	
Approach Vol, veh/h	2324		A		1590		A		74		A	
Approach Delay, s/veh	18.7				57.4				57.8		122.4	
Approach LOS	B				E				E		F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	83.1	6.3	19.9	31.8	62.0	15.0	11.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	* 6	5.0	5.0				
Max Green Setting (Gmax), s	23.0	52.0	17.0	7.0	19.0	* 56	10.0	14.0				
Max Q Clear Time (g_c+1.2), s	15.2	0.0	3.1	4.8	13.6	0.0	12.0	6.1				
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.4	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 41.4

HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

2050 AM Peak Hour

No Action

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	25	73	228	586	244	165	341	1809	283	121	2073	54	
Future Volume (veh/h)	25	73	228	586	244	165	341	1809	283	121	2073	54	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	
Adj Flow Rate, veh/h	32	94	0	630	262	0	355	1884	0	125	2137	0	
Peak Hour Factor	0.78	0.78	0.78	0.93	0.93	0.93	0.96	0.96	0.96	0.97	0.97	0.97	
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6	
Cap, veh/h	153	157		631	358		357	1766		207	1835		
Arrive On Green	0.02	0.09	0.00	0.13	0.20	0.00	0.11	0.51	0.00	0.12	0.53	0.00	
Sat Flow, veh/h	1725	1811	1535	3346	1811	0	3346	3441	1535	1725	3441	1535	
Grp Volume(v), veh/h	32	94	0	630	262	0	355	1884	0	125	2137	0	
Grp Sat Flow(s),veh/h/ln	1725	1811	1535	1673	1811	0	1673	1721	1535	1725	1721	1535	
Q Serve(g_s), s	2.5	7.5	0.0	20.0	20.3	0.0	15.9	77.0	0.0	10.3	80.0	0.0	
Cycle Q Clear(g_c), s	2.5	7.5	0.0	20.0	20.3	0.0	15.9	77.0	0.0	10.3	80.0	0.0	
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	153	157		631	358		357	1766		207	1835		
V/C Ratio(X)	0.21	0.60		1.00	0.73		0.99	1.07		0.60	1.16		
Avail Cap(c_a), veh/h	195	278		631	435		357	1766		207	1835		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	60.7	66.0	0.0	56.9	56.4	0.0	67.0	36.5	0.0	62.6	35.0	0.0	
Incr Delay (d2), s/veh	0.2	1.4	0.0	35.4	3.6	0.0	46.1	41.7	0.0	3.6	80.5	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.1	3.5	0.0	6.0	9.7	0.0	9.0	40.6	0.0	4.7	52.7	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	61.0	67.3	0.0	92.2	60.0	0.0	113.0	78.2	0.0	66.2	115.5	0.0	
LnGrp LOS	E	E		F	E		F	F		E	F		
Approach Vol, veh/h			A			A			2239	A		2262	A
Approach Delay, s/veh			65.7			82.8			83.7			112.8	
Approach LOS			E			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	24.0	83.0	25.0	18.0	21.0	86.0	8.3	34.7					
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0					
Max Green Setting (Gmax), s	9.0	* 77	20.0	23.0	16.0	70.0	7.0	36.0					
Max Q Clear Time (g_c+I1), s	12.3	0.0	22.0	9.5	17.9	0.0	4.5	22.3					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3					

Intersection Summary

HCM 6th Ctrl Delay 95.1

HCM 6th LOS F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

3: Nickel St & US 287

2050 AM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	246	119	181	674	73	65	53	79	44	76	44
Future Volume (veh/h)	4	246	119	181	674	73	65	53	79	44	76	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	262	127	195	725	78	80	90	82	55	95	55
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.81	0.81	0.81	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	1066	476	495	1325	591	524	546	463	510	626	339
Arrive On Green	0.01	0.30	0.30	0.08	0.37	0.37	0.06	0.29	0.29	0.05	0.28	0.28
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	2227	1204
Grp Volume(v), veh/h	4	262	127	195	725	78	80	90	82	55	74	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1777	1654
Q Serve(g_s), s	0.1	3.6	3.9	4.6	10.3	2.1	2.0	2.3	2.5	1.4	2.0	2.2
Cycle Q Clear(g_c), s	0.1	3.6	3.9	4.6	10.3	2.1	2.0	2.3	2.5	1.4	2.0	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.73
Lane Grp Cap(c), veh/h	266	1066	476	495	1325	591	524	546	463	510	500	465
V/C Ratio(X)	0.02	0.25	0.27	0.39	0.55	0.13	0.15	0.16	0.18	0.11	0.15	0.16
Avail Cap(c_a), veh/h	395	1066	476	495	1325	591	557	546	463	562	500	465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	16.9	17.0	12.8	15.8	13.2	14.6	16.9	16.9	14.8	17.3	17.3
Incr Delay (d2), s/veh	0.0	0.5	1.4	0.5	1.6	0.5	0.1	0.7	0.8	0.1	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	1.5	1.7	4.0	0.8	0.8	1.0	0.9	0.5	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	17.5	18.4	13.3	17.4	13.7	14.7	17.5	17.8	14.9	17.9	18.1
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h	393		998			252			205			
Approach Delay, s/veh	17.8		16.3			16.7			17.2			
Approach LOS	B		B			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	23.7	8.3	22.5	4.8	28.4	7.6	23.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0				
Max Q Clear Time (g_c+I), s	10.6	5.9	4.0	4.2	2.1	12.3	3.4	4.5				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.6	0.0	2.4	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay 16.8

HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	41	129	9	39	148
Future Vol, veh/h	34	41	129	9	39	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	45	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	83	83	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	62	155	11	45	172
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	423	161	0	0	166	0
Stage 1	161	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	588	884	-	-	1412	-
Stage 1	868	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	569	884	-	-	1412	-
Mov Cap-2 Maneuver	569	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.1	0	1.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	707	1412	-	
HCM Lane V/C Ratio	-	-	0.161	0.032	-	
HCM Control Delay (s)	-	-	11.1	7.6	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-	

Intersection													
Int Delay, s/veh	1.2												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	8	370	0	23	0	933	17	0	0	0	15	0	35
Future Vol, veh/h	8	370	0	23	0	933	17	0	0	0	15	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	90	90	90	90	92	92	92	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	416	0	26	0	1037	19	0	0	0	18	0	43

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	1056	0	0	416	416	0	0	1005	1542	208	1325	1533	528
Stage 1	-	-	-	-	-	-	-	434	434	-	1099	1099	-
Stage 2	-	-	-	-	-	-	-	571	1108	-	226	434	-
Critical Hdwy	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	655	-	-	782	1139	-	-	196	114	798	114	115	495
Stage 1	-	-	-	-	-	-	-	570	579	-	227	287	-
Stage 2	-	-	-	-	-	-	-	473	284	-	756	579	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	655	-	-	782	782	-	-	173	109	798	110	110	495
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	173	109	-	110	110	-
Stage 1	-	-	-	-	-	-	-	562	571	-	224	278	-
Stage 2	-	-	-	-	-	-	-	418	275	-	746	571	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	0	24.9
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	655	-	-	782	-	-	241
HCM Lane V/C Ratio	-	0.014	-	-	0.033	-	-	0.253
HCM Control Delay (s)	0	10.6	-	-	9.8	-	-	24.9
HCM Lane LOS	A	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0.1	-	-	1

HCM 6th Signalized Intersection Summary 6: Upham St/US 287 & SH 128/120th Ave (US 287)

2050 AM Peak Hour

No Action

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations										 			
Traffic Volume (veh/h)	16	635	71	35	1086	1012	60	55	17	342	49	36	
Future Volume (veh/h)	16	635	71	35	1086	1012	60	55	17	342	49	36	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	18	713	80	36	1120	0	71	65	0	364	52	0	
Peak Hour Factor	0.89	0.89	0.89	0.97	0.97	0.97	0.85	0.85	0.85	0.94	0.94	0.94	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	33	2186	973	73	2264		209	85		428	224		
Arrive On Green	0.02	0.62	0.62	0.04	0.64	0.00	0.05	0.05	0.00	0.12	0.12	0.00	
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	1870	0	3456	1870	0	
Grp Volume(v), veh/h	18	713	80	36	1120	0	71	65	0	364	52	0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1870	0	1728	1870	0	
Q Serve(g_s), s	1.2	11.6	2.5	2.4	20.0	0.0	4.5	4.1	0.0	12.4	3.0	0.0	
Cycle Q Clear(g_c), s	1.2	11.6	2.5	2.4	20.0	0.0	4.5	4.1	0.0	12.4	3.0	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00	
Lane Grp Cap(c), veh/h	33	2186	973	73	2264		209	85		428	224		
V/C Ratio(X)	0.54	0.33	0.08	0.50	0.49		0.34	0.77		0.85	0.23		
Avail Cap(c_a), veh/h	104	2186	973	104	2264		225	140		576	343		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	58.4	11.1	9.4	56.3	11.5	0.0	51.2	56.6	0.0	51.5	47.8	0.0	
Incr Delay (d2), s/veh	4.9	0.4	0.2	1.9	0.8	0.0	0.4	5.3	0.0	7.0	0.2	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.6	4.3	0.9	1.1	7.6	0.0	2.1	2.1	0.0	5.7	1.4	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	63.3	11.5	9.5	58.3	12.3	0.0	51.6	61.9	0.0	58.5	48.0	0.0	
LnGrp LOS	E	B	A	E	B		D	E		E	D		
Approach Vol, veh/h	811		1156			A		136		A		416	A
Approach Delay, s/veh	12.5		13.8			56.5		57.2					
Approach LOS	B		B			E		E					
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	9.9	79.8	10.9	19.4	7.3	82.4	19.9	10.4					
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0					
Max Green Setting (Gmax), s	7.0	63.0	7.0	22.0	7.0	63.0	20.0	9.0					
Max Q Clear Time (g_c+I1), s	4.4	13.6	6.5	5.0	3.2	22.0	14.4	6.1					
Green Ext Time (p_c), s	0.0	7.2	0.0	0.1	0.0	11.6	0.5	0.0					
Intersection Summary													
HCM 6th Ctrl Delay			22.8										
HCM 6th LOS			C										
Notes													
User approved pedestrian interval to be less than phase max green.													
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.													

HCM 6th Signalized Intersection Summary

7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

2050 AM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	813	85	102	1814	151	215	274	95	222	272	355
Future Volume (veh/h)	199	813	85	102	1814	151	215	274	95	222	272	355
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	874	91	107	1909	159	253	322	0	271	332	433
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.85	0.85	0.85	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	1747	777	144	1858	827	387	302		405	312	264
Arrive On Green	0.06	0.49	0.49	0.16	1.00	1.00	0.08	0.16	0.00	0.08	0.17	0.17
Sat Flow, veh/h	1781	3554	1580	1781	3554	1582	3456	1870	1585	3456	1870	1582
Grp Volume(v), veh/h	214	874	91	107	1909	159	253	322	0	271	332	433
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1582	1728	1870	1585	1728	1870	1582
Q Serve(g_s), s	7.0	19.9	2.5	6.9	62.7	0.0	7.2	19.4	0.0	7.7	20.0	20.0
Cycle Q Clear(g_c), s	7.0	19.9	2.5	6.9	62.7	0.0	7.2	19.4	0.0	7.7	20.0	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	1747	777	144	1858	827	387	302		405	312	264
V/C Ratio(X)	2.06	0.50	0.12	0.74	1.03	0.19	0.65	1.07		0.67	1.07	1.64
Avail Cap(c_a), veh/h	104	1747	777	148	1858	827	408	302		466	312	264
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	20.6	7.3	49.1	0.0	0.0	39.1	50.3	0.0	38.8	50.0	50.0
Incr Delay (d2), s/veh	508.4	1.0	0.3	11.8	25.6	0.4	2.6	70.3	0.0	2.1	69.2	305.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	8.3	1.4	3.3	6.6	0.1	3.2	14.9	0.0	3.4	15.4	30.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	564.9	21.6	7.6	60.9	25.6	0.4	41.7	120.6	0.0	40.8	119.2	355.4
LnGrp LOS	F	C	A	E	F	A	D	F		D	F	F
Approach Vol, veh/h	1179			2175			575			A1036		
Approach Delay, s/veh	119.1			25.5			85.9			197.4		
Approach LOS	F			C			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	65.0	14.3	25.0	12.0	68.7	14.9	24.4				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	* 59	10.0	20.0	7.0	62.0	12.0	18.0				
Max Q Clear Time (g_c+1.9), s	19.5	0.0	9.2	22.0	9.0	0.0	9.7	21.4				
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0				

Intersection Summary

HCM 6th Ctrl Delay 90.6

HCM 6th LOS F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

2050 AM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1084	16	10	1945	18	7	0	6	5	0	14
Future Volume (veh/h)	9	1084	16	10	1945	18	7	0	6	5	0	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	1118	16	10	1965	18	11	0	10	7	0	20
Peak Hour Factor	0.97	0.97	0.97	0.99	0.99	0.99	0.61	0.61	0.61	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2944	1313	484	2946	1314	86	0	49	95	0	49
Arrive On Green	0.01	1.00	1.00	0.01	1.00	1.00	0.03	0.00	0.03	0.03	0.00	0.03
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1382	0	1571	1393	0	1571
Grp Volume(v), veh/h	9	1118	16	10	1965	18	11	0	10	7	0	20
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1585	1382	0	1571	1393	0	1571
Q Serve(g_s), s	0.1	0.0	0.0	0.1	0.0	0.0	0.9	0.0	0.7	0.6	0.0	1.5
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.1	0.0	0.0	2.4	0.0	0.7	1.3	0.0	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2944	1313	484	2946	1314	86	0	49	95	0	49
V/C Ratio(X)	0.04	0.38	0.01	0.02	0.67	0.01	0.13	0.00	0.20	0.07	0.00	0.41
Avail Cap(c_a), veh/h	345	2944	1313	575	2946	1314	146	0	118	156	0	118
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	0.46	0.46	0.46	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.6	0.0	0.0	1.6	0.0	0.0	58.3	0.0	56.7	57.3	0.0	57.1
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.6	0.0	0.2	0.0	0.8	0.1	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.2	0.0	0.3	0.0	0.3	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	0.3	0.0	1.6	0.6	0.0	58.5	0.0	57.4	57.5	0.0	59.1
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	E
Approach Vol, veh/h	1143			1993			21			27		
Approach Delay, s/veh	0.3			0.6			58.0			58.7		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	105.4		8.7	5.8	105.5		8.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	88.0			9.0	7.0	88.0		9.0				
Max Q Clear Time (g_c+1.2), s	0.0			3.5	2.1	0.0		4.4				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	1.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

9: Greenway Dr/Lamar St & 120th Ave (SH 287)

2050 AM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	998	25	55	1913	228	36	52	56	175	31	66
Future Volume (veh/h)	51	998	25	55	1913	228	36	52	56	175	31	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	1018	26	57	1993	238	52	75	81	246	44	93
Peak Hour Factor	0.98	0.98	0.98	0.96	0.96	0.96	0.69	0.69	0.69	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	2443	1090	472	2448	1092	195	106	89	185	147	124
Arrive On Green	0.04	1.00	1.00	0.02	0.69	0.69	0.04	0.06	0.06	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1577	1781	1870	1579
Grp Volume(v), veh/h	52	1018	26	57	1993	238	52	75	81	246	44	93
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1577	1781	1870	1579
Q Serve(g_s), s	1.1	0.0	0.0	1.2	47.7	6.6	3.3	4.7	6.1	7.0	2.7	6.9
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.2	47.7	6.6	3.3	4.7	6.1	7.0	2.7	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	2443	1090	472	2448	1092	195	106	89	185	147	124
V/C Ratio(X)	0.35	0.42	0.02	0.12	0.81	0.22	0.27	0.71	0.91	1.33	0.30	0.75
Avail Cap(c_a), veh/h	214	2443	1090	535	2448	1092	235	187	158	185	187	158
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	0.0	5.2	13.2	6.8	50.8	55.6	56.3	54.1	52.1	54.1
Incr Delay (d2), s/veh	1.0	0.5	0.0	0.1	3.1	0.5	0.5	6.3	22.9	180.0	0.8	12.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.2	0.0	0.4	16.0	2.3	1.5	2.4	3.0	11.5	1.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.2	0.5	0.0	5.3	16.3	7.3	51.4	61.9	79.2	234.1	53.0	66.1
LnGrp LOS	B	A	A	A	B	A	D	E	E	F	D	E
Approach Vol, veh/h	1096		2288				208		383			
Approach Delay, s/veh	1.4		15.1				66.0		172.5			
Approach LOS	A		B				E		F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	88.5	9.4	14.5	7.5	88.7	12.0	11.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	73.0	73.0	7.0	12.0	7.0	73.0	7.0	12.0				
Max Q Clear Time (g_c+1.35), s	13.2	0.0	5.3	4.7	3.1	0.0	9.0	6.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 29.2

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

10: Chase St & 120th Ave (SH 287)

2050 AM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	933	19	22	1834	165	29	27	16	115	16	166
Future Volume (veh/h)	70	933	19	22	1834	165	29	27	16	115	16	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	1037	21	23	1891	170	36	34	20	129	18	187
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.80	0.80	0.80	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	2425	1080	378	2371	1057	160	52	31	229	195	165
Arrive On Green	0.03	0.68	0.68	0.03	1.00	1.00	0.03	0.05	0.05	0.08	0.10	0.10
Sat Flow, veh/h	1781	3554	1583	1781	3554	1584	1781	1104	649	1781	1870	1585
Grp Volume(v), veh/h	78	1037	21	23	1891	170	36	0	54	129	18	187
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1584	1781	0	1753	1781	1870	1585
Q Serve(g_s), s	1.7	15.7	0.5	0.5	0.0	0.0	2.3	0.0	3.6	8.0	1.0	12.5
Cycle Q Clear(g_c), s	1.7	15.7	0.5	0.5	0.0	0.0	2.3	0.0	3.6	8.0	1.0	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	246	2425	1080	378	2371	1057	160	0	82	229	195	165
V/C Ratio(X)	0.32	0.43	0.02	0.06	0.80	0.16	0.22	0.00	0.66	0.56	0.09	1.13
Avail Cap(c_a), veh/h	299	2425	1080	458	2371	1057	264	0	117	231	195	165
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.8	8.5	6.1	6.9	0.0	0.0	52.7	0.0	56.2	47.3	48.6	53.8
Incr Delay (d2), s/veh	0.3	0.6	0.0	0.0	0.3	0.0	0.7	0.0	3.2	1.9	0.1	110.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.2	0.2	0.2	0.1	0.0	1.1	0.0	1.7	3.7	0.5	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.1	9.1	6.2	6.9	0.3	0.0	53.4	0.0	59.5	49.2	48.7	164.2
LnGrp LOS	A	A	A	A	A	A	D	A	E	D	D	F
Approach Vol, veh/h	1136		2084			90			334			
Approach Delay, s/veh	8.8		0.3			57.1			113.6			
Approach LOS	A		A			E			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	87.9	8.0	17.5	8.4	86.1	14.9	10.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	74.0	10.0	8.0	7.0	74.0	10.0	8.0				
Max Q Clear Time (g_c+I1), s	12.5	0.0	4.3	3.0	3.7	0.0	10.0	5.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	0	0	0	6	61	0	0	0	48	0	18
Future Vol, veh/h	4	0	0	0	6	61	0	0	0	48	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	92	92	88	80	92	92	92	64	92	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	0	0	7	76	0	0	0	75	0	28

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	206	164	-	-	178	0	28	0	0	0	0	0
Stage 1	164	164	-	-	0	-	-	-	-	-	-	-
Stage 2	42	0	-	-	178	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	-	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	752	729	0	0	716	-	1585	-	-	-	-	-
Stage 1	838	762	0	0	-	-	-	-	-	-	-	-
Stage 2	972	-	0	0	752	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	729	-	-	716	-	1585	-	-	-	-	-
Mov Cap-2 Maneuver	-	729	-	-	716	-	-	-	-	-	-	-
Stage 1	838	762	-	-	-	-	-	-	-	-	-	-
Stage 2	972	-	-	-	752	-	-	-	-	-	-	-

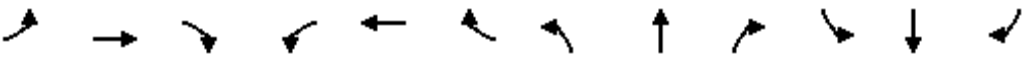
Approach	EB	WB	NB	SB
HCM Control Delay, s			0	
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-

HCM 6th Signalized Intersection Summary 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

2050 AM Peak Hour

No Action

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↰↱	↱	↰↱	↰↱	↱	↰↱	↰↱	↱	↰↱	↰↱	↱
Traffic Volume (veh/h)	95	754	155	336	1547	141	371	658	252	178	771	174
Future Volume (veh/h)	95	754	155	336	1547	141	371	658	252	178	771	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	106	838	0	369	1700	155	386	685	0	196	847	191
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	1127		431	1409	628	317	1073		253	815	184
Arrive On Green	0.09	0.63	0.00	0.12	0.40	0.40	0.09	0.30	0.00	0.07	0.28	0.28
Sat Flow, veh/h	3456	3554	1585	3456	3554	1583	3456	3554	1585	3456	2877	649
Grp Volume(v), veh/h	106	838	0	369	1700	155	386	685	0	196	523	515
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1583	1728	1777	1585	1728	1777	1749
Q Serve(g_s), s	3.6	19.6	0.0	12.6	47.6	7.9	11.0	20.0	0.0	6.7	34.0	34.0
Cycle Q Clear(g_c), s	3.6	19.6	0.0	12.6	47.6	7.9	11.0	20.0	0.0	6.7	34.0	34.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	156	1127		431	1409	628	317	1073		253	503	495
V/C Ratio(X)	0.68	0.74		0.86	1.21	0.25	1.22	0.64		0.78	1.04	1.04
Avail Cap(c_a), veh/h	173	1127		518	1409	628	317	1073		346	503	495
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.7	18.6	0.0	51.5	36.2	24.2	54.5	36.2	0.0	54.6	43.0	43.0
Incr Delay (d2), s/veh	6.1	4.0	0.0	11.0	99.8	0.9	123.6	1.3	0.0	4.8	50.6	51.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.5	0.0	5.9	38.6	3.0	10.1	8.6	0.0	3.0	21.5	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	22.6	0.0	62.5	136.0	25.2	178.1	37.5	0.0	59.4	93.6	94.0
LnGrp LOS	E	C		E	F	C	F	D		E	F	F
Approach Vol, veh/h		944	A		2224			1071	A		1234	
Approach Delay, s/veh		26.8			116.1			88.2			88.3	
Approach LOS		C			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	44.0	16.0	40.0	10.4	53.6	13.8	42.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	18.0	35.0	11.0	34.0	6.0	47.0	12.0	33.0				
Max Q Clear Time (g_c+I1), s	14.6	0.0	13.0	36.0	5.6	0.0	8.7	22.0				
Green Ext Time (p_c), s	0.4	0.0	0.0	0.0	0.0	0.0	0.1	2.3				

Intersection Summary

HCM 6th Ctrl Delay 88.9

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary 13: Vrain St & 120th Ave (SH 287)

2050 AM Peak Hour
No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1118	48	113	1956	138	42	26	62	75	14	69
Future Volume (veh/h)	88	1118	48	113	1956	138	42	26	62	75	14	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	96	1215	52	124	2149	152	50	31	74	86	16	79
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	3331	1034	134	2191	977	193	109	92	362	117	99
Arrive On Green	0.10	0.65	0.65	0.10	0.82	0.82	0.03	0.06	0.06	0.04	0.06	0.06
Sat Flow, veh/h	3456	5106	1585	1781	3554	1585	1781	1870	1577	3456	1870	1577
Grp Volume(v), veh/h	96	1215	52	124	2149	152	50	31	74	86	16	79
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1777	1585	1781	1870	1577	1728	1870	1577
Q Serve(g_s), s	3.1	13.0	1.4	8.3	66.7	1.6	3.1	1.9	5.6	2.8	1.0	4.7
Cycle Q Clear(g_c), s	3.1	13.0	1.4	8.3	66.7	1.6	3.1	1.9	5.6	2.8	1.0	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	354	3331	1034	134	2191	977	193	109	92	362	117	99
V/C Ratio(X)	0.27	0.36	0.05	0.93	0.98	0.16	0.26	0.28	0.80	0.24	0.14	0.80
Avail Cap(c_a), veh/h	354	3331	1034	134	2191	977	264	109	92	485	117	99
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.31	0.31	0.31	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	9.5	7.5	53.7	10.1	1.9	50.8	54.1	55.8	50.1	53.2	34.9
Incr Delay (d2), s/veh	0.2	0.3	0.1	26.0	7.1	0.1	0.3	0.5	36.4	0.1	0.2	33.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.2	0.5	4.5	8.5	0.8	1.4	0.9	3.2	1.2	0.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	9.8	7.6	79.7	17.2	2.0	51.0	54.6	92.3	50.2	53.3	67.9
LnGrp LOS	D	A	A	E	B	A	D	D	F	D	D	E
Approach Vol, veh/h	1363			2425			155			181		
Approach Delay, s/veh	12.6			19.5			71.4			58.2		
Approach LOS	B			B			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	84.3	9.2	12.5	18.3	80.0	9.7	12.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	* 6	5.0	5.0				
Max Green Setting (Gmax), s	9.0	74.0	9.0	7.0	9.0	* 74	9.0	7.0				
Max Q Clear Time (g_c+1.0), s	10.3	0.0	5.1	3.0	5.1	0.0	4.8	7.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay 20.8
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary 14: Bradburn Blvd & 120th Ave (SH 287)

2050 AM Peak Hour
No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1202	56	103	2293	29	34	4	124	19	2	9
Future Volume (veh/h)	11	1202	56	103	2293	29	34	4	124	19	2	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	1541	72	108	2414	31	47	5	170	24	3	12
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.73	0.73	0.73	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	3021	938	267	2639	34	165	2	80	101	14	55
Arrive On Green	0.02	0.79	0.79	0.15	0.73	0.73	0.03	0.05	0.05	0.02	0.04	0.04
Sat Flow, veh/h	1781	5106	1585	1781	3593	46	1781	45	1538	1781	327	1308
Grp Volume(v), veh/h	14	1541	72	108	1191	1254	47	0	175	24	0	15
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1777	1862	1781	0	1583	1781	0	1635
Q Serve(g_s), s	0.9	12.9	0.9	6.6	64.8	65.7	3.0	0.0	6.2	1.5	0.0	1.1
Cycle Q Clear(g_c), s	0.9	12.9	0.9	6.6	64.8	65.7	3.0	0.0	6.2	1.5	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.97	1.00		0.80
Lane Grp Cap(c), veh/h	28	3021	938	267	1305	1368	165	0	82	101	0	68
V/C Ratio(X)	0.51	0.51	0.08	0.40	0.91	0.92	0.28	0.00	2.13	0.24	0.00	0.22
Avail Cap(c_a), veh/h	163	3021	938	267	1305	1368	269	0	82	223	0	82
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.3	6.6	2.6	46.1	12.8	12.9	52.7	0.0	56.9	53.3	0.0	55.6
Incr Delay (d2), s/veh	5.0	0.6	0.2	0.4	11.2	11.2	0.3	0.0	545.1	0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.3	0.5	2.9	22.4	23.7	1.4	0.0	15.0	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	7.2	2.7	46.5	24.0	24.1	53.1	0.0	602.0	53.8	0.0	56.2
LnGrp LOS	E	A	A	D	C	C	D	A	F	D	A	E
Approach Vol, veh/h	1627			2553			222			39		
Approach Delay, s/veh	7.5			25.0			485.8			54.7		
Approach LOS	A			C			F			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	77.0	9.0	10.0	6.9	94.1	7.8	11.2				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	11.0	* 71	11.0	6.0	11.0	71.0	11.0	6.0				
Max Q Clear Time (g_c+I), s	19.6	0.0	5.0	3.1	2.9	0.0	3.5	8.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 41.9

HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary 15: Lowell Blvd & 120th Ave (SH 287)

2050 AM Peak Hour
No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↖	↖↗	↑↑	↖	↖	↑	↖	↖↗	↑	↖
Traffic Volume (veh/h)	150	1142	32	219	2039	216	32	43	174	280	87	316
Future Volume (veh/h)	150	1142	32	219	2039	216	32	43	174	280	87	316
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	155	1177	0	233	2169	0	58	78	0	304	95	0
Peak Hour Factor	0.97	0.97	0.97	0.94	0.94	0.94	0.55	0.55	0.55	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	2536		295	1599		202	107		358	228	
Arrive On Green	0.14	0.55	0.00	0.09	0.50	0.00	0.04	0.06	0.00	0.12	0.14	0.00
Sat Flow, veh/h	3110	4595	1427	3110	3198	1427	1603	1683	1427	3110	1683	1427
Grp Volume(v), veh/h	155	1177	0	233	2169	0	58	78	0	304	95	0
Grp Sat Flow(s),veh/h/ln	1555	1532	1427	1555	1599	1427	1603	1683	1427	1555	1683	1427
Q Serve(g_s), s	5.4	18.5	0.0	8.8	60.0	0.0	4.0	5.5	0.0	11.5	6.2	0.0
Cycle Q Clear(g_c), s	5.4	18.5	0.0	8.8	60.0	0.0	4.0	5.5	0.0	11.5	6.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	430	2536		295	1599		202	107		358	228	
V/C Ratio(X)	0.36	0.46		0.79	1.36		0.29	0.73		0.85	0.42	
Avail Cap(c_a), veh/h	430	2536		700	1599		267	140		544	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.9	16.2	0.0	53.2	30.0	0.0	49.7	55.2	0.0	52.1	47.5	0.0
Incr Delay (d2), s/veh	0.2	0.6	0.0	3.6	164.5	0.0	0.3	7.9	0.0	4.9	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	6.0	0.0	3.5	57.2	0.0	1.6	2.6	0.0	4.7	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	16.8	0.0	56.7	194.5	0.0	50.0	63.1	0.0	57.0	48.7	0.0
LnGrp LOS	D	B		E	F		D	E		E	D	
Approach Vol, veh/h	1332		A	2402		A	136		A	399		A
Approach Delay, s/veh	20.3			181.2			57.5			55.0		
Approach LOS	C			F			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	72.2	10.2	21.3	22.6	66.0	18.8	12.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	* 6	5.0	5.0				
Max Green Setting (Gmax), s	27.0	41.0	10.0	21.0	8.0	* 60	21.0	10.0				
Max Q Clear Time (g_c+10.8)	10.8	0.0	6.0	8.2	7.4	0.0	13.5	7.5				
Green Ext Time (p_c), s	0.6	0.0	0.0	0.2	0.0	0.0	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay 115.3

HCM 6th LOS F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

2050 PM Peak Hour

No Action

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	151	332	307	116	185	162	2006	667	215	1986	23
Future Volume (veh/h)	59	151	332	307	116	185	162	2006	667	215	1986	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	72	184	0	341	129	0	176	2180	0	229	2113	0
Peak Hour Factor	0.82	0.82	0.82	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	209	181		364	241		221	1789		264	2112	
Arrive On Green	0.05	0.10	0.00	0.08	0.13	0.00	0.07	0.52	0.00	0.15	0.61	0.00
Sat Flow, veh/h	1725	1811	1535	3346	1811	0	3346	3441	1535	1725	3441	1535
Grp Volume(v), veh/h	72	184	0	341	129	0	176	2180	0	229	2113	0
Grp Sat Flow(s),veh/h/ln	1725	1811	1535	1673	1811	0	1673	1721	1535	1725	1721	1535
Q Serve(g_s), s	5.6	15.0	0.0	12.0	10.0	0.0	7.8	78.0	0.0	19.4	92.1	0.0
Cycle Q Clear(g_c), s	5.6	15.0	0.0	12.0	10.0	0.0	7.8	78.0	0.0	19.4	92.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	181		364	241		221	1789		264	2112	
V/C Ratio(X)	0.34	1.02		0.94	0.53		0.80	1.22		0.87	1.00	
Avail Cap(c_a), veh/h	209	181		364	241		379	1789		276	2112	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.1	67.5	0.0	56.9	60.7	0.0	69.0	36.0	0.0	62.0	29.0	0.0
Incr Delay (d2), s/veh	0.4	71.1	0.0	31.2	1.2	0.0	2.5	103.6	0.0	22.1	19.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	10.5	0.0	2.6	4.7	0.0	3.4	56.4	0.0	10.1	41.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	138.6	0.0	88.1	61.9	0.0	71.5	139.6	0.0	84.1	48.6	0.0
LnGrp LOS	E	F		F	E		E	F		F	F	
Approach Vol, veh/h			256	A			470	A			2342	A
Approach Delay, s/veh			115.8				80.9				52.1	
Approach LOS			F				F				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.0	84.0	17.0	20.0	14.9	98.1	12.0	25.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	24.0	* 78	12.0	15.0	17.0	85.0	7.0	20.0				
Max Q Clear Time (g_c+I1), s	21.4	0.0	14.0	17.0	9.8	0.0	7.6	12.0				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	93.4											
HCM 6th LOS	F											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

3: Nickel St & US 287

2050 PM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	366	124	154	372	72	123	162	238	74	97	39
Future Volume (veh/h)	13	366	124	154	372	72	123	162	238	74	97	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	475	161	162	392	76	132	236	215	81	107	43
Peak Hour Factor	0.77	0.77	0.77	0.95	0.95	0.95	0.93	0.93	0.93	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	1011	449	389	1216	539	552	555	470	402	706	271
Arrive On Green	0.02	0.28	0.28	0.08	0.34	0.34	0.07	0.30	0.30	0.06	0.28	0.28
Sat Flow, veh/h	1781	3554	1577	1781	3554	1573	1781	1870	1585	1781	2512	962
Grp Volume(v), veh/h	17	475	161	162	392	76	132	236	215	81	74	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1577	1781	1777	1573	1781	1870	1585	1781	1777	1697
Q Serve(g_s), s	0.4	7.1	5.2	4.0	5.2	2.1	3.3	6.5	7.1	2.0	2.0	2.2
Cycle Q Clear(g_c), s	0.4	7.1	5.2	4.0	5.2	2.1	3.3	6.5	7.1	2.0	2.0	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	389	1011	449	389	1216	539	552	555	470	402	500	477
V/C Ratio(X)	0.04	0.47	0.36	0.42	0.32	0.14	0.24	0.43	0.46	0.20	0.15	0.16
Avail Cap(c_a), veh/h	492	1011	449	389	1216	539	558	555	470	435	500	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	18.9	18.2	14.1	15.6	14.5	14.4	18.1	18.3	14.8	17.3	17.3
Incr Delay (d2), s/veh	0.0	1.6	2.2	0.7	0.7	0.5	0.2	2.4	3.2	0.2	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.9	2.0	1.5	2.0	0.8	1.3	3.0	2.8	0.8	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	20.5	20.5	14.9	16.3	15.1	14.6	20.5	21.5	15.1	17.9	18.0
LnGrp LOS	B	C	C	B	B	B	B	C	C	B	B	B
Approach Vol, veh/h	653		630			583			231			
Approach Delay, s/veh	20.4		15.8			19.5			16.9			
Approach LOS	C		B			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	22.7	9.3	22.5	5.8	26.4	8.3	23.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	18.0	5.0	18.0	5.0	18.0	5.0	18.0				
Max Q Clear Time (g_c+I), s	9.1	9.1	5.3	4.2	2.4	7.2	4.0	9.1				
Green Ext Time (p_c), s	0.0	2.4	0.0	0.6	0.0	2.0	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	48	242	17	101	170
Future Vol, veh/h	31	48	242	17	101	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	45	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	85	85	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	61	285	20	117	198
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	727	295	0	0	305	0
Stage 1	295	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	391	744	-	-	1256	-
Stage 1	755	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	355	744	-	-	1256	-
Mov Cap-2 Maneuver	355	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.6	0		3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 520		1256	-	
HCM Lane V/C Ratio	-	- 0.192		0.094	-	
HCM Control Delay (s)	-	- 13.6		8.2	-	
HCM Lane LOS	-	- B		A	-	
HCM 95th %tile Q(veh)	-	- 0.7		0.3	-	

Intersection													
Int Delay, s/veh	1												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	25	679	0	14	0	630	22	0	0	0	20	0	12
Future Vol, veh/h	25	679	0	14	0	630	22	0	0	0	20	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	92	90	90	90	92	92	92	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	730	0	15	0	700	24	0	0	0	25	0	15

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	724	0	0	730	730	0	0	1164	1538	365	1161	1526	362
Stage 1	-	-	-	-	-	-	-	784	784	-	742	742	-
Stage 2	-	-	-	-	-	-	-	380	754	-	419	784	-
Critical Hdwy	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	874	-	-	494	870	-	-	150	115	632	150	117	635
Stage 1	-	-	-	-	-	-	-	352	402	-	374	420	-
Stage 2	-	-	-	-	-	-	-	614	415	-	582	402	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	874	-	-	494	494	-	-	140	108	632	143	110	635
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	140	108	-	143	110	-
Stage 1	-	-	-	-	-	-	-	341	390	-	362	407	-
Stage 2	-	-	-	-	-	-	-	581	403	-	564	390	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	0	27.1
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	874	-	-	494	-	-	202
HCM Lane V/C Ratio	-	0.031	-	-	0.031	-	-	0.196
HCM Control Delay (s)	0	9.2	-	-	12.5	-	-	27.1
HCM Lane LOS	A	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	0.7

HCM 6th Signalized Intersection Summary
6: Upham St/US 287 & SH 128/120th Ave (US 287)

2050 PM Peak Hour

No Action

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1281	60	24	657	611	55	70	44	687	66	35
Future Volume (veh/h)	32	1281	60	24	657	611	55	70	44	687	66	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	1348	63	26	714	0	65	82	0	739	71	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	50	1773	789	60	1793		214	105		816	462	
Arrive On Green	0.03	0.50	0.50	0.03	0.50	0.00	0.04	0.06	0.00	0.24	0.25	0.00
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	1870	0	3456	1870	0
Grp Volume(v), veh/h	34	1348	63	26	714	0	65	82	0	739	71	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1870	0	1728	1870	0
Q Serve(g_s), s	2.3	36.7	2.5	1.7	14.9	0.0	4.1	5.2	0.0	24.9	3.6	0.0
Cycle Q Clear(g_c), s	2.3	36.7	2.5	1.7	14.9	0.0	4.1	5.2	0.0	24.9	3.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	50	1773	789	60	1793		214	105		816	462	
V/C Ratio(X)	0.68	0.76	0.08	0.43	0.40		0.30	0.78		0.91	0.15	
Avail Cap(c_a), veh/h	134	1773	789	134	1793		238	109		1008	546	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.8	24.3	15.7	56.8	18.4	0.0	50.3	55.9	0.0	44.5	35.3	0.0
Incr Delay (d2), s/veh	5.8	3.1	0.2	1.8	0.7	0.0	0.3	26.4	0.0	8.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	15.3	1.0	0.8	6.2	0.0	1.9	3.2	0.0	11.5	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	27.4	15.9	58.6	19.1	0.0	50.6	82.3	0.0	53.4	35.4	0.0
LnGrp LOS	E	C	B	E	B		D	F		D	D	
Approach Vol, veh/h		1445			740	A		147	A		810	A
Approach Delay, s/veh		27.7			20.5			68.3			51.9	
Approach LOS		C			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	65.9	10.4	34.7	8.4	66.5	33.3	11.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	9.0	48.0	7.0	35.0	9.0	48.0	35.0	7.0				
Max Q Clear Time (g_c+I1), s	3.7	38.7	6.1	5.6	4.3	16.9	26.9	7.2				
Green Ext Time (p_c), s	0.0	6.4	0.0	0.1	0.0	6.0	1.4	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			34.1									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

2050 PM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	381	1632	153	178	1095	165	144	339	179	198	309	292	
Future Volume (veh/h)	381	1632	153	178	1095	165	144	339	179	198	309	292	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	401	1718	161	193	1190	179	169	399	0	254	396	374	
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.78	0.78	0.78	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	193	1629	726	203	1679	748	319	312		388	349	295	
Arrive On Green	0.11	0.46	0.46	0.23	0.94	0.94	0.06	0.17	0.00	0.08	0.19	0.19	
Sat Flow, veh/h	1781	3554	1583	1781	3554	1584	3456	1870	1585	3456	1870	1577	
Grp Volume(v), veh/h	401	1718	161	193	1190	179	169	399	0	254	396	374	
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1584	1728	1870	1585	1728	1870	1577	
Q Serve(g_s), s	13.0	55.0	5.3	12.8	6.7	1.0	4.8	20.0	0.0	7.2	22.4	22.4	
Cycle Q Clear(g_c), s	13.0	55.0	5.3	12.8	6.7	1.0	4.8	20.0	0.0	7.2	22.4	22.4	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	193	1629	726	203	1679	748	319	312		388	349	295	
V/C Ratio(X)	2.08	1.05	0.22	0.95	0.71	0.24	0.53	1.28		0.65	1.13	1.27	
Avail Cap(c_a), veh/h	193	1629	726	203	1679	748	437	312		437	349	295	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	53.5	32.5	10.3	46.0	1.9	1.8	39.6	50.0	0.0	38.6	48.8	48.8	
Incr Delay (d2), s/veh	502.5	38.3	0.7	44.7	2.2	0.7	0.5	148.4	0.0	2.0	89.4	145.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	32.7	31.1	2.8	7.4	1.4	0.4	2.1	22.2	0.0	3.2	19.2	20.7	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	556.0	70.8	11.0	90.6	4.2	2.4	40.1	198.4	0.0	40.6	138.2	194.0	
LnGrp LOS	F	F	B	F	A	A	D	F		D	F	F	
Approach Vol, veh/h	2280			1562			568			A			1024
Approach Delay, s/veh	151.9			14.7			151.3			134.4			
Approach LOS	F			B			F			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	19.7	61.0	11.9	27.4	18.0	62.7	14.3	25.0					
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0					
Max Green Setting (Gmax), s	13.0	* 55	11.0	20.0	13.0	55.0	11.0	20.0					
Max Q Clear Time (g_c+14.8)	14.8	0.0	6.8	24.4	15.0	0.0	9.2	22.0					
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0					

Intersection Summary

HCM 6th Ctrl Delay 109.1

HCM 6th LOS F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

2050 PM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1846	76	46	1298	29	38	5	75	36	7	25
Future Volume (veh/h)	33	1846	76	46	1298	29	38	5	75	36	7	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	1964	81	47	1338	30	52	7	99	46	9	32
Peak Hour Factor	0.94	0.94	0.94	0.97	0.97	0.97	0.73	0.76	0.76	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	2602	1161	246	2611	1165	186	12	171	127	41	147
Arrive On Green	0.03	1.00	1.00	0.04	1.00	1.00	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1366	106	1495	1288	360	1280
Grp Volume(v), veh/h	35	1964	81	47	1338	30	52	0	106	46	0	41
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1366	0	1601	1288	0	1640
Q Serve(g_s), s	0.6	0.0	0.0	0.8	0.0	0.0	4.3	0.0	7.5	4.2	0.0	2.7
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.8	0.0	0.0	7.0	0.0	7.5	11.7	0.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.93	1.00		0.78
Lane Grp Cap(c), veh/h	381	2602	1161	246	2611	1165	186	0	184	127	0	188
V/C Ratio(X)	0.09	0.75	0.07	0.19	0.51	0.03	0.28	0.00	0.58	0.36	0.00	0.22
Avail Cap(c_a), veh/h	455	2602	1161	315	2611	1165	200	0	200	140	0	205
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.22	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.8	0.0	0.0	3.7	0.0	0.0	51.4	0.0	50.4	55.9	0.0	48.2
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.1	0.6	0.0	0.3	0.0	1.8	0.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	0.0	0.2	0.2	0.0	1.5	0.0	3.1	1.4	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.8	0.5	0.0	3.8	0.6	0.0	51.7	0.0	52.2	56.6	0.0	48.5
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	A	D
Approach Vol, veh/h												
2080												
Approach Delay, s/veh												
0.5												
Approach LOS												
A												
Timer - Assigned Phs												
1 2 4 5 6 8												
Phs Duration (G+Y+Rc), s												
7.4 93.9 18.8 7.1 94.2 18.8												
Change Period (Y+Rc), s												
5.0 6.0 5.0 5.0 6.0 5.0												
Max Green Setting (Gmax), s												
7.0 82.0 15.0 7.0 82.0 15.0												
Max Q Clear Time (g_c+I), s												
12.8 0.0 13.7 2.6 0.0 9.5												
Green Ext Time (p_c), s												
0.0 0.0 0.0 0.0 0.0 0.1												
Intersection Summary												
HCM 6th Ctrl Delay												
4.0												
HCM 6th LOS												
A												

HCM 6th Signalized Intersection Summary

9: Greenway Dr/Lamar St & 120th Ave (SH 287)

2050 PM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1803	58	108	1275	325	30	32	106	334	66	122
Future Volume (veh/h)	55	1803	58	108	1275	325	30	32	106	334	66	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.97	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	1939	62	111	1314	335	40	43	141	402	80	147
Peak Hour Factor	0.93	0.93	0.93	0.97	0.97	0.97	0.75	0.75	0.75	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	2414	1077	269	2456	1095	157	82	68	204	154	129
Arrive On Green	0.05	1.00	1.00	0.04	0.69	0.69	0.03	0.04	0.04	0.07	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1542	1781	1870	1562
Grp Volume(v), veh/h	59	1939	62	111	1314	335	40	43	141	402	80	147
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1542	1781	1870	1562
Q Serve(g_s), s	1.2	0.0	0.0	2.3	21.8	9.9	2.6	2.7	5.3	8.0	4.9	9.9
Cycle Q Clear(g_c), s	1.2	0.0	0.0	2.3	21.8	9.9	2.6	2.7	5.3	8.0	4.9	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	256	2414	1077	269	2456	1095	157	82	68	204	154	129
V/C Ratio(X)	0.23	0.80	0.06	0.41	0.54	0.31	0.25	0.52	2.08	1.97	0.52	1.14
Avail Cap(c_a), veh/h	363	2414	1077	310	2456	1095	226	203	167	204	203	169
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.62	0.62	0.62	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	5.2	9.1	7.3	52.9	56.1	57.4	53.5	52.8	55.1
Incr Delay (d2), s/veh	0.2	1.8	0.1	0.8	0.8	0.7	0.6	3.8	523.4	453.5	2.0	113.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.0	0.7	7.1	3.5	1.2	1.4	9.8	28.0	2.4	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.6	1.8	0.1	6.0	9.9	8.0	53.5	59.9	580.8	507.0	54.8	168.0
LnGrp LOS	A	A	A	A	A	A	D	E	F	F	D	F
Approach Vol, veh/h	2060		1760			224			629			
Approach Delay, s/veh	2.0		9.3			386.6			370.3			
Approach LOS	A		A			F			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	87.5	8.4	14.9	7.8	88.9	13.0	10.3				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	71.0	71.0	8.0	13.0	10.0	68.0	8.0	13.0				
Max Q Clear Time (g_c+14.3)	0.0	0.0	4.6	6.9	3.2	0.0	10.0	4.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 72.7

HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

10: Chase St & 120th Ave (SH 287)

2050 PM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	1630	83	42	1253	161	33	37	47	173	41	152
Future Volume (veh/h)	148	1630	83	42	1253	161	33	37	47	173	41	152
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	159	1753	89	46	1362	175	35	40	51	188	45	165
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	356	2285	1019	171	2182	973	184	52	66	245	257	217
Arrive On Green	0.05	0.64	0.64	0.04	1.00	1.00	0.02	0.07	0.07	0.09	0.14	0.14
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	745	950	1781	1870	1582
Grp Volume(v), veh/h	159	1753	89	46	1362	175	35	0	91	188	45	165
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	0	1695	1781	1870	1582
Q Serve(g_s), s	3.9	41.7	2.5	1.2	0.0	0.0	2.2	0.0	6.3	11.0	2.6	12.1
Cycle Q Clear(g_c), s	3.9	41.7	2.5	1.2	0.0	0.0	2.2	0.0	6.3	11.0	2.6	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	356	2285	1019	171	2182	973	184	0	118	245	257	217
V/C Ratio(X)	0.45	0.77	0.09	0.27	0.62	0.18	0.19	0.00	0.77	0.77	0.18	0.76
Avail Cap(c_a), veh/h	416	2285	1019	238	2182	973	275	0	127	245	257	217
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.43	0.43	0.43	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.3	15.1	8.1	15.3	0.0	0.0	50.3	0.0	54.9	46.1	45.8	49.9
Incr Delay (d2), s/veh	0.3	2.5	0.2	0.1	0.6	0.2	0.5	0.0	20.4	12.3	0.1	13.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	14.9	0.9	0.4	0.2	0.0	1.0	0.0	3.4	6.0	1.2	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.6	17.6	8.3	15.4	0.6	0.2	50.8	0.0	75.3	58.4	45.9	62.9
LnGrp LOS	A	B	A	B	A	A	D	A	E	E	D	E
Approach Vol, veh/h	2001		1583				126			398		
Approach Delay, s/veh	16.4		1.0				68.5			58.9		
Approach LOS	B		A				E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	83.1	7.9	21.5	10.9	79.7	16.0	13.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	7.5	72.0	9.0	11.0	10.0	69.0	11.0	9.0				
Max Q Clear Time (g_c+I), s	13.2	0.0	4.2	4.6	5.9	0.0	13.0	8.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 16.2

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	40	14	0	0	9	103	0	0	0	155	0	21
Future Vol, veh/h	40	14	0	0	9	103	0	0	0	155	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	94	94	94	92	92	92	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	17	0	0	10	110	0	0	0	176	0	24

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	424	364	-	-	376	0	24	0	0	0	0	0
Stage 1	364	364	-	-	0	-	-	-	-	-	-	-
Stage 2	60	0	-	-	376	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	-	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	540	564	0	0	555	-	1591	-	-	-	-	-
Stage 1	655	624	0	0	-	-	-	-	-	-	-	-
Stage 2	951	-	0	0	616	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	564	-	-	555	-	1591	-	-	-	-	-
Mov Cap-2 Maneuver	-	564	-	-	555	-	-	-	-	-	-	-
Stage 1	655	624	-	-	-	-	-	-	-	-	-	-
Stage 2	951	-	-	-	616	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0			
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1591	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-

HCM 6th Signalized Intersection Summary 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

2050 PM Peak Hour

No Action

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	1444	269	384	1003	304	300	879	482	415	795	125
Future Volume (veh/h)	228	1444	269	384	1003	304	300	879	482	415	795	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	1489	0	388	1013	307	323	945	0	441	846	133
Peak Hour Factor	0.97	0.97	0.97	0.99	0.99	0.99	0.93	0.93	0.93	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	1303		346	1303	580	317	888		346	794	125
Arrive On Green	0.18	0.73	0.00	0.10	0.37	0.37	0.09	0.25	0.00	0.10	0.26	0.26
Sat Flow, veh/h	3456	3554	1585	3456	3554	1582	3456	3554	1585	3456	3074	483
Grp Volume(v), veh/h	235	1489	0	388	1013	307	323	945	0	441	489	490
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1582	1728	1777	1585	1728	1777	1781
Q Serve(g_s), s	7.7	44.0	0.0	12.0	30.3	12.8	11.0	30.0	0.0	12.0	31.0	31.0
Cycle Q Clear(g_c), s	7.7	44.0	0.0	12.0	30.3	12.8	11.0	30.0	0.0	12.0	31.0	31.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	317	1303		346	1303	580	317	888		346	459	460
V/C Ratio(X)	0.74	1.14		1.12	0.78	0.53	1.02	1.06		1.28	1.07	1.07
Avail Cap(c_a), veh/h	346	1303		346	1303	580	317	888		346	459	460
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.55	0.55	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	16.0	0.0	54.0	33.7	14.5	54.5	45.0	0.0	54.0	44.5	44.5
Incr Delay (d2), s/veh	3.6	69.8	0.0	85.9	4.6	3.4	55.7	48.6	0.0	144.9	60.5	60.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	18.3	0.0	9.1	13.1	4.9	7.1	18.8	0.0	12.1	20.9	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	85.8	0.0	139.9	38.3	18.0	110.2	93.6	0.0	198.9	105.0	104.9
LnGrp LOS	D	F		F	D	B	F	F		F	F	F
Approach Vol, veh/h	1724		A	1708			1268		A	1420		
Approach Delay, s/veh	81.1			57.7			97.8			134.1		
Approach LOS	F			E			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	50.0	16.0	37.0	17.0	50.0	17.0	36.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	44.0	11.0	31.0	12.0	* 44	12.0	30.0				
Max Q Clear Time (g_c+I1), s	14.0	0.0	13.0	33.0	9.7	0.0	14.0	32.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 90.3

HCM 6th LOS F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary 13: Vrain St & 120th Ave (SH 287)

2050 PM Peak Hour
No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	1882	107	172	1425	241	107	63	166	364	67	146
Future Volume (veh/h)	212	1882	107	172	1425	241	107	63	166	364	67	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	219	1940	110	177	1469	248	118	69	182	371	68	149
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.91	0.91	0.91	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	2851	883	277	2284	1018	247	152	127	479	152	127
Arrive On Green	0.08	0.56	0.56	0.31	1.00	1.00	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	3456	5106	1582	1781	3554	1584	1781	1870	1556	3456	1870	1556
Grp Volume(v), veh/h	219	1940	110	177	1469	248	118	69	182	371	68	149
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1781	1777	1584	1781	1870	1556	1728	1870	1556
Q Serve(g_s), s	7.5	32.5	2.9	10.3	0.0	0.0	7.2	4.2	7.7	9.0	4.2	9.8
Cycle Q Clear(g_c), s	7.5	32.5	2.9	10.3	0.0	0.0	7.2	4.2	7.7	9.0	4.2	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	2851	883	277	2284	1018	247	152	127	479	152	127
V/C Ratio(X)	0.80	0.68	0.12	0.64	0.64	0.24	0.48	0.45	1.44	0.77	0.45	1.18
Avail Cap(c_a), veh/h	346	2851	883	277	2284	1018	247	156	130	479	156	130
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	18.9	7.0	38.4	0.0	0.0	45.8	52.6	34.3	49.3	52.5	55.1
Incr Delay (d2), s/veh	7.7	1.3	0.3	2.4	0.9	0.4	0.5	0.8	235.8	7.0	0.8	135.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	11.8	1.5	4.0	0.3	0.1	3.2	2.0	11.3	1.8	2.0	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	20.2	7.3	40.8	0.9	0.4	46.3	53.4	270.1	56.3	53.3	190.3
LnGrp LOS	E	C	A	D	A	A	D	D	F	E	D	F
Approach Vol, veh/h	2269					1894		369		588		
Approach Delay, s/veh	23.6					4.6		158.0		89.9		
Approach LOS	C					A		F		F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.7	73.0	14.0	14.8	14.6	83.1	14.0	14.8				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	* 67	9.0	10.0	12.0	68.0	9.0	10.0				
Max Q Clear Time (g_c+1/3), s	11.3	0.0	9.2	6.2	9.5	0.0	11.0	9.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 33.9
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary 14: Bradburn Blvd & 120th Ave (SH 287)

2050 PM Peak Hour
No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2345	63	147	1830	42	49	5	171	50	8	12
Future Volume (veh/h)	7	2345	63	147	1830	42	49	5	171	50	8	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	2418	65	152	1887	43	53	5	184	56	9	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	15	2936	911	257	2554	58	192	2	89	129	42	60
Arrive On Green	0.02	1.00	1.00	0.14	0.72	0.72	0.04	0.06	0.06	0.04	0.06	0.06
Sat Flow, veh/h	1781	5106	1584	1781	3552	81	1781	41	1518	1781	692	999
Grp Volume(v), veh/h	7	2418	65	152	940	990	53	0	189	56	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1584	1781	1777	1856	1781	0	1559	1781	0	1691
Q Serve(g_s), s	0.5	0.0	0.0	9.6	37.9	38.5	3.3	0.0	7.0	3.5	0.0	1.5
Cycle Q Clear(g_c), s	0.5	0.0	0.0	9.6	37.9	38.5	3.3	0.0	7.0	3.5	0.0	1.5
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.97	1.00		0.59
Lane Grp Cap(c), veh/h	15	2936	911	257	1278	1334	192	0	91	129	0	102
V/C Ratio(X)	0.45	0.82	0.07	0.59	0.74	0.74	0.28	0.00	2.08	0.43	0.00	0.22
Avail Cap(c_a), veh/h	193	2936	911	257	1278	1334	275	0	91	208	0	102
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.7	0.0	0.0	48.0	10.1	10.1	50.6	0.0	56.5	50.7	0.0	53.7
Incr Delay (d2), s/veh	5.0	1.8	0.1	2.5	3.8	3.8	0.3	0.0	520.5	0.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	0.0	4.3	12.5	13.2	1.5	0.0	15.9	1.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	1.8	0.1	50.5	13.9	13.9	50.9	0.0	577.0	51.5	0.0	54.1
LnGrp LOS	E	A	A	D	B	B	D	A	F	D	A	D
Approach Vol, veh/h	2490		2082			242			78			
Approach Delay, s/veh	2.0		16.6			461.8			52.2			
Approach LOS	A		B			F			D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.3	75.0	9.4	12.2	6.0	92.3	9.7	12.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	* 69	10.0	7.0	13.0	69.0	10.0	7.0				
Max Q Clear Time (g_c+1), s	11.6	0.0	5.3	3.5	2.5	0.0	5.5	9.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 31.7
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

15: Lowell Blvd & 120th Ave (SH 287)

2050 PM Peak Hour

No Action



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↰↱↱	↱	↰↱	↰↱↱	↱	↰	↱	↱	↰↱	↱	↱
Traffic Volume (veh/h)	382	2228	14	97	1708	351	12	44	100	318	48	310
Future Volume (veh/h)	382	2228	14	97	1708	351	12	44	100	318	48	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	402	2345	0	101	1779	0	19	69	0	331	50	0
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.64	0.64	0.64	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	647	2915		151	1493		152	99		259	217	
Arrive On Green	0.21	0.63	0.00	0.05	0.47	0.00	0.01	0.06	0.00	0.08	0.13	0.00
Sat Flow, veh/h	3110	4595	1427	3110	3198	1427	1603	1683	1427	3110	1683	1427
Grp Volume(v), veh/h	402	2345	0	101	1779	0	19	69	0	331	50	0
Grp Sat Flow(s),veh/h/ln	1555	1532	1427	1555	1599	1427	1603	1683	1427	1555	1683	1427
Q Serve(g_s), s	14.1	45.7	0.0	3.8	56.0	0.0	1.3	4.8	0.0	10.0	3.2	0.0
Cycle Q Clear(g_c), s	14.1	45.7	0.0	3.8	56.0	0.0	1.3	4.8	0.0	10.0	3.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	647	2915		151	1493		152	99		259	217	
V/C Ratio(X)	0.62	0.80		0.67	1.19		0.12	0.70		1.28	0.23	
Avail Cap(c_a), veh/h	647	2915		596	1493		358	196		259	217	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.2	16.4	0.0	56.1	32.0	0.0	52.3	55.4	0.0	55.0	46.9	0.0
Incr Delay (d2), s/veh	1.4	2.5	0.0	3.8	93.3	0.0	0.1	3.3	0.0	151.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	14.1	0.0	1.5	38.9	0.0	0.5	2.2	0.0	9.3	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	18.8	0.0	59.9	125.3	0.0	52.5	58.7	0.0	206.1	47.5	0.0
LnGrp LOS	D	B		E	F		D	E		F	D	
Approach Vol, veh/h	2747		A	1880		A	88		A	381		A
Approach Delay, s/veh	22.6			121.8			57.4			185.3		
Approach LOS	C			F			E			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	82.1	6.6	20.5	31.0	62.0	15.0	12.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	* 6	5.0	5.0				
Max Green Setting (Gmax), s	23.0	52.0	17.0	7.0	19.0	* 56	10.0	14.0				
Max Q Clear Time (g_c+I), s	15.8	0.0	3.3	5.2	16.1	0.0	12.0	6.8				
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 72.0

HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Appendix C

Traffic Operational Report

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.3	85.6	37.4	25.4	0.2	1.1	0.1	18.7	331.3	8.4
Denied Del/Veh (s)	3.7	1.1	3.6	494.8	493.5	486.9	1.6	2.2	1.3	534.2	541.6	522.4
Total Delay (hr)	0.3	1.4	0.3	14.9	9.9	4.1	10.6	13.6	0.8	3.2	32.3	0.1
Total Del/Veh (s)	42.7	74.0	3.5	101.7	145.5	94.0	109.5	27.5	9.8	117.5	67.1	10.0
Stop Delay (hr)	0.2	1.3	0.0	13.9	8.9	3.6	9.8	8.5	0.2	2.8	23.8	0.1
Stop Del/Veh (s)	39.0	68.2	0.0	94.7	131.7	84.1	101.5	17.2	2.7	102.6	49.5	5.0
Total Stops	22	64	0	670	198	88	440	918	46	146	1523	6
Stop/Veh	0.96	0.91	0.00	1.27	0.81	0.56	1.26	0.52	0.16	1.51	0.88	0.12
Travel Dist (mi)	1.4	4.3	13.2	41.4	19.1	9.6	34.9	182.2	26.4	9.8	189.2	4.8
Travel Time (hr)	0.3	1.6	1.0	102.1	47.9	29.8	12.0	19.8	1.8	22.2	369.0	8.7
Avg Speed (mph)	4	3	18	3	2	2	3	10	15	3	5	16
Fuel Used (gal)	0.1	0.5	0.6	24.3	11.2	6.9	3.6	9.7	1.0	5.3	88.3	2.2
Fuel Eff. (mpg)	10.9	8.9	21.3	1.7	1.7	1.4	9.6	18.8	25.5	1.9	2.1	2.2
HC Emissions (g)	4	7	14	120	132	66	41	116	14	22	804	17
CO Emissions (g)	82	152	415	2726	2168	1147	893	2883	368	541	14325	410
NOx Emissions (g)	9	14	43	143	127	61	90	366	47	28	933	24
Vehicles Entered	22	68	264	508	230	152	337	1764	287	89	1697	48
Vehicles Exited	22	70	264	504	233	148	341	1767	283	91	1700	48
Hourly Exit Rate	22	70	264	504	233	148	341	1767	283	91	1700	48
Input Volume	25	73	228	586	244	165	341	1809	283	121	2073	54
% of Volume	88	96	116	86	95	90	100	98	100	75	82	89
Density (ft/veh)												
Occupancy (veh)	0	2	1	16	11	4	12	19	2	4	38	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	508.5
Denied Del/Veh (s)	294.7
Total Delay (hr)	91.4
Total Del/Veh (s)	59.0
Stop Delay (hr)	73.2
Stop Del/Veh (s)	47.2
Total Stops	4121
Stop/Veh	0.74
Travel Dist (mi)	536.2
Travel Time (hr)	616.4
Avg Speed (mph)	5
Fuel Used (gal)	153.6
Fuel Eff. (mpg)	3.5
HC Emissions (g)	1357
CO Emissions (g)	26110
NOx Emissions (g)	1886
Vehicles Entered	5466
Vehicles Exited	5471
Hourly Exit Rate	5471
Input Volume	6002
% of Volume	91
Density (ft/veh)	68
Occupancy (veh)	108

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.3	0.0	0.0	0.4
Denied Del/Veh (s)	0.1	0.0	1.4	0.7	0.0	0.0	0.3
Total Delay (hr)	0.4	0.1	3.7	5.0	4.0	0.4	13.6
Total Del/Veh (s)	2.5	1.8	125.3	9.4	6.3	7.8	9.3
Stop Delay (hr)	0.0	0.0	3.5	1.5	0.1	0.0	5.1
Stop Del/Veh (s)	0.1	0.5	119.5	2.8	0.1	0.4	3.5
Total Stops	16	15	113	411	138	32	725
Stop/Veh	0.03	0.07	1.07	0.22	0.06	0.16	0.14
Travel Dist (mi)	11.0	27.7	33.4	597.8	204.0	15.1	889.0
Travel Time (hr)	0.9	1.5	4.8	22.6	9.8	1.0	40.6
Avg Speed (mph)	13	18	7	27	21	15	22
Fuel Used (gal)	0.2	1.4	1.7	17.1	14.4	0.7	35.6
Fuel Eff. (mpg)	47.8	19.8	19.2	34.9	14.2	21.6	25.0
HC Emissions (g)	2	24	14	167	303	7	516
CO Emissions (g)	36	938	358	4175	10891	225	16622
NOx Emissions (g)	3	73	39	560	997	27	1699
Vehicles Entered	528	209	104	1883	2264	204	5192
Vehicles Exited	526	208	105	1875	2262	204	5180
Hourly Exit Rate	526	208	105	1875	2262	204	5180
Input Volume	562	229	111	1889	2626	261	5678
% of Volume	94	91	95	99	86	78	91
Density (ft/veh)							185
Occupancy (veh)	1	2	5	22	10	1	40

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	0.7	0.1	0.6	2.3	0.1	0.2	0.2	0.1	0.1	0.3	0.1
Total Del/Veh (s)	4.9	12.7	2.9	13.8	13.2	3.1	12.1	12.1	3.5	8.7	10.3	4.6
Stop Delay (hr)	0.0	0.6	0.1	0.4	1.6	0.0	0.2	0.1	0.1	0.1	0.2	0.1
Stop Del/Veh (s)	3.3	10.1	2.8	10.1	8.7	2.1	9.9	9.3	3.1	6.4	8.6	4.1
Total Stops	2	101	70	103	333	40	43	24	44	25	38	32
Stop/Veh	0.67	0.50	0.67	0.68	0.52	0.55	0.70	0.48	0.55	0.64	0.44	0.56
Travel Dist (mi)	0.1	8.7	4.4	22.2	92.7	10.8	2.6	2.2	3.5	6.1	12.1	8.9
Travel Time (hr)	0.0	1.0	0.3	1.3	5.0	0.4	0.3	0.2	0.3	0.3	0.7	0.4
Avg Speed (mph)	13	9	14	17	18	24	8	9	14	19	18	21
Fuel Used (gal)	0.0	0.4	0.1	0.7	2.7	0.2	0.1	0.1	0.1	0.2	0.4	0.3
Fuel Eff. (mpg)	35.2	21.3	52.7	32.7	34.3	45.3	23.5	19.7	32.8	31.8	30.8	32.8
HC Emissions (g)	0	5	0	3	24	1	1	1	1	2	3	6
CO Emissions (g)	1	173	10	114	577	32	32	31	38	47	88	126
NOx Emissions (g)	0	15	1	12	78	4	4	3	4	6	10	16
Vehicles Entered	3	204	102	150	639	73	61	50	80	39	86	57
Vehicles Exited	3	204	102	149	637	72	59	50	80	39	86	57
Hourly Exit Rate	3	204	102	149	637	72	59	50	80	39	86	57
Input Volume	4	249	119	181	714	73	65	53	79	44	94	44
% of Volume	75	82	86	82	89	99	91	94	101	89	91	130
Density (ft/veh)												
Occupancy (veh)	0	1	0	1	5	0	0	0	0	0	1	0

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	4.7
Total Del/Veh (s)	10.8
Stop Delay (hr)	3.4
Stop Del/Veh (s)	7.9
Total Stops	855
Stop/Veh	0.55
Travel Dist (mi)	174.5
Travel Time (hr)	10.3
Avg Speed (mph)	17
Fuel Used (gal)	5.3
Fuel Eff. (mpg)	32.9
HC Emissions (g)	48
CO Emissions (g)	1270
NOx Emissions (g)	152
Vehicles Entered	1544
Vehicles Exited	1538
Hourly Exit Rate	1538
Input Volume	1719
% of Volume	89
Density (ft/veh)	675
Occupancy (veh)	10

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	4.0	0.2	0.4
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.5	3.0	1.0	0.6	2.7	0.3	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	3.8	2.5	0.3	0.3	0.8	0.0	0.7
Total Stops	29	40	0	0	7	0	76
Stop/Veh	0.97	1.00	0.00	0.00	0.28	0.00	0.20
Travel Dist (mi)	2.1	2.9	18.1	2.3	1.4	9.1	35.9
Travel Time (hr)	0.1	0.2	0.7	0.1	0.1	0.3	1.5
Avg Speed (mph)	16	17	26	23	19	29	24
Fuel Used (gal)	0.1	0.1	0.8	0.1	0.0	0.3	1.3
Fuel Eff. (mpg)	33.2	35.0	24.1	28.1	35.0	32.2	27.6
HC Emissions (g)	0	1	9	1	0	5	15
CO Emissions (g)	11	20	317	27	9	105	489
NOx Emissions (g)	1	2	28	2	1	14	48
Vehicles Entered	30	40	118	15	24	153	380
Vehicles Exited	29	40	116	15	25	153	378
Hourly Exit Rate	29	40	116	15	25	153	378
Input Volume	34	41	129	9	39	148	400
% of Volume	85	98	90	167	64	103	94
Density (ft/veh)	1236						
Occupancy (veh)	0	0	1	0	0	0	2

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5
Denied Del/Veh (s)	0.5	6.2	0.0	0.0	0.0	0.1	0.1	1.4
Total Delay (hr)	0.0	4.7	0.0	0.3	0.0	0.1	0.1	5.2
Total Del/Veh (s)	6.9	59.9	7.7	1.1	0.9	27.7	9.5	14.2
Stop Delay (hr)	0.0	4.7	0.0	0.0	0.0	0.1	0.1	4.8
Stop Del/Veh (s)	5.4	59.6	5.4	0.0	0.0	26.3	9.3	13.3
Total Stops	5	22	2	0	0	9	26	64
Stop/Veh	0.56	0.08	0.18	0.00	0.00	1.00	0.96	0.05
Travel Dist (mi)	0.4	13.6	3.1	249.3	5.0	0.4	1.1	272.8
Travel Time (hr)	0.0	5.6	0.1	7.5	0.2	0.1	0.1	13.6
Avg Speed (mph)	12	3	25	33	31	4	8	21
Fuel Used (gal)	0.0	1.5	0.1	7.0	0.1	0.0	0.0	8.8
Fuel Eff. (mpg)	33.1	8.8	38.2	35.6	38.1	16.7	28.3	30.9
HC Emissions (g)	0	8	0	61	1	0	0	70
CO Emissions (g)	2	211	9	1407	16	1	7	1653
NOx Emissions (g)	0	18	1	223	2	0	1	245
Vehicles Entered	9	281	11	953	18	9	27	1308
Vehicles Exited	8	259	10	945	18	9	26	1275
Hourly Exit Rate	8	259	10	945	18	9	26	1275
Input Volume	8	371	23	1043	17	15	35	1512
% of Volume	100	70	43	91	106	60	74	84
Density (ft/veh)								406
Occupancy (veh)	0	5	0	7	0	0	0	13

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	7.4	0.9	0.0	0.0	0.0	0.1	0.0	0.0	7.9	2.4	0.6
Denied Del/Veh (s)	34.7	43.8	47.3	0.0	0.0	0.0	3.8	0.6	0.3	230.6	429.2	144.6
Total Delay (hr)	0.7	51.1	0.5	0.7	5.2	4.3	0.9	1.3	0.1	22.8	0.3	0.1
Total Del/Veh (s)	241.2	318.2	26.3	71.8	14.9	16.3	38.8	88.4	18.6	696.4	60.5	17.1
Stop Delay (hr)	0.7	50.8	0.4	0.7	3.1	0.2	0.8	1.3	0.1	22.7	0.3	0.1
Stop Del/Veh (s)	240.8	316.6	22.7	67.1	8.9	0.7	35.9	85.0	16.4	693.2	57.2	15.7
Total Stops	13	429	57	36	288	76	63	56	11	112	15	2
Stop/Veh	1.18	0.74	0.81	1.00	0.23	0.08	0.80	1.04	0.55	0.95	0.75	0.14
Travel Dist (mi)	1.7	100.1	12.7	10.3	333.3	257.9	6.0	4.1	1.3	7.4	1.2	0.8
Travel Time (hr)	0.9	61.0	1.9	1.0	14.8	12.0	1.2	1.5	0.2	31.1	2.8	0.7
Avg Speed (mph)	2	2	14	10	22	21	5	3	8	0	3	8
Fuel Used (gal)	0.2	15.9	0.8	0.5	12.5	8.3	0.5	0.4	0.1	7.1	0.6	0.2
Fuel Eff. (mpg)	7.4	6.3	16.3	21.1	26.8	31.1	13.2	9.3	20.2	1.0	1.9	5.2
HC Emissions (g)	0	64	3	2	150	67	1	3	0	49	0	0
CO Emissions (g)	29	2315	225	96	4545	1923	87	78	11	935	34	8
NOx Emissions (g)	1	134	15	9	533	268	8	7	1	42	0	0
Vehicles Entered	10	575	70	35	1251	929	76	52	19	110	17	13
Vehicles Exited	10	498	68	36	1248	925	76	52	19	95	19	14
Hourly Exit Rate	10	498	68	36	1248	925	76	52	19	95	19	14
Input Volume	16	635	71	35	1337	1012	60	55	17	342	49	36
% of Volume	62	78	96	103	93	91	127	95	112	28	39	39
Density (ft/veh)												
Occupancy (veh)	1	54	1	1	15	12	1	1	0	23	0	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	19.5
Denied Del/Veh (s)	21.8
Total Delay (hr)	88.0
Total Del/Veh (s)	98.9
Stop Delay (hr)	81.2
Stop Del/Veh (s)	91.2
Total Stops	1158
Stop/Veh	0.36
Travel Dist (mi)	736.9
Travel Time (hr)	129.0
Avg Speed (mph)	7
Fuel Used (gal)	47.0
Fuel Eff. (mpg)	15.7
HC Emissions (g)	340
CO Emissions (g)	10285
NOx Emissions (g)	1020
Vehicles Entered	3157
Vehicles Exited	3060
Hourly Exit Rate	3060
Input Volume	3665
% of Volume	83
Density (ft/veh)	108
Occupancy (veh)	110

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	14.0	72.6	6.2	1.4	18.1	1.1	1.3	1.2	0.5	0.3	0.5	0.8
Denied Del/Veh (s)	428.0	482.3	357.7	48.8	39.4	27.5	20.5	17.3	18.5	5.6	6.9	8.6
Total Delay (hr)	13.7	3.6	0.2	3.0	32.6	0.3	6.7	6.2	0.2	3.0	6.7	2.0
Total Del/Veh (s)	441.8	29.1	11.1	102.5	70.2	6.9	98.5	90.7	6.4	49.8	88.4	20.0
Stop Delay (hr)	13.8	3.0	0.1	2.4	22.3	0.1	6.4	5.8	0.1	2.8	6.2	1.7
Stop Del/Veh (s)	442.6	24.4	8.2	82.9	48.0	3.7	94.4	84.4	2.9	46.1	82.1	17.2
Total Stops	75	210	38	184	1941	80	323	261	13	226	331	395
Stop/Veh	0.67	0.48	0.73	1.77	1.16	0.57	1.32	1.06	0.13	1.05	1.21	1.12
Travel Dist (mi)	5.5	24.8	3.0	12.8	207.6	17.7	12.1	12.6	4.4	16.0	19.8	25.9
Travel Time (hr)	28.0	76.9	6.5	4.8	55.9	1.9	8.5	7.8	0.9	4.0	8.0	4.0
Avg Speed (mph)	0	6	10	4	5	20	2	2	12	4	3	8
Fuel Used (gal)	6.6	18.5	1.6	1.4	17.9	1.1	2.4	2.2	0.4	1.4	2.4	1.6
Fuel Eff. (mpg)	0.8	1.3	1.9	9.1	11.6	15.8	5.1	5.7	12.3	11.8	8.1	16.1
HC Emissions (g)	20	64	1	4	80	26	5	3	4	10	8	11
CO Emissions (g)	572	1918	90	145	2266	910	228	194	113	304	282	374
NOx Emissions (g)	23	83	4	14	257	56	20	15	13	30	28	42
Vehicles Entered	99	433	52	102	1626	139	232	244	102	215	267	350
Vehicles Exited	98	437	52	98	1623	138	239	236	101	216	273	351
Hourly Exit Rate	98	437	52	98	1623	138	239	236	101	216	273	351
Input Volume	199	813	85	102	1814	151	215	274	95	222	272	355
% of Volume	49	54	61	96	89	91	111	86	106	97	100	99
Density (ft/veh)												
Occupancy (veh)	14	4	0	3	38	1	7	7	0	4	8	3

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	118.0
Denied Del/Veh (s)	105.5
Total Delay (hr)	78.0
Total Del/Veh (s)	71.0
Stop Delay (hr)	64.6
Stop Del/Veh (s)	58.9
Total Stops	4077
Stop/Veh	1.03
Travel Dist (mi)	362.1
Travel Time (hr)	207.2
Avg Speed (mph)	4
Fuel Used (gal)	57.4
Fuel Eff. (mpg)	6.3
HC Emissions (g)	234
CO Emissions (g)	7397
NOx Emissions (g)	586
Vehicles Entered	3861
Vehicles Exited	3862
Hourly Exit Rate	3862
Input Volume	4597
% of Volume	84
Density (ft/veh)	71
Occupancy (veh)	89

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.1	4.2	0.1	0.0
Total Delay (hr)	0.0	0.7	0.0	0.0	10.8	0.0	0.1	0.0	0.1	0.0	11.9
Total Del/Veh (s)	17.1	3.6	2.9	14.7	21.5	1.2	82.8	5.9	81.8	15.8	16.2
Stop Delay (hr)	0.0	0.1	0.0	0.0	4.5	0.0	0.1	0.0	0.1	0.0	4.9
Stop Del/Veh (s)	14.4	0.4	0.6	9.0	9.0	0.4	81.5	5.8	80.7	15.4	6.7
Total Stops	3	34	1	7	849	2	3	10	2	10	921
Stop/Veh	0.75	0.05	0.10	0.70	0.47	0.10	1.00	1.00	0.67	0.91	0.35
Travel Dist (mi)	0.5	99.0	1.4	1.2	216.6	2.4	0.2	0.5	0.1	0.4	322.4
Travel Time (hr)	0.0	3.7	0.1	0.1	16.4	0.1	0.1	0.0	0.1	0.1	20.6
Avg Speed (mph)	14	27	24	15	13	25	2	12	2	6	16
Fuel Used (gal)	0.0	5.6	0.1	0.0	8.5	0.1	0.0	0.0	0.0	0.0	14.4
Fuel Eff. (mpg)	19.4	17.8	21.9	26.6	25.3	25.5	7.9	37.5	6.8	21.7	22.4
HC Emissions (g)	0	77	1	0	74	1	0	0	0	0	152
CO Emissions (g)	15	3703	42	12	2467	71	1	1	1	2	6317
NOx Emissions (g)	1	279	2	1	256	3	0	0	0	0	542
Vehicles Entered	4	740	10	10	1810	20	3	10	3	11	2621
Vehicles Exited	4	734	10	10	1810	20	3	10	3	10	2614
Hourly Exit Rate	4	734	10	10	1810	20	3	10	3	10	2614
Input Volume	9	1105	16	10	1987	18	7	6	5	14	3177
% of Volume	44	66	62	100	91	111	43	167	60	71	82
Density (ft/veh)											302
Occupancy (veh)	0	4	0	0	16	0	0	0	0	0	21

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	14.3	3.3	6.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.5	4.0	0.4	3.7	287.8	304.5	329.8
Total Delay (hr)	0.4	1.7	0.0	0.2	8.3	0.5	0.5	0.7	0.1	9.7	1.3	0.4
Total Del/Veh (s)	42.6	8.6	1.5	13.9	16.9	8.9	59.6	61.4	7.9	218.5	141.2	28.0
Stop Delay (hr)	0.4	1.1	0.0	0.1	2.6	0.1	0.5	0.6	0.1	9.7	1.3	0.4
Stop Del/Veh (s)	40.6	5.8	1.5	7.4	5.2	0.9	57.5	58.3	7.0	217.3	139.1	27.7
Total Stops	33	168	4	24	393	52	29	37	70	111	24	47
Stop/Veh	0.97	0.24	0.36	0.60	0.22	0.24	0.97	0.95	1.03	0.69	0.71	0.84
Travel Dist (mi)	4.0	81.2	1.3	14.6	639.7	78.9	2.3	3.0	5.2	7.3	1.5	2.8
Travel Time (hr)	0.5	3.7	0.0	0.5	21.3	2.5	0.6	0.8	0.5	24.3	4.7	6.7
Avg Speed (mph)	7	22	28	29	30	32	4	4	13	1	1	5
Fuel Used (gal)	0.2	2.6	0.0	0.4	17.8	2.2	0.2	0.3	0.2	5.8	1.1	1.6
Fuel Eff. (mpg)	20.5	31.2	42.7	35.4	36.0	36.2	11.9	11.7	23.1	1.3	1.3	1.8
HC Emissions (g)	1	27	0	3	229	32	2	0	3	12	0	0
CO Emissions (g)	46	848	15	153	8258	1180	49	31	86	443	70	81
NOx Emissions (g)	3	101	1	13	851	111	4	3	10	16	3	1
Vehicles Entered	34	689	11	39	1750	218	30	38	67	148	31	56
Vehicles Exited	33	694	11	39	1755	217	29	39	68	149	33	56
Hourly Exit Rate	33	694	11	39	1755	217	29	39	68	149	33	56
Input Volume	51	1019	25	55	1913	228	36	52	56	175	31	66
% of Volume	65	68	44	71	92	95	81	75	121	85	106	85
Density (ft/veh)												
Occupancy (veh)	1	4	0	1	21	2	1	1	0	10	1	1

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	23.9
Denied Del/Veh (s)	27.2
Total Delay (hr)	23.9
Total Del/Veh (s)	27.2
Stop Delay (hr)	16.8
Stop Del/Veh (s)	19.2
Total Stops	992
Stop/Veh	0.31
Travel Dist (mi)	841.7
Travel Time (hr)	66.2
Avg Speed (mph)	20
Fuel Used (gal)	32.3
Fuel Eff. (mpg)	26.0
HC Emissions (g)	309
CO Emissions (g)	11259
NOx Emissions (g)	1118
Vehicles Entered	3111
Vehicles Exited	3123
Hourly Exit Rate	3123
Input Volume	3707
% of Volume	84
Density (ft/veh)	291
Occupancy (veh)	42

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.6	3.6
Total Delay (hr)	0.4	1.1	0.0	0.1	7.5	0.3	0.4	0.4	0.1	1.4	0.2	0.3
Total Del/Veh (s)	22.3	4.8	0.5	15.9	15.6	8.0	51.9	57.2	21.1	49.0	48.2	5.5
Stop Delay (hr)	0.3	0.5	0.0	0.0	2.1	0.0	0.4	0.4	0.1	1.3	0.2	0.2
Stop Del/Veh (s)	20.6	2.2	0.4	6.9	4.5	0.8	50.0	55.1	21.2	46.1	46.1	4.7
Total Stops	47	130	2	9	423	34	29	24	17	91	12	153
Stop/Veh	0.82	0.15	0.14	0.64	0.25	0.23	0.97	0.92	0.94	0.88	0.71	0.91
Travel Dist (mi)	6.3	86.5	1.6	3.4	426.1	37.0	1.6	1.4	0.9	5.5	0.8	9.1
Travel Time (hr)	0.5	2.9	0.1	0.2	16.8	1.3	0.5	0.5	0.2	1.7	0.3	0.9
Avg Speed (mph)	12	30	29	22	25	28	3	3	6	3	3	13
Fuel Used (gal)	0.2	2.6	0.0	0.2	22.3	1.9	0.2	0.2	0.1	0.5	0.1	0.4
Fuel Eff. (mpg)	33.3	33.6	42.7	19.5	19.1	19.8	8.5	8.2	12.5	10.2	11.2	24.6
HC Emissions (g)	1	32	0	1	316	30	1	2	0	2	0	2
CO Emissions (g)	34	1222	22	106	15559	1608	31	50	17	96	8	78
NOx Emissions (g)	3	131	1	6	1140	97	3	6	2	9	1	8
Vehicles Entered	56	840	14	14	1698	146	30	25	17	101	16	167
Vehicles Exited	56	840	14	13	1703	144	30	25	18	101	16	168
Hourly Exit Rate	56	840	14	13	1703	144	30	25	18	101	16	168
Input Volume	70	1140	19	22	1905	165	29	27	16	115	16	166
% of Volume	80	74	74	59	89	87	103	93	112	88	100	101
Density (ft/veh)												
Occupancy (veh)	1	3	0	0	17	1	1	0	0	2	0	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	12.2
Total Del/Veh (s)	13.9
Stop Delay (hr)	5.7
Stop Del/Veh (s)	6.5
Total Stops	971
Stop/Veh	0.31
Travel Dist (mi)	580.1
Travel Time (hr)	25.8
Avg Speed (mph)	23
Fuel Used (gal)	28.6
Fuel Eff. (mpg)	20.3
HC Emissions (g)	387
CO Emissions (g)	18832
NOx Emissions (g)	1408
Vehicles Entered	3124
Vehicles Exited	3128
Hourly Exit Rate	3128
Input Volume	3690
% of Volume	85
Density (ft/veh)	343
Occupancy (veh)	26

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	3.6	4.2	2.5	0.3	0.2	1.8
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	2.4	2.3	2.3	0.3	0.3	1.5
Total Stops	6	6	64	0	0	76
Stop/Veh	1.00	1.00	1.00	0.00	0.00	0.62
Travel Dist (mi)	0.2	0.1	1.4	1.8	0.9	4.4
Travel Time (hr)	0.0	0.0	0.1	0.2	0.1	0.4
Avg Speed (mph)	12	10	10	10	11	10
Fuel Used (gal)	0.0	0.0	0.0	0.1	0.0	0.2
Fuel Eff. (mpg)	43.3	32.9	32.7	20.5	22.6	24.7
HC Emissions (g)	0	0	0	0	0	0
CO Emissions (g)	0	0	5	10	5	20
NOx Emissions (g)	0	0	1	1	1	2
Vehicles Entered	6	6	64	31	16	123
Vehicles Exited	6	6	64	31	15	122
Hourly Exit Rate	6	6	64	31	15	122
Input Volume	4	6	61	48	18	137
% of Volume	150	100	105	65	83	89
Density (ft/veh)						
Occupancy (veh)	0	0	0	0	0	0

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	53.9	93.1	35.5	0.3	1.0	0.3
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	491.6	487.4	464.9	7.0	4.8	6.1
Total Delay (hr)	1.1	4.7	0.2	8.9	48.5	2.4	40.1	7.5	0.4	3.4	16.4	3.8
Total Del/Veh (s)	65.1	26.7	5.9	99.9	120.8	70.3	403.7	50.2	6.3	72.7	77.0	73.2
Stop Delay (hr)	1.1	3.2	0.0	6.9	36.4	1.8	39.2	5.9	0.0	3.0	13.7	3.3
Stop Del/Veh (s)	61.2	18.3	0.1	77.4	90.6	53.0	394.5	39.5	0.4	64.7	64.5	64.2
Total Stops	55	308	1	541	2148	172	432	448	23	208	780	190
Stop/Veh	0.87	0.48	0.01	1.70	1.48	1.39	1.21	0.83	0.11	1.25	1.02	1.02
Travel Dist (mi)	15.2	155.0	25.0	52.6	232.5	20.6	41.3	70.6	25.6	13.5	65.5	15.6
Travel Time (hr)	1.5	8.1	0.8	10.3	53.2	3.0	95.4	102.4	36.7	4.1	19.0	4.7
Avg Speed (mph)	10	19	30	5	4	7	1	8	22	4	4	4
Fuel Used (gal)	0.8	6.0	0.8	4.0	18.2	1.4	22.7	25.8	9.0	1.4	6.1	1.5
Fuel Eff. (mpg)	19.1	25.9	31.8	13.0	12.8	15.2	1.8	2.7	2.8	9.8	10.7	10.6
HC Emissions (g)	5	73	8	23	88	6	68	83	28	11	42	6
CO Emissions (g)	376	3486	477	874	2417	419	1998	3115	1142	321	1114	214
NOx Emissions (g)	20	258	31	83	283	28	84	168	51	33	110	20
Vehicles Entered	60	633	102	316	1414	123	313	536	209	159	752	181
Vehicles Exited	62	640	102	314	1400	124	314	534	209	155	742	178
Hourly Exit Rate	62	640	102	314	1400	124	314	534	209	155	742	178
Input Volume	95	814	155	336	1590	141	371	658	252	178	771	174
% of Volume	65	79	66	93	88	88	85	81	83	87	96	102
Density (ft/veh)												
Occupancy (veh)	2	8	1	10	53	3	41	9	1	4	18	4

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	184.2
Denied Del/Veh (s)	130.1
Total Delay (hr)	137.4
Total Del/Veh (s)	100.6
Stop Delay (hr)	114.6
Stop Del/Veh (s)	83.9
Total Stops	5306
Stop/Veh	1.08
Travel Dist (mi)	733.0
Travel Time (hr)	339.4
Avg Speed (mph)	5
Fuel Used (gal)	97.6
Fuel Eff. (mpg)	7.5
HC Emissions (g)	440
CO Emissions (g)	15951
NOx Emissions (g)	1169
Vehicles Entered	4798
Vehicles Exited	4774
Hourly Exit Rate	4774
Input Volume	5535
% of Volume	86
Density (ft/veh)	103
Occupancy (veh)	155

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Denied Del/Veh (s)	0.3	0.0	0.0	0.0	0.0	0.0	3.8	0.5	4.0	3.8	0.5	3.8
Total Delay (hr)	1.2	1.6	0.0	2.7	10.7	0.3	0.4	0.5	0.1	1.2	0.3	0.3
Total Del/Veh (s)	54.5	6.2	1.8	90.0	20.1	7.9	45.3	68.5	5.8	50.7	60.7	12.0
Stop Delay (hr)	1.2	1.0	0.0	2.4	2.9	0.0	0.4	0.5	0.1	1.2	0.2	0.2
Stop Del/Veh (s)	51.9	3.8	1.3	80.6	5.5	1.1	43.4	65.8	4.8	48.3	58.0	11.5
Total Stops	69	194	11	109	609	34	28	25	63	84	15	73
Stop/Veh	0.86	0.21	0.24	1.03	0.32	0.28	0.80	0.93	0.94	0.95	1.00	0.94
Travel Dist (mi)	13.2	154.5	7.4	24.7	438.6	29.2	2.4	2.0	5.0	6.2	1.0	5.5
Travel Time (hr)	1.6	4.7	0.2	3.3	19.6	1.1	0.6	0.6	0.4	1.6	0.3	0.6
Avg Speed (mph)	8	33	32	8	22	28	4	3	15	4	3	11
Fuel Used (gal)	0.6	4.6	0.2	1.3	14.3	1.0	0.2	0.2	0.2	0.5	0.1	0.2
Fuel Eff. (mpg)	22.8	33.9	42.5	19.1	30.7	28.0	12.7	11.4	24.2	11.6	12.1	22.4
HC Emissions (g)	2	56	5	8	152	17	2	0	1	1	0	2
CO Emissions (g)	124	2095	134	419	6031	802	53	15	48	73	8	64
NOx Emissions (g)	10	243	14	27	552	53	6	1	4	6	1	7
Vehicles Entered	78	905	45	103	1890	122	32	27	67	86	14	78
Vehicles Exited	77	906	44	103	1893	121	35	27	67	85	15	76
Hourly Exit Rate	77	906	44	103	1893	121	35	27	67	85	15	76
Input Volume	88	1118	48	113	2085	138	42	26	62	75	14	69
% of Volume	88	81	92	91	91	88	83	104	108	113	107	110
Density (ft/veh)												
Occupancy (veh)	2	5	0	3	20	1	1	1	0	2	0	1

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.3
Denied Del/Veh (s)	0.3
Total Delay (hr)	19.2
Total Del/Veh (s)	19.9
Stop Delay (hr)	10.2
Stop Del/Veh (s)	10.5
Total Stops	1314
Stop/Veh	0.38
Travel Dist (mi)	689.7
Travel Time (hr)	34.5
Avg Speed (mph)	20
Fuel Used (gal)	23.4
Fuel Eff. (mpg)	29.5
HC Emissions (g)	246
CO Emissions (g)	9867
NOx Emissions (g)	924
Vehicles Entered	3447
Vehicles Exited	3449
Hourly Exit Rate	3449
Input Volume	3878
% of Volume	89
Density (ft/veh)	379
Occupancy (veh)	34

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.1	0.2	4.2	0.1	0.1
Total Delay (hr)	0.2	1.8	0.0	2.1	4.7	0.1	0.5	0.1	0.3	0.4	0.0	0.1
Total Del/Veh (s)	63.7	6.4	1.0	74.4	8.1	5.7	59.4	61.8	7.2	64.2	38.7	28.5
Stop Delay (hr)	0.2	0.7	0.0	1.9	0.5	0.0	0.5	0.1	0.2	0.3	0.0	0.1
Stop Del/Veh (s)	62.3	2.4	0.3	67.0	0.8	0.3	57.3	58.5	6.4	62.4	36.3	28.3
Total Stops	12	174	4	115	150	2	32	5	126	19	1	11
Stop/Veh	1.00	0.17	0.08	1.12	0.07	0.05	0.97	1.00	0.96	0.95	1.00	1.00
Travel Dist (mi)	2.9	244.9	11.3	19.2	383.4	7.2	2.5	0.4	9.9	1.0	0.1	0.6
Travel Time (hr)	0.3	7.0	0.3	2.6	12.4	0.3	0.7	0.1	0.7	0.4	0.0	0.1
Avg Speed (mph)	10	35	37	7	31	27	4	4	14	3	4	5
Fuel Used (gal)	0.2	9.3	0.3	1.0	12.7	0.2	0.2	0.0	0.3	0.1	0.0	0.0
Fuel Eff. (mpg)	19.5	26.3	33.5	19.0	30.2	37.7	11.8	11.8	29.3	8.8	15.7	18.5
HC Emissions (g)	1	127	7	3	148	5	0	0	2	0	0	0
CO Emissions (g)	64	6100	286	222	5904	112	29	5	80	13	0	3
NOx Emissions (g)	4	487	25	16	591	15	2	0	8	1	0	0
Vehicles Entered	12	1012	48	103	2081	39	33	5	130	20	1	11
Vehicles Exited	12	1008	46	102	2071	39	33	5	128	20	1	11
Hourly Exit Rate	12	1008	46	102	2071	39	33	5	128	20	1	11
Input Volume	11	1202	56	103	2293	29	34	4	124	19	2	9
% of Volume	109	84	82	99	90	134	97	125	103	105	50	122
Density (ft/veh)												
Occupancy (veh)	0	7	0	3	12	0	1	0	1	0	0	0

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	10.3
Total Del/Veh (s)	10.5
Stop Delay (hr)	4.6
Stop Del/Veh (s)	4.7
Total Stops	651
Stop/Veh	0.19
Travel Dist (mi)	683.3
Travel Time (hr)	25.0
Avg Speed (mph)	27
Fuel Used (gal)	24.4
Fuel Eff. (mpg)	28.0
HC Emissions (g)	294
CO Emissions (g)	12819
NOx Emissions (g)	1150
Vehicles Entered	3495
Vehicles Exited	3476
Hourly Exit Rate	3476
Input Volume	3886
% of Volume	89
Density (ft/veh)	425
Occupancy (veh)	25

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.3
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.7	3.8	0.7	0.8	3.1
Total Delay (hr)	3.1	6.4	0.0	4.6	25.2	0.6	0.7	0.7	0.1	6.1	1.4	0.4
Total Del/Veh (s)	78.4	23.4	2.7	72.1	48.9	10.1	65.8	58.5	2.0	72.9	53.5	4.4
Stop Delay (hr)	3.0	4.6	0.0	4.1	15.8	0.2	0.7	0.7	0.0	5.5	1.3	0.0
Stop Del/Veh (s)	74.9	16.9	0.0	63.3	30.7	2.9	63.3	55.9	0.0	66.1	46.9	0.0
Total Stops	130	500	0	250	1270	21	36	33	0	313	76	0
Stop/Veh	0.91	0.51	0.00	1.08	0.69	0.10	0.92	0.79	0.00	1.04	0.79	0.00
Travel Dist (mi)	26.0	188.9	5.4	21.5	170.5	18.0	6.4	7.0	28.7	58.0	19.0	61.7
Travel Time (hr)	3.8	10.2	0.2	5.3	28.6	1.2	1.0	1.0	1.5	7.8	1.9	2.5
Avg Speed (mph)	7	19	32	4	6	15	7	7	22	7	10	28
Fuel Used (gal)	1.2	5.4	0.1	2.0	11.8	0.9	0.4	0.4	0.9	3.3	0.9	2.1
Fuel Eff. (mpg)	21.0	34.8	55.2	10.6	14.5	20.2	17.7	18.9	31.6	17.7	20.7	29.8
HC Emissions (g)	6	47	3	14	62	12	5	1	4	49	7	30
CO Emissions (g)	270	1532	63	551	1665	473	97	38	148	1625	358	1414
NOx Emissions (g)	22	193	8	47	233	42	10	3	17	128	25	90
Vehicles Entered	135	985	29	228	1831	208	38	42	176	296	96	327
Vehicles Exited	130	986	29	224	1830	209	34	37	177	285	90	324
Hourly Exit Rate	130	986	29	224	1830	209	34	37	177	285	90	324
Input Volume	150	1164	32	219	2039	216	32	43	174	280	87	316
% of Volume	87	85	91	102	90	97	106	86	102	102	103	103
Density (ft/veh)												
Occupancy (veh)	4	10	0	5	29	1	1	1	1	8	2	2

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.5
Total Delay (hr)	49.3
Total Del/Veh (s)	40.0
Stop Delay (hr)	35.7
Stop Del/Veh (s)	29.0
Total Stops	2629
Stop/Veh	0.59
Travel Dist (mi)	611.1
Travel Time (hr)	65.1
Avg Speed (mph)	9
Fuel Used (gal)	29.4
Fuel Eff. (mpg)	20.8
HC Emissions (g)	239
CO Emissions (g)	8234
NOx Emissions (g)	820
Vehicles Entered	4391
Vehicles Exited	4355
Hourly Exit Rate	4355
Input Volume	4752
% of Volume	92
Density (ft/veh)	235
Occupancy (veh)	64

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.3	0.1	0.4
Total Del/Veh (s)	0.6	1.9	1.6	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.2	0.2	0.1
Total Stops	0	0	0	0
Stop/Veh	0.00	0.00	0.00	0.00
Travel Dist (mi)	28.0	20.8	8.5	57.3
Travel Time (hr)	0.9	1.0	0.6	2.4
Avg Speed (mph)	33	22	15	24
Fuel Used (gal)	0.6	1.6	0.3	2.5
Fuel Eff. (mpg)	43.2	13.3	25.8	22.6
HC Emissions (g)	6	23	5	34
CO Emissions (g)	123	863	121	1107
NOx Emissions (g)	20	90	16	126
Vehicles Entered	310	507	209	1026
Vehicles Exited	309	508	209	1026
Hourly Exit Rate	309	508	209	1026
Input Volume	372	554	229	1155
% of Volume	83	92	91	89
Density (ft/veh)				383
Occupancy (veh)	1	1	1	2

Total Network Performance

Denied Delay (hr)	1089.7
Denied Del/Veh (s)	233.3
Total Delay (hr)	841.2
Total Del/Veh (s)	187.8
Stop Delay (hr)	643.2
Stop Del/Veh (s)	143.6
Total Stops	29936
Stop/Veh	1.86
Travel Dist (mi)	13199.3
Travel Time (hr)	2280.6
Avg Speed (mph)	11
Fuel Used (gal)	913.5
Fuel Eff. (mpg)	14.4
HC Emissions (g)	8201
CO Emissions (g)	286560
NOx Emissions (g)	24907
Vehicles Entered	15138
Vehicles Exited	14726
Hourly Exit Rate	14726
Input Volume	92182
% of Volume	16
Density (ft/veh)	142
Occupancy (veh)	1191

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	1.8	26.4	0.2	21
Total		1.8	26.4	0.2	21

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	12.7	17.2	0.0	9
	573	54.9	69.1	0.2	8
Laurel St	5	59.9	71.2	0.1	3
	627	665.4	687.7	0.3	1
	641	345.2	352.9	0.1	1
SH 128	6	60.5	496.1	0.1	4
Total		1198.6	1694.1	0.7	2

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	8.8	17.3	0.1	16
	627	0.2	8.3	0.1	34
Laurel St	5	1.1	28.1	0.3	36
	573	0.3	5.7	0.1	33
Nickel St	3	13.2	28.2	0.2	19
US 287 WB	214	2.2	6.5	0.0	23
Total		25.7	94.1	0.7	26

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	12.1	17.8	0.1	11
3rd Ave	4	1.6	20.2	0.2	29
Total		13.6	38.0	0.2	21

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	0.3	7.7	0.1	30
US 287	3	10.1	26.6	0.2	22
Total		10.4	34.3	0.2	24

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	L	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	95	138	230	483	494	306	370	460	481	473	219	649
Average Queue (ft)	23	71	217	432	449	197	284	384	395	227	131	605
95th Queue (ft)	66	115	259	509	476	294	428	490	495	527	252	625
Link Distance (ft)		331		431	431			418	418	418		586
Upstream Blk Time (%)				38	51			5	8	1		42
Queuing Penalty (veh)				0	0			35	55	9		0
Storage Bay Dist (ft)	125		205			270	270				195	
Storage Blk Time (%)		1	12	55		2	4	22			0	46
Queuing Penalty (veh)		3	36	160		18	34	75			1	56

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	638	617
Average Queue (ft)	608	560
95th Queue (ft)	625	808
Link Distance (ft)	586	586
Upstream Blk Time (%)	63	31
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB	SB	SB
Directions Served	R	L	T	T	T	T
Maximum Queue (ft)	71	237	350	360	416	428
Average Queue (ft)	10	95	72	94	14	14
95th Queue (ft)	43	193	231	251	137	141
Link Distance (ft)	611		1656	1656	418	418
Upstream Blk Time (%)					0	0
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)		350				
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	R	L
Maximum Queue (ft)	29	72	69	67	108	209	108	46	90	62	21	50
Average Queue (ft)	2	35	33	28	50	122	56	17	26	29	2	18
95th Queue (ft)	14	65	70	50	83	195	91	33	63	54	12	43
Link Distance (ft)	136	136	136	136		725	725		223	223	223	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					290				140			
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 3: Nickel St & US 287

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	47	48
Average Queue (ft)	21	19
95th Queue (ft)	49	42
Link Distance (ft)	777	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	215	
Storage Blk Time (%)	2	
Queuing Penalty (veh)	2	

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	53	31
Average Queue (ft)	30	7
95th Queue (ft)	46	28
Link Distance (ft)	379	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	45	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 5: Laurel St & US 287

Movement	EB	EB	EB	B573	B573	WB	B641	SB
Directions Served	L	T	TR	T	T	UL	T	LTR
Maximum Queue (ft)	49	287	287	571	562	27	478	78
Average Queue (ft)	4	57	58	66	64	2	46	26
95th Queue (ft)	24	236	241	324	317	13	274	58
Link Distance (ft)		216	216	725	725		309	206
Upstream Blk Time (%)		18	18					
Queuing Penalty (veh)		34	32					
Storage Bay Dist (ft)	100					100		
Storage Blk Time (%)		20						
Queuing Penalty (veh)		2						

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B670	B670	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	290	998	998	1003	86	565	633	362	299	355	140	175
Average Queue (ft)	44	638	622	427	32	104	123	51	18	114	52	66
95th Queue (ft)	204	1275	1282	1225	72	282	313	228	132	364	108	142
Link Distance (ft)		964	964	964		1493	1493		238	238		407
Upstream Blk Time (%)		43	41	36					0	3		
Queuing Penalty (veh)		0	0	0					0	24		
Storage Bay Dist (ft)	240				115			315			90	
Storage Blk Time (%)		68				5	3				5	14
Queuing Penalty (veh)		11				2	33				4	8

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	SB	SB	B641	B641	B627	B627
Directions Served	L	L	TR	T	T	T	T
Maximum Queue (ft)	165	405	76	452	421	1452	1439
Average Queue (ft)	154	374	23	310	208	684	676
95th Queue (ft)	168	421	67	595	502	1703	1683
Link Distance (ft)		309	309	361	361	1412	1412
Upstream Blk Time (%)		85		64	22	23	22
Queuing Penalty (veh)		174		131	45	46	45
Storage Bay Dist (ft)	115						
Storage Blk Time (%)	96	96					
Queuing Penalty (veh)	164	165					

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T	L	T	T	R	L	L
Maximum Queue (ft)	237	345	308	95	1516	1551	190	658	701	632	210	234
Average Queue (ft)	232	311	131	28	1504	1518	130	591	607	84	130	197
95th Queue (ft)	240	326	306	94	1515	1547	229	717	722	303	236	279
Link Distance (ft)		238	238		1493	1493		621	621	621		
Upstream Blk Time (%)	71	94	4		62	56		12	15	0		
Queuing Penalty (veh)	0	466	20		306	278		81	99	2		
Storage Bay Dist (ft)	280			45			140				185	185
Storage Blk Time (%)	71	94	24	1			5	47			3	16
Queuing Penalty (veh)	287	187	21	4			47	48			10	59

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	317	235	199	404	428	260
Average Queue (ft)	232	70	73	162	322	189
95th Queue (ft)	340	246	181	341	494	340
Link Distance (ft)	265			389	389	
Upstream Blk Time (%)	28			1	14	
Queuing Penalty (veh)	0			0	0	
Storage Bay Dist (ft)		185	150			210
Storage Blk Time (%)	33		1	8	34	0
Queuing Penalty (veh)	103		1	8	121	0

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	27	71	599	223	494	521	27	48	31	31	53
Average Queue (ft)	3	5	25	10	218	248	2	3	8	3	9
95th Queue (ft)	16	30	204	77	524	553	12	19	31	17	34
Link Distance (ft)		621	621		548	548	548		282		232
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150			175				120		30	
Storage Blk Time (%)					14					7	4
Queuing Penalty (veh)					1					1	0

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	112	233	219	15	364	492	476	54	88	147	110	155
Average Queue (ft)	25	77	86	2	28	160	196	30	27	34	33	152
95th Queue (ft)	72	188	196	10	134	327	368	60	64	86	75	163
Link Distance (ft)		548	548	548		1958	1958			400		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	255				315			440	130		60	105
Storage Blk Time (%)						1	1			6	1	92
Queuing Penalty (veh)						1	1			6	1	29

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	323	126
Average Queue (ft)	262	41
95th Queue (ft)	346	98
Link Distance (ft)	260	260
Upstream Blk Time (%)	84	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	65	184	236	13	149	1318	287	64	81	84	243	50
Average Queue (ft)	25	39	54	1	10	187	168	19	24	31	78	14
95th Queue (ft)	57	118	135	6	56	543	242	46	60	68	142	39
Link Distance (ft)		532	532			1246	1246			241	286	286
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						1						
Storage Bay Dist (ft)	180			425	100			950	45			
Storage Blk Time (%)		0				13			12	13		
Queuing Penalty (veh)		0				3			5	4		

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB
Directions Served	R
Maximum Queue (ft)	73
Average Queue (ft)	45
95th Queue (ft)	72
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	105
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	29	55
Average Queue (ft)	6	29
95th Queue (ft)	25	46
Link Distance (ft)	146	112
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B597	B597
Directions Served	L	L	T	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	52	74	311	309	292	205	445	918	918	500	755	738
Average Queue (ft)	18	37	115	123	10	118	402	881	885	317	356	370
95th Queue (ft)	45	66	210	221	96	179	580	981	973	664	752	769
Link Distance (ft)			1246	1246				828	828		864	864
Upstream Blk Time (%)								39	45			
Queuing Penalty (veh)								405	469			
Storage Bay Dist (ft)	460	460			250	395	395			450		
Storage Blk Time (%)				1				53	56			
Queuing Penalty (veh)				1				177	79			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	340	365	756	745	708	151	270	506	517
Average Queue (ft)	339	364	713	525	46	58	212	378	383
95th Queue (ft)	341	365	733	879	327	135	344	546	548
Link Distance (ft)			693	693	693			454	454
Upstream Blk Time (%)			93	1	0			19	18
Queuing Penalty (veh)			0	0	0			0	0
Storage Bay Dist (ft)	315	315				220	220		
Storage Blk Time (%)	26	89	0					44	
Queuing Penalty (veh)	86	293	1					78	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	R	L	T	T	R	L	T
Maximum Queue (ft)	111	111	90	128	129	14	511	509	475	72	73	73
Average Queue (ft)	28	38	44	42	57	5	119	211	226	23	33	31
95th Queue (ft)	76	84	82	100	114	15	263	386	400	52	70	63
Link Distance (ft)			864	864	864			1198	1198			393
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	260	260				450	470			590	115	
Storage Blk Time (%)								0				
Queuing Penalty (veh)								0				

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	L	T	R
Maximum Queue (ft)	54	125	154	135	141
Average Queue (ft)	28	15	65	20	41
95th Queue (ft)	47	57	127	62	92
Link Distance (ft)				378	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	115	120	120		110
Storage Blk Time (%)		0	1	0	1
Queuing Penalty (veh)		0	1	0	1

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	B672	B672	NB	NB
Directions Served	L	T	T	T	R	L	T	TR	T	T	L	TR
Maximum Queue (ft)	49	102	120	133	25	218	276	267	946	987	78	97
Average Queue (ft)	11	43	50	63	3	93	63	80	32	68	28	47
95th Queue (ft)	35	96	105	127	16	189	193	210	312	473	69	76
Link Distance (ft)		1198	1198	1198	1198		928	928	964	964		403
Upstream Blk Time (%)									0	0		
Queuing Penalty (veh)									0	3		
Storage Bay Dist (ft)	150					305					85	
Storage Blk Time (%)											0	0
Queuing Penalty (veh)											0	0

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	71	31
Average Queue (ft)	19	11
95th Queue (ft)	53	35
Link Distance (ft)		266
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Queuing and Blocking Report
AM 2050

2050 AM Peak Hour
No Action

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B636	B636
Directions Served	L	L	T	T	T	L	L	T	T	R	T	T
Maximum Queue (ft)	134	158	201	238	264	262	433	525	543	434	1380	1392
Average Queue (ft)	56	71	120	155	175	83	329	504	504	303	1316	1323
95th Queue (ft)	108	121	212	242	241	168	579	538	548	631	1600	1546
Link Distance (ft)			964	964	964			434	434		1340	1340
Upstream Blk Time (%)						1	33	33	1	44	41	
Queuing Penalty (veh)						0	0	0	0	0	0	
Storage Bay Dist (ft)	400	400				400	400			415		
Storage Blk Time (%)						0	36	34	1			
Queuing Penalty (veh)						0	78	74	6			

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB
Directions Served	L	T	L	L	T
Maximum Queue (ft)	109	74	380	410	160
Average Queue (ft)	40	36	136	183	74
95th Queue (ft)	87	70	270	299	138
Link Distance (ft)		901		1046	1046
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100		335		
Storage Blk Time (%)	1		1	2	
Queuing Penalty (veh)	3		1	2	

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 5367

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	7.8	24.7	50.0	1.8	0.5	1.0	0.1	1.5	0.5	16.5	164.2	1.5
Denied Del/Veh (s)	487.2	510.2	526.0	20.8	15.6	19.0	1.8	2.9	2.6	289.8	291.7	344.7
Total Delay (hr)	2.0	8.5	3.7	14.3	4.6	3.8	4.7	16.5	2.6	6.8	45.1	0.1
Total Del/Veh (s)	215.1	247.4	54.6	176.4	145.0	77.0	108.3	31.8	14.6	143.2	95.0	32.9
Stop Delay (hr)	2.0	8.1	3.3	13.7	4.2	3.5	4.3	10.8	0.8	5.9	35.1	0.1
Stop Del/Veh (s)	207.9	238.1	47.8	169.2	133.8	69.6	101.0	20.9	4.5	123.2	74.0	26.7
Total Stops	58	173	85	432	103	100	176	919	145	257	1928	5
Stop/Veh	1.71	1.41	0.35	1.48	0.90	0.56	1.14	0.49	0.23	1.49	1.13	0.45
Travel Dist (mi)	2.1	7.7	11.8	23.2	9.4	11.4	15.5	188.2	56.0	25.8	261.3	1.5
Travel Time (hr)	10.0	33.3	54.1	17.0	5.4	5.3	5.3	23.2	5.0	24.2	216.8	1.7
Avg Speed (mph)	1	1	3	2	2	3	3	9	12	3	5	10
Fuel Used (gal)	2.4	7.6	12.3	4.5	1.5	1.4	1.7	12.6	2.7	6.1	56.6	0.4
Fuel Eff. (mpg)	0.9	1.0	1.0	5.1	6.4	7.9	9.0	15.0	20.6	4.2	4.6	3.5
HC Emissions (g)	0	91	153	37	6	14	22	158	38	38	420	9
CO Emissions (g)	123	1471	2447	799	180	316	475	4296	852	818	8889	158
NOx Emissions (g)	3	81	134	66	12	26	40	518	122	56	704	12
Vehicles Entered	34	123	238	290	114	179	151	1827	628	163	1653	11
Vehicles Exited	33	122	236	274	114	179	154	1842	624	166	1645	10
Hourly Exit Rate	33	122	236	274	114	179	154	1842	624	166	1645	10
Input Volume	59	151	332	307	116	185	162	2006	667	215	1986	23
% of Volume	56	81	71	89	98	97	95	92	94	77	83	43
Density (ft/veh)												
Occupancy (veh)	2	9	4	15	5	4	5	22	5	8	53	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	270.0
Denied Del/Veh (s)	160.6
Total Delay (hr)	112.7
Total Del/Veh (s)	73.4
Stop Delay (hr)	91.8
Stop Del/Veh (s)	59.8
Total Stops	4381
Stop/Veh	0.79
Travel Dist (mi)	613.9
Travel Time (hr)	401.3
Avg Speed (mph)	5
Fuel Used (gal)	109.9
Fuel Eff. (mpg)	5.6
HC Emissions (g)	987
CO Emissions (g)	20823
NOx Emissions (g)	1775
Vehicles Entered	5411
Vehicles Exited	5399
Hourly Exit Rate	5399
Input Volume	6209
% of Volume	87
Density (ft/veh)	63
Occupancy (veh)	131

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	12.4	212.3	0.0	0.0	224.7
Denied Del/Veh (s)	0.0	0.0	344.7	343.2	0.0	0.0	161.9
Total Delay (hr)	0.1	0.2	3.9	40.2	4.5	3.1	52.1
Total Del/Veh (s)	1.9	3.7	115.9	70.2	8.7	39.5	38.8
Stop Delay (hr)	0.0	0.1	3.3	26.7	1.8	2.6	34.5
Stop Del/Veh (s)	0.0	2.4	98.1	46.6	3.5	32.3	25.7
Total Stops	1	37	173	1788	157	74	2230
Stop/Veh	0.00	0.17	1.44	0.87	0.08	0.26	0.46
Travel Dist (mi)	5.7	28.5	17.0	278.8	165.3	20.6	516.0
Travel Time (hr)	0.4	1.7	16.9	260.5	9.1	3.9	292.5
Avg Speed (mph)	15	17	4	6	18	5	8
Fuel Used (gal)	0.1	1.4	4.4	65.8	11.8	1.5	84.9
Fuel Eff. (mpg)	60.0	20.1	3.9	4.2	14.1	14.2	6.1
HC Emissions (g)	0	14	4	179	231	5	433
CO Emissions (g)	10	828	377	5771	9177	234	16397
NOx Emissions (g)	1	49	19	315	750	26	1160
Vehicles Entered	270	216	120	1993	1871	284	4754
Vehicles Exited	270	217	113	2014	1861	272	4747
Hourly Exit Rate	270	217	113	2014	1861	272	4747
Input Volume	301	231	127	2226	2239	386	5510
% of Volume	90	94	89	90	83	70	86
Density (ft/veh)							68
Occupancy (veh)	0	2	4	48	9	4	68

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	1.9	1.9	4.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	1.7	0.0	0.0	0.0	0.0	51.1	48.0	61.9	1.4	0.0	0.2
Total Delay (hr)	0.0	6.2	0.1	1.3	1.7	0.2	0.8	3.0	5.0	3.3	0.8	0.5
Total Del/Veh (s)	6.9	97.3	3.4	35.7	16.8	9.0	22.4	81.9	86.9	146.5	31.1	42.5
Stop Delay (hr)	0.0	6.0	0.1	1.2	1.4	0.2	0.7	2.9	5.0	3.2	0.7	0.5
Stop Del/Veh (s)	5.0	93.8	3.0	32.8	13.8	8.0	19.9	78.6	87.3	144.4	27.5	40.7
Total Stops	4	170	49	109	163	40	93	81	140	73	73	31
Stop/Veh	0.57	0.74	0.60	0.83	0.45	0.57	0.75	0.62	0.67	0.90	0.80	0.74
Travel Dist (mi)	0.3	9.6	3.5	19.4	50.4	10.3	5.3	5.6	9.0	10.8	12.9	5.9
Travel Time (hr)	0.0	6.6	0.3	1.9	3.1	0.5	2.9	5.1	9.5	3.7	1.2	0.7
Avg Speed (mph)	12	1	13	10	16	19	5	2	2	3	11	8
Fuel Used (gal)	0.0	1.7	0.1	0.7	1.5	0.3	0.8	1.3	2.3	1.1	0.5	0.3
Fuel Eff. (mpg)	26.9	5.7	43.6	25.9	32.5	37.5	6.8	4.3	3.8	10.1	23.7	21.4
HC Emissions (g)	0	1	0	3	15	1	1	3	11	2	5	1
CO Emissions (g)	3	137	18	103	330	32	72	134	283	110	119	44
NOx Emissions (g)	0	7	1	12	47	4	6	10	19	7	13	3
Vehicles Entered	7	227	82	131	355	70	124	129	208	80	91	41
Vehicles Exited	7	217	82	127	356	69	120	127	198	60	85	39
Hourly Exit Rate	7	217	82	127	356	69	120	127	198	60	85	39
Input Volume	13	367	124	154	416	72	123	162	238	74	97	39
% of Volume	54	59	66	82	86	96	98	78	83	81	88	100
Density (ft/veh)												
Occupancy (veh)	0	6	0	2	3	1	1	3	5	4	1	1

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	8.0
Denied Del/Veh (s)	18.0
Total Delay (hr)	22.8
Total Del/Veh (s)	52.7
Stop Delay (hr)	21.8
Stop Del/Veh (s)	50.4
Total Stops	1026
Stop/Veh	0.66
Travel Dist (mi)	142.9
Travel Time (hr)	35.6
Avg Speed (mph)	5
Fuel Used (gal)	10.7
Fuel Eff. (mpg)	13.4
HC Emissions (g)	42
CO Emissions (g)	1384
NOx Emissions (g)	129
Vehicles Entered	1545
Vehicles Exited	1487
Hourly Exit Rate	1487
Input Volume	1879
% of Volume	79
Density (ft/veh)	248
Occupancy (veh)	28

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	3.6	0.5	0.9
Total Delay (hr)	0.1	0.1	0.3	0.0	0.1	0.0	0.6
Total Del/Veh (s)	8.0	3.9	5.5	2.0	3.3	0.9	3.5
Stop Delay (hr)	0.0	0.0	0.2	0.0	0.0	0.0	0.3
Stop Del/Veh (s)	6.4	3.3	3.7	0.7	1.0	0.0	2.0
Total Stops	25	48	1	0	30	0	104
Stop/Veh	1.00	0.98	0.01	0.00	0.27	0.00	0.18
Travel Dist (mi)	2.0	3.9	29.5	2.5	8.0	12.8	58.7
Travel Time (hr)	0.1	0.2	1.3	0.1	0.5	0.5	2.9
Avg Speed (mph)	14	17	22	22	19	27	22
Fuel Used (gal)	0.1	0.1	1.3	0.1	0.3	0.4	2.3
Fuel Eff. (mpg)	33.8	34.8	22.0	23.6	29.2	28.4	25.1
HC Emissions (g)	0	1	12	1	3	5	21
CO Emissions (g)	9	23	470	35	92	155	783
NOx Emissions (g)	1	3	46	3	10	15	78
Vehicles Entered	24	49	191	16	112	180	572
Vehicles Exited	25	48	190	16	113	179	571
Hourly Exit Rate	25	48	190	16	113	179	571
Input Volume	31	48	242	17	101	170	609
% of Volume	81	100	79	94	112	105	94
Density (ft/veh)							731
Occupancy (veh)	0	0	1	0	0	0	3

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.1	6.6	0.0	0.0	0.0	0.4	1.4	8.5
Denied Del/Veh (s)	16.7	54.6	0.0	0.0	0.0	84.5	389.1	27.6
Total Delay (hr)	0.3	16.0	1.0	0.1	0.0	4.0	1.1	22.5
Total Del/Veh (s)	58.6	139.6	221.7	0.9	0.5	1036.0	764.5	74.6
Stop Delay (hr)	0.3	16.2	1.0	0.0	0.0	4.0	1.1	22.5
Stop Del/Veh (s)	57.3	141.0	219.9	0.0	0.0	1034.0	762.9	74.6
Total Stops	7	75	13	0	0	12	5	112
Stop/Veh	0.44	0.18	0.81	0.00	0.00	0.86	1.00	0.10
Travel Dist (mi)	0.8	19.5	4.4	160.5	5.6	0.4	0.2	191.3
Travel Time (hr)	0.4	23.1	1.1	4.8	0.2	4.5	2.5	36.5
Avg Speed (mph)	3	1	4	34	31	0	0	7
Fuel Used (gal)	0.1	5.5	0.3	4.3	0.1	1.0	0.6	12.0
Fuel Eff. (mpg)	7.7	3.5	13.2	37.0	40.7	0.4	0.3	15.9
HC Emissions (g)	0	54	0	50	1	0	0	105
CO Emissions (g)	8	974	24	975	12	50	28	2071
NOx Emissions (g)	1	52	2	172	2	0	0	230
Vehicles Entered	15	413	16	589	21	14	5	1073
Vehicles Exited	16	389	10	594	19	6	3	1037
Hourly Exit Rate	16	389	10	594	19	6	3	1037
Input Volume	25	679	14	677	22	20	12	1449
% of Volume	64	57	71	88	86	30	25	72
Density (ft/veh)								191
Occupancy (veh)	0	17	1	5	0	4	1	28

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	8.0	275.6	15.5	0.0	0.0	0.0	0.1	0.0	0.0	36.0	2.9	0.6
Denied Del/Veh (s)	686.8	771.5	735.6	0.0	0.0	0.0	3.9	0.3	0.5	355.6	311.5	141.1
Total Delay (hr)	2.0	69.6	0.4	0.7	3.6	1.3	0.5	1.5	0.1	22.7	0.5	0.1
Total Del/Veh (s)	302.5	286.1	39.4	107.7	17.6	8.7	31.7	86.7	10.4	255.9	66.9	18.2
Stop Delay (hr)	2.0	68.3	0.4	0.7	2.8	0.0	0.5	1.5	0.1	22.3	0.5	0.1
Stop Del/Veh (s)	296.9	280.8	33.8	103.9	14.1	0.1	29.0	83.1	8.1	251.7	62.2	17.0
Total Stops	29	552	41	28	179	6	54	66	9	171	26	4
Stop/Veh	1.21	0.63	1.02	1.12	0.25	0.01	0.92	1.03	0.32	0.54	0.90	0.27
Travel Dist (mi)	3.6	129.5	6.4	7.4	184.7	149.7	4.6	5.0	1.9	21.3	2.0	1.0
Travel Time (hr)	10.1	348.5	16.2	1.0	8.9	5.8	0.8	1.7	0.2	59.5	3.5	0.7
Avg Speed (mph)	2	2	10	7	21	26	6	3	12	1	3	8
Fuel Used (gal)	2.4	82.2	4.0	0.4	6.3	4.3	0.3	0.5	0.1	14.1	0.8	0.1
Fuel Eff. (mpg)	1.5	1.6	1.6	19.7	29.4	35.0	14.3	9.5	23.3	1.5	2.5	9.6
HC Emissions (g)	0	164	9	1	66	52	1	2	1	13	16	0
CO Emissions (g)	143	6230	472	38	1892	1257	70	90	26	883	229	4
NOx Emissions (g)	3	193	16	4	224	171	6	8	2	28	12	0
Vehicles Entered	22	795	40	25	715	541	59	64	28	297	29	15
Vehicles Exited	23	799	39	25	716	539	59	62	28	296	29	15
Hourly Exit Rate	23	799	39	25	716	539	59	62	28	296	29	15
Input Volume	32	1281	60	24	896	611	55	70	44	687	66	35
% of Volume	72	62	65	104	80	88	107	89	64	43	44	43
Density (ft/veh)												
Occupancy (veh)	2	73	1	1	9	6	1	2	0	23	1	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	338.8
Denied Del/Veh (s)	375.2
Total Delay (hr)	103.1
Total Del/Veh (s)	135.0
Stop Delay (hr)	99.2
Stop Del/Veh (s)	129.8
Total Stops	1165
Stop/Veh	0.42
Travel Dist (mi)	517.3
Travel Time (hr)	457.0
Avg Speed (mph)	4
Fuel Used (gal)	115.4
Fuel Eff. (mpg)	4.5
HC Emissions (g)	324
CO Emissions (g)	11333
NOx Emissions (g)	668
Vehicles Entered	2630
Vehicles Exited	2630
Hourly Exit Rate	2630
Input Volume	3861
% of Volume	68
Density (ft/veh)	95
Occupancy (veh)	118

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	27.8	123.2	14.0	0.0	0.0	0.0	17.5	46.3	27.8	27.5	39.8	34.8
Denied Del/Veh (s)	427.9	429.4	472.6	0.4	0.1	0.2	467.0	446.8	494.6	419.8	401.2	407.3
Total Delay (hr)	13.6	7.0	0.3	5.1	5.5	0.1	2.5	9.7	0.6	5.7	11.4	3.6
Total Del/Veh (s)	232.4	29.5	13.7	106.8	21.9	2.5	82.3	113.0	12.8	92.3	124.5	45.6
Stop Delay (hr)	13.2	5.6	0.3	4.8	3.6	0.1	2.4	9.1	0.4	5.5	10.7	3.3
Stop Del/Veh (s)	226.9	23.9	10.6	99.5	14.2	1.8	77.6	106.5	8.5	88.1	116.8	41.8
Total Stops	302	412	49	220	385	46	122	312	40	282	436	360
Stop/Veh	1.44	0.49	0.56	1.28	0.43	0.32	1.10	1.01	0.24	1.26	1.32	1.28
Travel Dist (mi)	11.0	48.3	5.0	20.1	112.5	17.7	5.6	15.4	7.1	16.2	23.4	20.5
Travel Time (hr)	41.8	131.5	14.6	5.8	8.4	0.7	20.3	56.5	28.6	34.0	52.2	39.4
Avg Speed (mph)	1	6	9	3	13	25	2	2	8	3	2	5
Fuel Used (gal)	10.1	32.1	3.4	1.7	4.4	0.5	4.8	13.4	6.7	8.2	12.7	9.5
Fuel Eff. (mpg)	1.1	1.5	1.5	11.6	25.5	34.9	1.2	1.2	1.1	2.0	1.8	2.2
HC Emissions (g)	21	24	37	12	48	5	10	27	30	16	18	28
CO Emissions (g)	766	2301	605	347	1603	281	381	982	720	665	870	862
NOx Emissions (g)	35	98	30	32	155	16	16	37	34	31	37	46
Vehicles Entered	195	844	86	156	890	141	107	297	163	220	316	278
Vehicles Exited	195	842	87	168	896	143	108	296	164	215	317	275
Hourly Exit Rate	195	842	87	168	896	143	108	296	164	215	317	275
Input Volume	381	1632	153	178	1095	165	144	339	179	198	309	292
% of Volume	51	52	57	94	82	87	75	87	92	109	103	94
Density (ft/veh)												
Occupancy (veh)	14	8	1	6	8	1	3	10	1	6	12	5

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	358.8
Denied Del/Veh (s)	309.6
Total Delay (hr)	65.1
Total Del/Veh (s)	61.9
Stop Delay (hr)	58.9
Stop Del/Veh (s)	56.0
Total Stops	2966
Stop/Veh	0.78
Travel Dist (mi)	302.7
Travel Time (hr)	433.8
Avg Speed (mph)	4
Fuel Used (gal)	107.5
Fuel Eff. (mpg)	2.8
HC Emissions (g)	275
CO Emissions (g)	10382
NOx Emissions (g)	565
Vehicles Entered	3693
Vehicles Exited	3706
Hourly Exit Rate	3706
Input Volume	5065
% of Volume	73
Density (ft/veh)	85
Occupancy (veh)	75

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.1	0.3	4.1	0.4	0.2
Total Delay (hr)	0.1	1.8	0.1	0.2	1.0	0.0	0.6	0.1	0.3	0.6	0.1	0.1
Total Del/Veh (s)	20.6	5.7	4.5	17.7	3.2	1.0	56.7	56.2	12.2	60.2	47.6	11.8
Stop Delay (hr)	0.1	0.2	0.0	0.2	0.1	0.0	0.6	0.1	0.2	0.6	0.1	0.1
Stop Del/Veh (s)	15.1	0.5	0.3	14.3	0.4	0.1	54.8	54.1	11.7	58.3	45.2	11.2
Total Stops	26	121	6	31	37	1	33	5	70	36	6	22
Stop/Veh	1.08	0.10	0.11	0.70	0.03	0.04	0.89	1.00	0.92	0.95	0.75	0.85
Travel Dist (mi)	3.2	152.7	7.1	5.3	128.1	3.1	1.9	0.3	4.1	1.7	0.4	1.1
Travel Time (hr)	0.3	6.2	0.3	0.4	4.3	0.1	0.7	0.1	0.5	0.8	0.1	0.1
Avg Speed (mph)	13	25	22	14	30	27	3	3	9	2	3	8
Fuel Used (gal)	0.2	8.4	0.4	0.2	5.1	0.1	0.2	0.0	0.2	0.2	0.0	0.0
Fuel Eff. (mpg)	17.8	18.2	19.7	24.1	25.0	28.2	9.5	10.5	24.4	8.1	10.7	26.0
HC Emissions (g)	1	102	3	1	73	3	2	0	1	0	0	0
CO Emissions (g)	73	4897	243	83	2910	110	42	2	38	17	3	6
NOx Emissions (g)	5	395	12	6	261	8	3	0	4	1	0	1
Vehicles Entered	24	1145	52	43	1080	26	36	5	76	38	8	25
Vehicles Exited	24	1140	53	42	1079	26	37	5	75	36	8	26
Hourly Exit Rate	24	1140	53	42	1079	26	37	5	75	36	8	26
Input Volume	33	1900	76	46	1352	29	38	5	75	36	7	25
% of Volume	73	60	70	91	80	90	97	100	100	100	114	104
Density (ft/veh)												
Occupancy (veh)	0	6	0	0	4	0	1	0	0	1	0	0

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	4.9
Total Del/Veh (s)	6.9
Stop Delay (hr)	2.2
Stop Del/Veh (s)	3.1
Total Stops	394
Stop/Veh	0.15
Travel Dist (mi)	308.9
Travel Time (hr)	13.8
Avg Speed (mph)	22
Fuel Used (gal)	15.1
Fuel Eff. (mpg)	20.5
HC Emissions (g)	187
CO Emissions (g)	8424
NOx Emissions (g)	697
Vehicles Entered	2558
Vehicles Exited	2551
Hourly Exit Rate	2551
Input Volume	3622
% of Volume	70
Density (ft/veh)	454
Occupancy (veh)	14

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	183.6	31.1	58.8
Denied Del/Veh (s)	0.0	0.0	0.0	0.8	0.1	0.8	3.9	0.7	3.7	1472.2	1434.5	1523.0
Total Delay (hr)	0.1	1.4	0.0	0.6	3.2	0.4	0.4	0.6	0.4	10.6	1.1	0.4
Total Del/Veh (s)	11.3	4.4	0.9	22.2	10.8	5.7	47.8	59.4	16.9	217.2	152.7	24.5
Stop Delay (hr)	0.1	0.6	0.0	0.5	1.1	0.1	0.4	0.6	0.4	10.5	1.1	0.4
Stop Del/Veh (s)	8.7	1.9	0.5	18.1	3.8	0.9	45.8	56.3	16.2	215.5	150.6	24.2
Total Stops	30	111	3	82	224	50	26	35	89	114	28	55
Stop/Veh	0.79	0.10	0.09	0.83	0.21	0.20	0.81	0.90	0.95	0.65	1.08	0.89
Travel Dist (mi)	4.5	135.0	4.0	32.5	360.9	87.8	2.4	2.9	7.2	8.1	1.2	3.1
Travel Time (hr)	0.3	5.0	0.1	1.4	10.5	2.6	0.6	0.8	0.9	194.6	32.2	59.4
Avg Speed (mph)	17	27	28	24	34	34	5	4	9	1	1	5
Fuel Used (gal)	0.2	5.1	0.1	1.0	10.3	2.3	0.2	0.2	0.4	44.7	7.4	13.7
Fuel Eff. (mpg)	27.3	26.4	29.5	33.4	35.1	37.6	13.3	12.4	19.5	0.2	0.2	0.2
HC Emissions (g)	1	53	1	11	137	21	4	2	4	75	41	5
CO Emissions (g)	58	2244	94	444	5345	1030	78	41	108	3018	848	710
NOx Emissions (g)	4	215	4	44	538	96	9	4	12	61	32	5
Vehicles Entered	38	1153	34	97	1054	252	31	37	94	165	25	62
Vehicles Exited	38	1154	34	97	1058	251	30	39	93	165	25	61
Hourly Exit Rate	38	1154	34	97	1058	251	30	39	93	165	25	61
Input Volume	55	1844	58	108	1275	325	30	32	106	334	66	122
% of Volume	69	63	59	90	83	77	100	122	88	49	38	50
Density (ft/veh)												
Occupancy (veh)	0	5	0	1	10	3	1	1	1	11	1	1

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	273.7
Denied Del/Veh (s)	285.1
Total Delay (hr)	19.4
Total Del/Veh (s)	22.7
Stop Delay (hr)	15.9
Stop Del/Veh (s)	18.5
Total Stops	847
Stop/Veh	0.27
Travel Dist (mi)	649.8
Travel Time (hr)	308.3
Avg Speed (mph)	19
Fuel Used (gal)	85.6
Fuel Eff. (mpg)	7.6
HC Emissions (g)	354
CO Emissions (g)	14018
NOx Emissions (g)	1024
Vehicles Entered	3042
Vehicles Exited	3045
Hourly Exit Rate	3045
Input Volume	4355
% of Volume	70
Density (ft/veh)	356
Occupancy (veh)	35

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.4	3.4
Total Delay (hr)	0.4	1.8	0.0	0.1	3.0	0.2	0.6	0.6	0.4	2.7	0.7	0.2
Total Del/Veh (s)	14.6	5.2	1.1	14.9	11.6	5.4	58.8	35.1	38.2	57.9	56.9	5.2
Stop Delay (hr)	0.3	0.8	0.0	0.1	1.0	0.0	0.6	0.6	0.4	2.6	0.6	0.2
Stop Del/Veh (s)	12.6	2.2	0.7	10.9	4.0	1.0	56.8	33.9	38.1	54.3	54.0	4.0
Total Stops	78	169	8	25	194	28	40	28	37	171	37	136
Stop/Veh	0.80	0.14	0.17	0.71	0.21	0.27	1.11	0.47	0.90	1.01	0.86	0.88
Travel Dist (mi)	10.7	128.8	5.2	8.3	233.1	25.7	1.7	2.1	1.8	9.3	2.3	8.4
Travel Time (hr)	0.7	4.4	0.2	0.4	8.2	0.9	0.7	0.7	0.6	3.2	0.8	0.8
Avg Speed (mph)	15	29	28	22	29	30	2	3	3	3	3	13
Fuel Used (gal)	0.3	3.9	0.1	0.3	10.5	1.2	0.2	0.2	0.2	1.0	0.2	0.4
Fuel Eff. (mpg)	36.2	32.9	40.2	25.9	22.1	21.6	7.3	8.4	9.6	9.0	10.4	22.6
HC Emissions (g)	1	42	2	2	139	11	1	5	4	4	2	4
CO Emissions (g)	76	1841	93	172	7476	887	31	102	76	170	44	130
NOx Emissions (g)	6	174	6	11	512	43	4	11	9	17	4	15
Vehicles Entered	96	1245	46	33	925	102	36	58	39	169	43	153
Vehicles Exited	96	1240	46	31	937	104	36	58	40	170	43	155
Hourly Exit Rate	96	1240	46	31	937	104	36	58	40	170	43	155
Input Volume	148	2012	83	42	1253	161	33	63	47	173	41	152
% of Volume	65	62	55	74	75	65	109	92	85	98	105	102
Density (ft/veh)												
Occupancy (veh)	1	4	0	0	8	1	1	1	1	3	1	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	10.8
Total Del/Veh (s)	13.1
Stop Delay (hr)	7.2
Stop Del/Veh (s)	8.8
Total Stops	951
Stop/Veh	0.32
Travel Dist (mi)	437.4
Travel Time (hr)	21.4
Avg Speed (mph)	21
Fuel Used (gal)	18.7
Fuel Eff. (mpg)	23.4
HC Emissions (g)	216
CO Emissions (g)	11096
NOx Emissions (g)	811
Vehicles Entered	2945
Vehicles Exited	2956
Hourly Exit Rate	2956
Input Volume	4208
% of Volume	70
Density (ft/veh)	410
Occupancy (veh)	21

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
Total Del/Veh (s)	5.1	6.0	5.3	3.2	0.3	0.3	0.2	2.2
Stop Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	3.6	3.5	3.3	2.6	0.3	0.0	0.3	1.7
Total Stops	28	13	10	105	2	0	0	158
Stop/Veh	1.00	1.00	1.00	0.99	0.02	0.00	0.00	0.54
Travel Dist (mi)	1.5	0.7	0.3	3.6	6.2	0.0	0.4	12.8
Travel Time (hr)	0.1	0.1	0.0	0.3	0.6	0.0	0.0	1.1
Avg Speed (mph)	14	14	12	12	10	12	11	11
Fuel Used (gal)	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.5
Fuel Eff. (mpg)	41.6	35.5	39.2	34.7	20.5	37.7	21.3	26.1
HC Emissions (g)	0	0	0	1	2	0	0	3
CO Emissions (g)	7	2	1	16	59	0	2	88
NOx Emissions (g)	1	0	0	2	8	0	0	11
Vehicles Entered	28	13	10	105	126	1	9	292
Vehicles Exited	28	13	10	105	125	1	9	291
Hourly Exit Rate	28	13	10	105	125	1	9	291
Input Volume	40	14	9	103	155	1	21	343
% of Volume	70	93	111	102	81	100	43	85
Density (ft/veh)								789
Occupancy (veh)	0	0	0	0	1	0	0	1

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	59.7	172.8	97.7	120.2	240.6	32.8
Denied Del/Veh (s)	0.3	0.0	0.2	1.2	0.0	0.0	695.0	706.2	676.7	976.7	984.3	959.1
Total Delay (hr)	3.4	6.9	0.4	50.9	10.7	1.7	16.2	47.8	1.6	26.0	14.9	2.3
Total Del/Veh (s)	78.3	25.0	8.4	567.1	51.0	26.8	239.2	244.9	16.4	311.2	104.4	111.0
Stop Delay (hr)	3.1	3.9	0.0	49.4	6.3	0.7	15.1	43.9	0.6	25.3	13.0	2.1
Stop Del/Veh (s)	71.8	14.1	0.1	550.4	30.2	10.8	223.1	225.0	6.0	302.9	91.3	102.0
Total Stops	136	438	5	427	408	100	425	1222	75	446	582	75
Stop/Veh	0.87	0.44	0.03	1.32	0.54	0.44	1.74	1.74	0.22	1.48	1.14	1.01
Travel Dist (mi)	36.1	240.1	41.6	45.5	124.5	37.8	29.0	85.8	42.6	23.5	44.0	6.5
Travel Time (hr)	4.4	12.1	1.5	52.2	13.2	2.8	76.8	222.8	100.7	147.0	256.6	35.3
Avg Speed (mph)	8	20	28	1	9	13	2	2	15	1	3	3
Fuel Used (gal)	2.0	9.3	1.3	13.0	7.8	1.8	18.4	53.1	24.0	34.4	59.8	8.3
Fuel Eff. (mpg)	18.1	25.9	32.7	3.5	15.9	21.6	1.6	1.6	1.8	0.7	0.7	0.8
HC Emissions (g)	20	112	17	49	70	11	58	117	98	51	134	0
CO Emissions (g)	957	5323	742	1334	3600	650	1706	4088	2737	2290	4607	408
NOx Emissions (g)	63	389	59	79	250	46	74	165	131	59	150	4
Vehicles Entered	147	997	177	288	751	229	222	648	348	270	504	74
Vehicles Exited	153	996	176	266	743	228	217	651	346	270	502	74
Hourly Exit Rate	153	996	176	266	743	228	217	651	346	270	502	74
Input Volume	228	1444	269	384	1003	304	300	879	482	415	795	125
% of Volume	67	69	65	69	74	75	72	74	72	65	63	59
Density (ft/veh)												
Occupancy (veh)	4	12	2	52	13	3	17	50	3	27	16	3

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	723.9
Denied Del/Veh (s)	453.6
Total Delay (hr)	182.8
Total Del/Veh (s)	136.5
Stop Delay (hr)	163.5
Stop Del/Veh (s)	122.1
Total Stops	4339
Stop/Veh	0.90
Travel Dist (mi)	757.0
Travel Time (hr)	925.4
Avg Speed (mph)	4
Fuel Used (gal)	233.1
Fuel Eff. (mpg)	3.2
HC Emissions (g)	738
CO Emissions (g)	28441
NOx Emissions (g)	1469
Vehicles Entered	4655
Vehicles Exited	4622
Hourly Exit Rate	4622
Input Volume	6628
% of Volume	70
Density (ft/veh)	79
Occupancy (veh)	201

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	8.4	5.0	10.0	9.1	1.5	3.5
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	278.5	312.1	239.7	94.0	79.0	85.1
Total Delay (hr)	3.3	2.4	0.0	14.5	57.9	4.0	8.1	2.1	2.3	11.5	2.5	3.4
Total Del/Veh (s)	76.9	6.0	2.3	314.8	179.1	69.7	309.7	156.7	70.7	112.0	131.0	78.5
Stop Delay (hr)	3.1	0.9	0.0	13.6	50.9	3.2	8.0	2.1	2.3	10.8	2.4	3.2
Stop Del/Veh (s)	73.0	2.4	1.0	295.9	157.7	54.9	307.2	151.8	68.6	105.6	123.7	74.4
Total Stops	137	158	10	292	1513	212	79	57	117	502	87	191
Stop/Veh	0.90	0.11	0.15	1.76	1.30	1.01	0.84	1.16	0.98	1.36	1.26	1.24
Travel Dist (mi)	25.8	236.8	11.2	36.3	265.1	49.1	6.5	3.5	8.6	25.6	4.9	10.9
Travel Time (hr)	4.0	7.2	0.4	15.4	63.3	5.4	16.8	7.3	12.7	21.7	4.2	7.4
Avg Speed (mph)	6	33	31	2	4	9	1	2	3	2	2	3
Fuel Used (gal)	1.3	7.0	0.3	4.3	20.0	2.6	4.0	1.8	3.1	5.7	1.1	2.0
Fuel Eff. (mpg)	19.7	33.8	40.1	8.4	13.3	18.9	1.6	2.0	2.8	4.5	4.4	5.5
HC Emissions (g)	5	82	2	14	89	16	23	1	19	18	4	4
CO Emissions (g)	253	3562	156	589	3378	1068	495	103	431	568	123	185
NOx Emissions (g)	19	334	9	39	268	62	24	4	28	43	10	14
Vehicles Entered	147	1394	64	155	1156	206	91	48	117	350	68	149
Vehicles Exited	148	1392	64	153	1084	203	83	47	114	358	69	152
Hourly Exit Rate	148	1392	64	153	1084	203	83	47	114	358	69	152
Input Volume	212	2022	107	172	1478	241	107	63	166	364	67	146
% of Volume	70	69	60	89	73	84	78	75	69	98	103	104
Density (ft/veh)												
Occupancy (veh)	4	7	0	15	63	5	8	2	3	13	3	4

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	37.6
Denied Del/Veh (s)	33.8
Total Delay (hr)	112.0
Total Del/Veh (s)	100.5
Stop Delay (hr)	100.5
Stop Del/Veh (s)	90.2
Total Stops	3355
Stop/Veh	0.84
Travel Dist (mi)	684.1
Travel Time (hr)	165.7
Avg Speed (mph)	5
Fuel Used (gal)	53.2
Fuel Eff. (mpg)	12.9
HC Emissions (g)	277
CO Emissions (g)	10912
NOx Emissions (g)	853
Vehicles Entered	3945
Vehicles Exited	3867
Hourly Exit Rate	3867
Input Volume	5145
% of Volume	75
Density (ft/veh)	101
Occupancy (veh)	128

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.1	0.4	4.0	0.2	0.7
Total Delay (hr)	0.1	4.7	0.0	4.3	44.2	0.8	1.1	0.0	0.6	1.1	0.3	0.2
Total Del/Veh (s)	50.6	9.5	3.3	136.2	103.1	82.6	72.4	16.8	12.2	65.9	94.8	50.7
Stop Delay (hr)	0.1	2.0	0.0	3.9	38.7	0.7	1.1	0.0	0.6	1.1	0.3	0.2
Stop Del/Veh (s)	47.4	4.1	2.1	123.6	90.3	75.5	70.3	13.6	11.2	62.9	90.6	50.1
Total Stops	5	289	11	143	712	18	50	1	187	59	12	12
Stop/Veh	1.00	0.16	0.26	1.25	0.46	0.55	0.93	1.00	0.98	0.95	1.00	1.00
Travel Dist (mi)	1.2	423.2	10.3	20.3	276.1	5.8	4.0	0.1	14.5	3.3	0.7	0.6
Travel Time (hr)	0.1	14.1	0.3	4.9	49.7	0.9	1.3	0.0	1.4	1.3	0.3	0.2
Avg Speed (mph)	12	30	31	4	6	6	3	10	11	3	2	3
Fuel Used (gal)	0.1	17.3	0.4	1.6	17.2	0.3	0.4	0.0	0.6	0.4	0.1	0.1
Fuel Eff. (mpg)	20.7	24.5	24.2	12.9	16.1	18.5	10.5	26.7	25.7	8.3	7.1	12.0
HC Emissions (g)	0	240	4	10	81	0	2	0	5	2	0	0
CO Emissions (g)	29	11534	298	328	3257	39	71	0	144	73	9	6
NOx Emissions (g)	2	891	15	28	285	3	6	0	16	7	1	0
Vehicles Entered	5	1720	42	109	1517	31	53	1	189	62	12	12
Vehicles Exited	4	1756	41	111	1460	32	53	1	191	57	12	11
Hourly Exit Rate	4	1756	41	111	1460	32	53	1	191	57	12	11
Input Volume	7	2345	63	147	1842	42	49	5	171	50	8	12
% of Volume	57	75	65	76	79	76	108	20	112	114	150	92
Density (ft/veh)												
Occupancy (veh)	0	14	0	5	50	1	1	0	1	1	0	0

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	57.4
Total Del/Veh (s)	53.9
Stop Delay (hr)	48.6
Stop Del/Veh (s)	45.6
Total Stops	1499
Stop/Veh	0.39
Travel Dist (mi)	760.1
Travel Time (hr)	74.7
Avg Speed (mph)	10
Fuel Used (gal)	38.3
Fuel Eff. (mpg)	19.8
HC Emissions (g)	345
CO Emissions (g)	15789
NOx Emissions (g)	1253
Vehicles Entered	3753
Vehicles Exited	3729
Hourly Exit Rate	3729
Input Volume	4741
% of Volume	79
Density (ft/veh)	143
Occupancy (veh)	75

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	4.1	0.4	3.8	0.5	0.7	3.2
Total Delay (hr)	5.3	7.9	0.0	1.4	25.4	0.9	0.1	0.6	0.1	9.2	0.7	0.4
Total Del/Veh (s)	60.1	16.4	5.1	63.7	65.0	12.1	46.1	48.4	1.9	117.1	46.2	4.8
Stop Delay (hr)	4.8	4.2	0.0	1.3	20.0	0.4	0.1	0.6	0.0	8.7	0.6	0.1
Stop Del/Veh (s)	54.3	8.6	0.0	57.4	51.2	5.6	44.4	45.6	0.0	110.0	39.9	0.6
Total Stops	272	669	0	79	974	53	9	41	1	349	47	11
Stop/Veh	0.86	0.39	0.00	0.98	0.69	0.19	0.90	0.89	0.01	1.23	0.84	0.03
Travel Dist (mi)	59.7	330.0	1.3	7.4	128.8	24.1	1.5	7.7	16.9	55.3	11.1	59.9
Travel Time (hr)	6.9	14.6	0.0	1.7	28.0	1.8	0.2	0.9	0.9	10.9	1.0	2.5
Avg Speed (mph)	9	23	29	4	5	14	8	8	22	5	11	28
Fuel Used (gal)	2.5	10.0	0.0	0.6	9.3	1.1	0.1	0.4	0.5	3.9	0.5	1.9
Fuel Eff. (mpg)	23.8	32.9	49.0	12.0	13.8	22.5	20.9	20.9	31.5	14.2	24.4	31.2
HC Emissions (g)	20	119	0	7	36	15	0	1	8	22	4	24
CO Emissions (g)	678	4222	7	237	1138	536	6	38	167	1249	178	1178
NOx Emissions (g)	58	452	1	20	126	49	1	4	24	69	13	78
Vehicles Entered	313	1732	7	80	1386	281	9	45	104	280	56	315
Vehicles Exited	307	1724	7	79	1378	280	9	46	104	274	55	315
Hourly Exit Rate	307	1724	7	79	1378	280	9	46	104	274	55	315
Input Volume	382	2228	14	97	1708	351	12	44	100	318	48	310
% of Volume	80	77	50	81	81	80	75	105	104	86	115	102
Density (ft/veh)												
Occupancy (veh)	7	15	0	2	28	2	0	1	1	11	1	2

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.4
Total Delay (hr)	52.1
Total Del/Veh (s)	40.4
Stop Delay (hr)	40.7
Stop Del/Veh (s)	31.6
Total Stops	2505
Stop/Veh	0.54
Travel Dist (mi)	703.7
Travel Time (hr)	69.3
Avg Speed (mph)	10
Fuel Used (gal)	30.8
Fuel Eff. (mpg)	22.8
HC Emissions (g)	256
CO Emissions (g)	9634
NOx Emissions (g)	893
Vehicles Entered	4608
Vehicles Exited	4578
Hourly Exit Rate	4578
Input Volume	5612
% of Volume	82
Density (ft/veh)	220
Occupancy (veh)	69

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	8.8	0.1	0.1	9.0
Total Del/Veh (s)	92.8	1.3	1.5	39.3
Stop Delay (hr)	8.7	0.0	0.0	8.7
Stop Del/Veh (s)	91.1	0.2	0.2	37.8
Total Stops	37	0	2	39
Stop/Veh	0.11	0.00	0.01	0.05
Travel Dist (mi)	29.5	10.8	8.9	49.2
Travel Time (hr)	9.7	0.5	0.6	10.8
Avg Speed (mph)	3	21	15	5
Fuel Used (gal)	2.7	0.8	0.3	3.8
Fuel Eff. (mpg)	11.0	13.2	26.0	12.8
HC Emissions (g)	4	14	2	19
CO Emissions (g)	202	561	81	844
NOx Emissions (g)	15	48	9	73
Vehicles Entered	339	268	214	821
Vehicles Exited	319	267	216	802
Hourly Exit Rate	319	267	216	802
Input Volume	513	304	231	1048
% of Volume	62	88	94	77
Density (ft/veh)				84
Occupancy (veh)	10	1	1	11

Total Network Performance

Denied Delay (hr)	2331.2
Denied Del/Veh (s)	416.7
Total Delay (hr)	1248.2
Total Del/Veh (s)	259.3
Stop Delay (hr)	1086.9
Stop Del/Veh (s)	225.8
Total Stops	31700
Stop/Veh	1.83
Travel Dist (mi)	12276.6
Travel Time (hr)	3904.1
Avg Speed (mph)	8
Fuel Used (gal)	1264.3
Fuel Eff. (mpg)	9.7
HC Emissions (g)	8067
CO Emissions (g)	309426
NOx Emissions (g)	23947
Vehicles Entered	16103
Vehicles Exited	15501
Hourly Exit Rate	15501
Input Volume	104663
% of Volume	15
Density (ft/veh)	106
Occupancy (veh)	1573

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	3.7	27.6	0.2	20
Total		3.7	27.6	0.2	20

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	97.3	103.4	0.0	1
	573	212.2	225.2	0.2	2
Laurel St	5	139.6	201.7	0.0	1
	627	772.2	795.7	0.3	1
	641	198.5	206.3	0.1	1
SH 128	6	66.9	439.3	0.1	4
Total		1486.8	1971.7	0.7	2

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	7.0	16.2	0.1	17
	627	0.1	8.3	0.1	34
Laurel St	5	0.9	28.6	0.3	35
	573	0.2	5.3	0.0	33
Nickel St	3	16.8	31.3	0.2	17
US 287 WB	214	1.8	6.0	0.0	25
Total		26.8	95.8	0.7	26

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	81.9	140.6	0.1	2
3rd Ave	4	8.1	26.6	0.2	21
Total		90.0	167.2	0.2	7

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	0.9	9.9	0.1	29
US 287	3	29.2	46.2	0.2	12
Total		30.1	56.0	0.2	15

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	L	L	T	T	R	L
Maximum Queue (ft)	149	383	235	230	465	482	238	370	434	456	499	220
Average Queue (ft)	63	350	193	191	355	306	101	171	388	399	342	184
95th Queue (ft)	153	371	335	287	535	554	206	359	562	579	532	271
Link Distance (ft)		331			431	431			418	418	418	
Upstream Blk Time (%)		81			22	18			14	21	5	
Queuing Penalty (veh)		0			0	0			117	175	42	
Storage Bay Dist (ft)	125		210	205			270	270				195
Storage Blk Time (%)	0	79	14	11	53				31			15
Queuing Penalty (veh)	0	309	30	16	81				50			145

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	888	899	875
Average Queue (ft)	859	863	855
95th Queue (ft)	881	886	871
Link Distance (ft)	836	836	836
Upstream Blk Time (%)	48	83	46
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)	34		
Queuing Penalty (veh)	74		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	R	L	T	T	T	T	R
Maximum Queue (ft)	135	375	755	768	448	452	496
Average Queue (ft)	23	233	703	722	62	128	118
95th Queue (ft)	84	482	862	839	295	450	451
Link Distance (ft)	609		716	716	418	418	418
Upstream Blk Time (%)			26	50	0	19	20
Queuing Penalty (veh)			0	0	3	169	174
Storage Bay Dist (ft)		350					
Storage Blk Time (%)		0	37				
Queuing Penalty (veh)		0	47				

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	R	L
Maximum Queue (ft)	29	151	158	73	313	386	258	165	238	250	238	75
Average Queue (ft)	4	101	100	24	74	60	54	24	100	153	97	44
95th Queue (ft)	19	163	162	60	182	175	128	74	244	277	246	79
Link Distance (ft)	135	135	135	135		725	725		223	223	223	
Upstream Blk Time (%)		40	40						17	32	9	
Queuing Penalty (veh)		50	51						0	0	0	
Storage Bay Dist (ft)					290			140				50
Storage Blk Time (%)					2		2	0				34
Queuing Penalty (veh)					3		1	0				47

Intersection: 3: Nickel St & US 287

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	610	240
Average Queue (ft)	125	56
95th Queue (ft)	405	186
Link Distance (ft)	744	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		215
Storage Blk Time (%)	6	0
Queuing Penalty (veh)	10	0

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	68	865	52
Average Queue (ft)	35	115	19
95th Queue (ft)	58	599	48
Link Distance (ft)	424	744	
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		3	
Storage Bay Dist (ft)			45
Storage Blk Time (%)			0
Queuing Penalty (veh)			1

Intersection: 5: Laurel St & US 287

Movement	EB	EB	EB	B573	B573	WB	SB
Directions Served	L	T	TR	T	T	UL	LTR
Maximum Queue (ft)	125	293	293	753	756	121	227
Average Queue (ft)	18	201	198	432	428	27	121
95th Queue (ft)	88	391	389	1001	1001	83	269
Link Distance (ft)		203	203	725	725		214
Upstream Blk Time (%)		67	62	37	35		37
Queuing Penalty (veh)		229	209	125	119		0
Storage Bay Dist (ft)	100					100	
Storage Blk Time (%)		72				6	
Queuing Penalty (veh)		18				20	

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B670	B670	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	290	888	876	875	165	434	454	365	256	326	94	153
Average Queue (ft)	154	854	854	851	30	76	98	24	9	21	36	64
95th Queue (ft)	378	867	867	861	81	237	254	173	85	148	73	134
Link Distance (ft)		836	836	836		1493	1493		238	238		408
Upstream Blk Time (%)		89	96	77					0	0		
Queuing Penalty (veh)		0	0	0					0	1		
Storage Bay Dist (ft)	240				115			315			90	
Storage Blk Time (%)		91				5	3				1	13
Queuing Penalty (veh)		29				1	19				2	7

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	SB	SB	B641	B641	B627	B627
Directions Served	L	L	TR	T	T	T	T
Maximum Queue (ft)	165	399	138	451	433	1463	1466
Average Queue (ft)	156	380	30	433	236	1318	1303
95th Queue (ft)	184	387	87	440	505	1707	1741
Link Distance (ft)		307	307	361	361	1423	1423
Upstream Blk Time (%)		89		95	15	60	59
Queuing Penalty (veh)		317		340	54	216	212
Storage Bay Dist (ft)	115						
Storage Blk Time (%)	83	93					
Queuing Penalty (veh)	285	319					

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T	L	T	T	R	L	L
Maximum Queue (ft)	237	328	332	95	1528	1568	190	459	455	73	140	235
Average Queue (ft)	236	310	200	35	1506	1513	150	226	192	24	15	162
95th Queue (ft)	239	319	412	106	1525	1539	232	439	380	54	80	286
Link Distance (ft)		238	238		1493	1493		621	621	621		
Upstream Blk Time (%)	59	85	16		29	39						
Queuing Penalty (veh)	0	857	157		294	394						
Storage Bay Dist (ft)	280			45			140				185	185
Storage Blk Time (%)	59	85	40	1			35	7				
Queuing Penalty (veh)	478	325	61	8			193	12				

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	299	235	199	404	428	260
Average Queue (ft)	283	194	119	278	405	260
95th Queue (ft)	294	338	217	487	414	260
Link Distance (ft)	265			389	389	
Upstream Blk Time (%)	72			6	71	
Queuing Penalty (veh)	0			0	0	
Storage Bay Dist (ft)		185	150			210
Storage Blk Time (%)	76		6	20	73	2
Queuing Penalty (veh)	245		6	20	213	5

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	94	94	113	46	91	53	87	22	111	90	58	53
Average Queue (ft)	18	31	33	2	25	11	21	1	34	42	32	23
95th Queue (ft)	55	81	89	15	61	42	66	7	75	71	63	52
Link Distance (ft)		621	621	621		548	548	548		282		232
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150				175				120		30	
Storage Blk Time (%)									1		42	15
Queuing Penalty (veh)									1		13	5

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	48	153	169	16	159	304	284	74	86	105	107	155
Average Queue (ft)	18	46	47	1	52	83	95	29	25	33	41	153
95th Queue (ft)	45	128	132	7	98	206	222	61	63	81	86	159
Link Distance (ft)		548	548	548		1958	1958			400		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	255				315			440	130		60	105
Storage Blk Time (%)						0				8	4	94
Queuing Penalty (veh)						0				11	2	62

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	294	270
Average Queue (ft)	273	58
95th Queue (ft)	286	171
Link Distance (ft)	260	260
Upstream Blk Time (%)	96	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	217	211	209	15	64	218	224	53	94	152	214	114
Average Queue (ft)	36	58	74	4	16	83	102	17	27	56	125	36
95th Queue (ft)	98	137	152	13	41	184	197	45	72	123	215	79
Link Distance (ft)		532	532			1246	1246			199	286	286
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	180			425	100			950	45			
Storage Blk Time (%)		0				4			15	27		1
Queuing Penalty (veh)		0				2			12	9		2

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB
Directions Served	R
Maximum Queue (ft)	91
Average Queue (ft)	43
95th Queue (ft)	70
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	105
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB	SB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	54	56	58
Average Queue (ft)	24	35	3
95th Queue (ft)	50	60	22
Link Distance (ft)	289	179	199
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B597	B597
Directions Served	L	L	T	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	157	165	334	410	300	420	445	918	918	499	887	902
Average Queue (ft)	73	83	172	177	40	401	439	893	459	61	793	737
95th Queue (ft)	141	157	312	336	206	450	454	942	1044	213	1135	1219
Link Distance (ft)			1246	1246				828	828		864	864
Upstream Blk Time (%)								86	8		31	21
Queuing Penalty (veh)								725	71		175	119
Storage Bay Dist (ft)	460	460			250	395	395			450		
Storage Blk Time (%)				3	0	16	90					
Queuing Penalty (veh)				8	0	79	450					

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	B597	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served		L	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	750	269	365	745	727	725	245	270	506	469
Average Queue (ft)	25	152	297	705	702	609	241	269	470	384
95th Queue (ft)	247	235	459	723	728	1004	253	270	481	548
Link Distance (ft)	864			693	693	693			454	454
Upstream Blk Time (%)				71	59	38			86	6
Queuing Penalty (veh)				0	0	0			0	0
Storage Bay Dist (ft)		315	315				220	220		
Storage Blk Time (%)			0	78			47	85	15	
Queuing Penalty (veh)			0	234			188	339	61	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	B597	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	T	L	T	T	R	L
Maximum Queue (ft)	124	130	151	193	216	14	34	520	1220	1234	640	165
Average Queue (ft)	48	61	32	44	55	4	1	461	937	936	400	136
95th Queue (ft)	90	110	101	136	166	13	11	596	1611	1631	887	208
Link Distance (ft)			864	864	864		828		1198	1198		
Upstream Blk Time (%)									17	17		
Queuing Penalty (veh)									163	165		
Storage Bay Dist (ft)	260	260				450		470			590	115
Storage Blk Time (%)								6	60	56		68
Queuing Penalty (veh)								42	103	136		156

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	408	165	145	170	431	160
Average Queue (ft)	269	55	130	163	378	102
95th Queue (ft)	550	129	194	209	447	182
Link Distance (ft)	393				378	
Upstream Blk Time (%)	49				54	
Queuing Penalty (veh)	0				0	
Storage Bay Dist (ft)		115	120	120		110
Storage Blk Time (%)	8	4	18	66	12	18
Queuing Penalty (veh)	22	6	39	141	63	79

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	B672	B672	B672	NB
Directions Served	L	T	T	T	R	L	T	TR	T	T		L
Maximum Queue (ft)	53	262	264	285	53	355	1024	1048	1010	1009	1032	114
Average Queue (ft)	4	68	83	101	9	228	654	662	562	564	399	52
95th Queue (ft)	24	180	187	227	37	444	1381	1368	1354	1357	1168	96
Link Distance (ft)		1198	1198	1198	1198		928	928	964	964	964	
Upstream Blk Time (%)							49	49	12	15	5	
Queuing Penalty (veh)							494	501	82	103	32	
Storage Bay Dist (ft)	150					305						85
Storage Blk Time (%)		2					47					6
Queuing Penalty (veh)		0					70					10

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	NB	SB	SB
Directions Served	TR	L	TR
Maximum Queue (ft)	171	103	74
Average Queue (ft)	76	58	25
95th Queue (ft)	141	99	59
Link Distance (ft)	403		286
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		85	
Storage Blk Time (%)	6	8	0
Queuing Penalty (veh)	3	2	0

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B636	B636
Directions Served	L	L	T	T	T	L	L	T	T	R	T	T
Maximum Queue (ft)	240	221	449	455	352	86	433	542	542	434	1403	1379
Average Queue (ft)	122	121	149	176	189	16	184	454	456	282	631	631
95th Queue (ft)	198	194	290	323	307	54	498	596	589	612	1680	1677
Link Distance (ft)			964	964	964			434	434		1340	1340
Upstream Blk Time (%)						0	39	34	2	31	32	
Queuing Penalty (veh)						0	0	0	0	0	0	
Storage Bay Dist (ft)	400	400				400	400			415		
Storage Blk Time (%)					1			42	37	1		
Queuing Penalty (veh)					0			40	130	11		

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	L	T	L	L	T	R
Maximum Queue (ft)	31	97	306	308	99	161
Average Queue (ft)	10	40	160	195	45	5
95th Queue (ft)	33	89	282	286	86	53
Link Distance (ft)		901		1046	1046	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		335		435	
Storage Blk Time (%)		1				
Queuing Penalty (veh)		2				

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement	EB	B225	B229	WB
Directions Served	T	T	T	R
Maximum Queue (ft)	494	703	308	54
Average Queue (ft)	202	247	72	2
95th Queue (ft)	594	783	259	18
Link Distance (ft)	422	630	137	135
Upstream Blk Time (%)	37	30	25	
Queuing Penalty (veh)	192	152	129	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 13023

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.2	56.1	23.9	16.8	0.1	1.3	0.2	21.2	354.7	6.8
Denied Del/Veh (s)	3.5	0.9	3.8	349.0	335.8	352.6	1.7	2.6	2.5	597.3	570.3	523.6
Total Delay (hr)	0.4	1.4	0.2	14.7	9.3	4.3	8.7	15.5	0.9	4.3	32.7	0.1
Total Del/Veh (s)	55.8	66.9	3.5	101.6	144.9	91.4	95.5	31.3	12.2	147.4	69.7	6.4
Stop Delay (hr)	0.4	1.3	0.0	13.7	8.4	3.8	8.0	10.1	0.3	3.8	24.5	0.0
Stop Del/Veh (s)	52.3	61.0	0.0	94.7	130.9	81.4	87.7	20.4	4.4	132.0	52.3	2.2
Total Stops	28	67	3	674	183	110	406	935	57	165	1466	6
Stop/Veh	1.00	0.91	0.01	1.29	0.79	0.65	1.24	0.52	0.22	1.59	0.87	0.16
Travel Dist (mi)	1.7	4.5	11.0	41.3	18.2	10.5	32.5	182.9	23.6	11.0	184.2	3.7
Travel Time (hr)	0.5	1.5	0.8	72.4	33.8	21.5	10.0	21.8	1.9	25.9	392.6	7.0
Avg Speed (mph)	3	3	18	3	2	2	3	9	14	2	5	19
Fuel Used (gal)	0.2	0.5	0.5	17.2	8.1	5.1	3.2	10.5	1.0	6.1	93.4	1.7
Fuel Eff. (mpg)	9.7	9.5	21.2	2.4	2.2	2.1	10.1	17.4	22.6	1.8	2.0	2.2
HC Emissions (g)	3	5	14	132	45	45	27	143	14	49	822	14
CO Emissions (g)	72	141	384	2522	982	801	687	3233	354	919	14781	338
NOx Emissions (g)	6	15	40	154	55	44	70	425	44	57	941	21
Vehicles Entered	27	72	220	511	220	163	321	1770	260	97	1655	38
Vehicles Exited	28	71	219	496	223	169	322	1768	261	102	1651	37
Hourly Exit Rate	28	71	219	496	223	169	322	1768	261	102	1651	37
Input Volume	25	73	228	586	244	165	341	1809	283	121	2073	54
% of Volume	112	97	96	85	91	102	94	98	92	84	80	69
Density (ft/veh)												
Occupancy (veh)	0	2	1	16	10	5	10	21	2	5	38	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	481.5
Denied Del/Veh (s)	284.6
Total Delay (hr)	92.5
Total Del/Veh (s)	61.1
Stop Delay (hr)	74.4
Stop Del/Veh (s)	49.1
Total Stops	4100
Stop/Veh	0.75
Travel Dist (mi)	525.1
Travel Time (hr)	590.0
Avg Speed (mph)	5
Fuel Used (gal)	147.5
Fuel Eff. (mpg)	3.6
HC Emissions (g)	1313
CO Emissions (g)	25214
NOx Emissions (g)	1873
Vehicles Entered	5354
Vehicles Exited	5347
Hourly Exit Rate	5347
Input Volume	6002
% of Volume	89
Density (ft/veh)	67
Occupancy (veh)	109

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.3	0.0	0.0	0.4
Denied Del/Veh (s)	0.2	0.0	1.4	0.7	0.0	0.0	0.3
Total Delay (hr)	0.3	0.1	3.7	20.0	4.0	0.6	28.8
Total Del/Veh (s)	2.3	2.8	103.7	37.1	6.6	11.2	20.4
Stop Delay (hr)	0.0	0.1	3.2	11.5	0.4	0.3	15.4
Stop Del/Veh (s)	0.0	1.6	89.4	21.4	0.6	4.8	10.9
Total Stops	11	23	155	1191	123	25	1528
Stop/Veh	0.02	0.12	1.20	0.61	0.06	0.12	0.30
Travel Dist (mi)	9.4	24.3	39.8	595.8	194.6	14.7	878.6
Travel Time (hr)	0.7	1.4	5.0	37.6	9.6	1.2	55.5
Avg Speed (mph)	13	18	8	16	20	13	16
Fuel Used (gal)	0.2	1.2	1.9	20.1	13.5	0.7	37.6
Fuel Eff. (mpg)	49.4	20.1	20.4	29.7	14.5	20.6	23.4
HC Emissions (g)	1	31	5	156	283	3	478
CO Emissions (g)	22	985	271	4035	10059	145	15517
NOx Emissions (g)	1	88	24	510	930	17	1570
Vehicles Entered	461	182	125	1903	2168	198	5037
Vehicles Exited	461	184	114	1853	2165	193	4970
Hourly Exit Rate	461	184	114	1853	2165	193	4970
Input Volume	562	229	111	1889	2626	261	5678
% of Volume	82	80	103	98	82	74	88
Density (ft/veh)							135
Occupancy (veh)	1	1	5	37	10	1	55

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.2	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	26.3	10.6	9.5	0.0	0.0	0.0
Total Delay (hr)	0.0	2.5	0.1	0.8	2.8	0.2	0.4	1.1	3.1	1.8	0.9	0.2
Total Del/Veh (s)	18.4	52.8	3.2	18.6	17.8	8.6	21.7	94.5	147.0	154.3	33.4	16.5
Stop Delay (hr)	0.0	2.3	0.1	0.6	1.7	0.1	0.3	1.0	3.1	1.8	0.8	0.2
Stop Del/Veh (s)	16.5	48.7	3.0	13.4	10.8	3.8	19.8	91.7	146.4	151.5	30.8	14.8
Total Stops	3	120	47	136	314	48	40	25	50	33	56	27
Stop/Veh	1.00	0.70	0.67	0.84	0.56	0.76	0.67	0.62	0.66	0.79	0.60	0.68
Travel Dist (mi)	0.1	7.2	3.0	23.6	80.0	9.3	2.5	1.8	3.2	6.3	12.2	5.9
Travel Time (hr)	0.0	2.7	0.2	1.6	5.1	0.5	0.9	1.2	3.5	2.0	1.3	0.4
Avg Speed (mph)	6	3	14	15	16	19	5	2	1	3	9	14
Fuel Used (gal)	0.0	0.7	0.1	0.7	2.5	0.2	0.2	0.3	0.8	0.5	0.5	0.2
Fuel Eff. (mpg)	25.4	9.7	45.4	32.4	32.1	37.1	10.2	5.6	4.0	11.7	23.5	27.7
HC Emissions (g)	0	1	0	7	25	2	0	0	6	6	7	1
CO Emissions (g)	0	59	11	193	559	61	24	31	129	108	163	44
NOx Emissions (g)	0	4	1	21	76	8	2	2	7	8	19	4
Vehicles Entered	3	170	70	158	554	62	58	40	75	41	93	39
Vehicles Exited	3	166	70	162	559	63	54	40	63	33	81	37
Hourly Exit Rate	3	166	70	162	559	63	54	40	63	33	81	37
Input Volume	4	249	119	181	714	73	65	53	79	44	94	44
% of Volume	75	67	59	90	78	86	83	75	80	75	86	84
Density (ft/veh)												
Occupancy (veh)	0	3	0	2	5	0	0	1	3	2	1	0

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	0.8
Denied Del/Veh (s)	2.0
Total Delay (hr)	13.7
Total Del/Veh (s)	35.8
Stop Delay (hr)	11.9
Stop Del/Veh (s)	31.1
Total Stops	899
Stop/Veh	0.65
Travel Dist (mi)	155.2
Travel Time (hr)	19.5
Avg Speed (mph)	8
Fuel Used (gal)	7.0
Fuel Eff. (mpg)	22.3
HC Emissions (g)	56
CO Emissions (g)	1383
NOx Emissions (g)	152
Vehicles Entered	1363
Vehicles Exited	1331
Hourly Exit Rate	1331
Input Volume	1719
% of Volume	77
Density (ft/veh)	321
Occupancy (veh)	19

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	3.9	0.3	0.6
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	4.7	3.3	1.0	0.1	2.2	0.4	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	3.2	3.0	0.4	0.0	0.4	0.0	0.7
Total Stops	27	34	0	0	5	0	66
Stop/Veh	1.00	1.00	0.00	0.00	0.14	0.00	0.18
Travel Dist (mi)	1.9	2.4	15.8	1.3	2.2	8.7	32.3
Travel Time (hr)	0.1	0.2	0.6	0.1	0.2	0.3	1.4
Avg Speed (mph)	16	16	26	24	20	28	24
Fuel Used (gal)	0.1	0.1	0.7	0.0	0.1	0.3	1.2
Fuel Eff. (mpg)	36.7	35.1	22.1	25.3	34.8	30.9	26.2
HC Emissions (g)	0	0	7	0	0	3	11
CO Emissions (g)	10	8	269	16	11	91	404
NOx Emissions (g)	1	1	25	1	1	9	38
Vehicles Entered	27	34	105	8	37	147	358
Vehicles Exited	27	34	102	8	37	146	354
Hourly Exit Rate	27	34	102	8	37	146	354
Input Volume	34	41	129	9	39	148	400
% of Volume	79	83	79	89	95	99	88
Density (ft/veh)	1372						
Occupancy (veh)	0	0	1	0	0	0	1

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	1.4	0.0	0.0	0.0	0.3	1.0	2.7
Denied Del/Veh (s)	0.4	21.2	0.0	0.0	0.0	126.6	97.6	8.0
Total Delay (hr)	0.0	5.0	1.7	6.0	0.0	0.6	2.1	15.4
Total Del/Veh (s)	4.7	77.4	268.3	23.7	2.9	403.1	263.9	45.5
Stop Delay (hr)	0.0	5.0	1.7	5.3	0.0	0.6	2.1	14.6
Stop Del/Veh (s)	2.9	77.2	264.9	20.9	0.0	401.6	263.1	43.2
Total Stops	7	12	12	62	0	5	28	126
Stop/Veh	0.64	0.05	0.52	0.07	0.00	1.00	0.97	0.10
Travel Dist (mi)	0.5	11.3	6.2	228.9	3.1	0.2	1.1	251.3
Travel Time (hr)	0.0	6.7	1.9	12.6	0.1	0.8	3.2	25.4
Avg Speed (mph)	15	2	3	18	29	0	0	11
Fuel Used (gal)	0.0	1.8	0.6	7.4	0.1	0.2	0.8	10.8
Fuel Eff. (mpg)	43.4	6.4	11.2	30.8	41.3	0.9	1.4	23.3
HC Emissions (g)	0	1	1	68	0	0	0	71
CO Emissions (g)	2	110	36	1221	4	10	43	1427
NOx Emissions (g)	0	7	3	216	1	0	1	228
Vehicles Entered	11	230	23	896	11	5	29	1205
Vehicles Exited	11	218	15	845	11	3	21	1124
Hourly Exit Rate	11	218	15	845	11	3	21	1124
Input Volume	8	371	23	1043	17	15	35	1512
% of Volume	138	59	65	81	65	20	60	74
Density (ft/veh)								159
Occupancy (veh)	0	5	2	13	0	1	2	23

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.5	10.9	1.2	0.0	0.0	0.0	0.1	0.0	0.0	4.0	0.0	0.3
Denied Del/Veh (s)	85.7	59.4	74.5	0.0	0.0	0.0	4.0	0.2	0.3	105.7	0.0	50.6
Total Delay (hr)	1.5	36.6	0.0	1.1	6.2	6.1	0.6	1.9	0.2	16.4	1.3	2.1
Total Del/Veh (s)	297.9	222.0	3.0	99.5	18.5	23.3	38.6	106.9	22.6	436.1	392.3	423.0
Stop Delay (hr)	1.5	35.4	0.0	1.0	3.9	1.4	0.6	1.8	0.1	16.2	1.3	2.1
Stop Del/Veh (s)	291.9	214.4	2.6	91.7	11.7	5.2	35.8	103.4	20.5	432.7	386.6	419.9
Total Stops	26	562	11	44	299	191	44	65	12	129	10	7
Stop/Veh	1.44	0.95	0.23	1.07	0.25	0.20	0.79	1.02	0.50	0.96	0.83	0.39
Travel Dist (mi)	3.1	102.4	8.8	11.8	320.8	252.7	4.1	4.9	1.6	8.5	0.7	1.0
Travel Time (hr)	2.1	50.1	1.5	1.5	15.4	13.7	0.8	2.1	0.2	20.6	1.3	2.4
Avg Speed (mph)	2	3	28	8	21	18	5	2	7	1	1	0
Fuel Used (gal)	0.6	13.6	0.5	0.6	12.2	8.4	0.3	0.6	0.1	4.9	0.3	0.6
Fuel Eff. (mpg)	5.6	7.5	17.5	18.3	26.2	30.2	13.2	8.1	17.9	1.7	2.4	1.8
HC Emissions (g)	1	84	3	3	124	74	1	9	0	4	0	0
CO Emissions (g)	79	2667	93	127	4226	1957	61	180	17	305	19	34
NOx Emissions (g)	4	167	12	12	464	270	5	18	1	9	1	1
Vehicles Entered	18	591	47	40	1199	920	53	63	23	127	11	18
Vehicles Exited	15	508	47	38	1188	890	53	57	22	118	10	13
Hourly Exit Rate	15	508	47	38	1188	890	53	57	22	118	10	13
Input Volume	16	635	71	35	1337	1012	60	55	17	342	49	36
% of Volume	94	80	66	109	89	88	88	104	129	35	20	36
Density (ft/veh)												
Occupancy (veh)	2	39	0	1	15	14	1	2	0	17	1	2

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	16.9
Denied Del/Veh (s)	19.0
Total Delay (hr)	74.0
Total Del/Veh (s)	84.5
Stop Delay (hr)	65.3
Stop Del/Veh (s)	74.6
Total Stops	1400
Stop/Veh	0.44
Travel Dist (mi)	720.4
Travel Time (hr)	111.9
Avg Speed (mph)	8
Fuel Used (gal)	42.8
Fuel Eff. (mpg)	16.8
HC Emissions (g)	303
CO Emissions (g)	9764
NOx Emissions (g)	964
Vehicles Entered	3110
Vehicles Exited	2959
Hourly Exit Rate	2959
Input Volume	3665
% of Volume	81
Density (ft/veh)	123
Occupancy (veh)	95

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	13.7	47.4	10.4	2.3	29.0	3.6	1.3	1.4	0.5	1.7	2.0	2.5
Denied Del/Veh (s)	444.6	322.7	565.9	90.4	61.9	93.7	21.8	21.1	17.4	24.8	27.4	26.5
Total Delay (hr)	13.7	3.6	0.2	2.8	35.5	0.2	4.5	6.5	0.2	4.1	6.8	2.0
Total Del/Veh (s)	471.1	28.7	13.7	108.8	76.6	6.3	77.6	94.7	7.5	62.4	94.2	21.7
Stop Delay (hr)	13.8	3.0	0.1	2.3	24.8	0.1	4.3	6.1	0.1	3.8	6.4	1.7
Stop Del/Veh (s)	472.1	24.0	10.8	89.3	53.4	2.9	73.2	88.5	4.2	58.4	88.1	18.7
Total Stops	79	222	43	150	1964	71	255	256	14	264	302	352
Stop/Veh	0.75	0.49	0.88	1.63	1.18	0.53	1.22	1.04	0.14	1.12	1.16	1.08
Travel Dist (mi)	5.3	25.6	2.8	11.5	210.9	17.0	10.6	12.4	4.2	17.3	18.7	23.8
Travel Time (hr)	27.7	51.8	10.7	5.4	69.8	4.4	6.2	8.3	0.9	6.5	9.6	5.6
Avg Speed (mph)	0	6	9	4	5	21	2	2	11	4	2	8
Fuel Used (gal)	6.5	12.8	2.4	1.6	21.5	1.7	1.8	2.3	0.3	2.0	2.8	1.9
Fuel Eff. (mpg)	0.8	2.0	1.1	7.4	9.8	9.9	5.9	5.4	12.2	8.9	6.8	12.4
HC Emissions (g)	9	40	41	1	100	32	4	9	6	6	6	10
CO Emissions (g)	439	1375	609	111	2705	1022	190	263	149	272	281	359
NOx Emissions (g)	14	77	31	9	279	68	18	22	18	24	25	39
Vehicles Entered	91	445	48	88	1634	132	206	239	98	233	256	325
Vehicles Exited	93	455	49	89	1629	134	207	238	98	235	251	322
Hourly Exit Rate	93	455	49	89	1629	134	207	238	98	235	251	322
Input Volume	199	813	85	102	1814	151	215	274	95	222	272	355
% of Volume	47	56	58	87	90	89	96	87	103	106	92	91
Density (ft/veh)												
Occupancy (veh)	14	4	0	3	41	1	5	7	0	5	8	3

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	115.8
Denied Del/Veh (s)	103.3
Total Delay (hr)	80.1
Total Del/Veh (s)	74.3
Stop Delay (hr)	66.4
Stop Del/Veh (s)	61.6
Total Stops	3972
Stop/Veh	1.02
Travel Dist (mi)	360.0
Travel Time (hr)	207.0
Avg Speed (mph)	4
Fuel Used (gal)	57.5
Fuel Eff. (mpg)	6.3
HC Emissions (g)	265
CO Emissions (g)	7775
NOx Emissions (g)	623
Vehicles Entered	3795
Vehicles Exited	3800
Hourly Exit Rate	3800
Input Volume	4597
% of Volume	83
Density (ft/veh)	70
Occupancy (veh)	91

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.1	4.2	0.2	0.0
Total Delay (hr)	0.0	0.7	0.0	0.1	19.9	0.0	0.1	0.0	0.0	0.1	21.0
Total Del/Veh (s)	21.8	3.4	2.9	30.0	38.9	1.8	60.6	3.2	50.9	15.1	28.1
Stop Delay (hr)	0.0	0.0	0.0	0.0	11.7	0.0	0.1	0.0	0.0	0.1	12.0
Stop Del/Veh (s)	18.5	0.2	0.0	16.8	22.9	0.0	59.2	3.2	49.5	14.8	16.1
Total Stops	3	10	0	11	1541	0	6	4	3	14	1592
Stop/Veh	0.60	0.01	0.00	1.22	0.84	0.00	1.00	0.80	1.00	1.00	0.59
Travel Dist (mi)	0.7	104.3	0.9	1.1	219.2	1.6	0.3	0.3	0.1	0.6	329.1
Travel Time (hr)	0.1	3.8	0.0	0.1	25.5	0.1	0.1	0.0	0.1	0.1	29.9
Avg Speed (mph)	12	27	24	10	9	27	3	14	3	7	11
Fuel Used (gal)	0.0	5.8	0.1	0.1	10.6	0.1	0.0	0.0	0.0	0.0	16.6
Fuel Eff. (mpg)	18.8	18.1	17.9	20.4	20.8	20.8	10.5	37.7	10.4	26.1	19.8
HC Emissions (g)	0	100	1	0	69	1	0	0	0	0	171
CO Emissions (g)	15	4159	40	11	2085	70	2	1	1	1	6384
NOx Emissions (g)	1	341	2	1	241	3	0	0	0	0	589
Vehicles Entered	5	776	7	9	1829	13	6	5	3	14	2667
Vehicles Exited	5	777	7	9	1820	13	6	5	3	14	2659
Hourly Exit Rate	5	777	7	9	1820	13	6	5	3	14	2659
Input Volume	9	1105	16	10	1987	18	7	6	5	14	3177
% of Volume	56	70	44	90	92	72	86	83	60	100	84
Density (ft/veh)											209
Occupancy (veh)	0	4	0	0	26	0	0	0	0	0	30

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	12.1	1.8	3.9
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.4	4.1	0.3	3.9	263.7	243.4	244.5
Total Delay (hr)	0.6	1.2	0.0	0.2	11.4	0.7	0.8	0.7	0.1	9.7	1.0	0.6
Total Del/Veh (s)	61.6	5.8	0.8	17.5	23.0	11.6	64.0	63.1	9.3	253.5	176.7	45.6
Stop Delay (hr)	0.6	0.7	0.0	0.1	4.2	0.1	0.8	0.6	0.1	9.7	1.0	0.6
Stop Del/Veh (s)	59.3	3.3	0.8	8.3	8.5	1.3	61.9	60.4	8.8	253.6	174.4	45.1
Total Stops	34	144	1	33	634	48	41	35	54	72	25	44
Stop/Veh	1.00	0.20	0.08	0.67	0.36	0.22	0.93	0.92	0.98	0.52	1.19	0.94
Travel Dist (mi)	3.9	85.1	1.4	18.3	642.8	78.7	3.4	2.9	4.3	6.3	1.0	2.3
Travel Time (hr)	0.7	3.3	0.1	0.7	24.4	2.7	1.0	0.8	0.4	22.1	2.9	4.6
Avg Speed (mph)	6	25	27	27	26	30	4	4	12	1	1	3
Fuel Used (gal)	0.2	2.5	0.0	0.5	17.7	2.2	0.3	0.2	0.2	5.2	0.7	1.1
Fuel Eff. (mpg)	18.2	33.9	46.8	37.0	36.2	35.3	11.0	11.8	23.7	1.2	1.4	2.2
HC Emissions (g)	0	33	3	3	212	22	2	0	4	20	2	5
CO Emissions (g)	24	883	51	170	7574	963	58	30	81	503	65	115
NOx Emissions (g)	2	121	7	16	778	85	5	2	10	22	4	5
Vehicles Entered	32	725	12	49	1759	218	44	38	55	130	20	47
Vehicles Exited	34	725	12	49	1763	216	43	38	55	126	20	45
Hourly Exit Rate	34	725	12	49	1763	216	43	38	55	126	20	45
Input Volume	51	1019	25	55	1913	228	36	52	56	175	31	66
% of Volume	67	71	48	89	92	95	119	73	98	72	65	68
Density (ft/veh)												
Occupancy (veh)	1	3	0	1	24	3	1	1	0	10	1	1

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	18.0
Denied Del/Veh (s)	20.3
Total Delay (hr)	27.0
Total Del/Veh (s)	30.7
Stop Delay (hr)	18.5
Stop Del/Veh (s)	21.0
Total Stops	1165
Stop/Veh	0.37
Travel Dist (mi)	850.4
Travel Time (hr)	63.6
Avg Speed (mph)	19
Fuel Used (gal)	30.9
Fuel Eff. (mpg)	27.5
HC Emissions (g)	305
CO Emissions (g)	10515
NOx Emissions (g)	1056
Vehicles Entered	3129
Vehicles Exited	3126
Hourly Exit Rate	3126
Input Volume	3707
% of Volume	84
Density (ft/veh)	270
Occupancy (veh)	46

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.6	0.4	3.6
Total Delay (hr)	0.4	1.1	0.0	0.1	7.8	0.4	0.5	0.7	0.2	2.7	0.3	0.3
Total Del/Veh (s)	27.1	4.7	1.2	16.0	16.2	9.2	63.8	68.8	36.4	77.0	56.1	7.0
Stop Delay (hr)	0.4	0.5	0.0	0.0	2.4	0.1	0.5	0.6	0.2	2.6	0.3	0.3
Stop Del/Veh (s)	25.3	2.2	0.9	7.5	5.0	1.3	61.9	66.7	36.0	74.2	53.4	5.9
Total Stops	44	137	3	17	416	44	31	29	12	117	19	159
Stop/Veh	0.88	0.16	0.18	0.74	0.24	0.30	1.07	0.83	0.80	0.91	0.95	0.91
Travel Dist (mi)	5.6	85.3	1.9	5.8	429.2	37.2	1.5	1.6	0.7	6.6	1.1	9.5
Travel Time (hr)	0.5	2.8	0.1	0.3	17.2	1.4	0.6	0.8	0.2	3.1	0.4	1.0
Avg Speed (mph)	10	30	28	22	25	27	2	2	4	2	3	12
Fuel Used (gal)	0.2	2.4	0.0	0.3	22.5	1.8	0.2	0.2	0.1	0.9	0.1	0.4
Fuel Eff. (mpg)	29.7	35.0	38.5	20.2	19.1	20.6	7.6	7.3	10.3	7.5	10.8	23.8
HC Emissions (g)	1	38	0	3	284	30	1	4	0	4	0	6
CO Emissions (g)	35	1243	31	208	15045	1570	31	84	12	134	11	151
NOx Emissions (g)	3	146	1	10	1066	96	3	9	1	11	1	18
Vehicles Entered	50	835	17	23	1706	146	29	32	13	118	20	175
Vehicles Exited	49	835	17	23	1706	145	29	35	15	128	20	174
Hourly Exit Rate	49	835	17	23	1706	145	29	35	15	128	20	174
Input Volume	70	1140	19	22	1905	165	29	27	16	115	16	166
% of Volume	70	73	89	105	90	88	100	130	94	111	125	105
Density (ft/veh)												
Occupancy (veh)	1	3	0	0	17	1	1	1	0	3	0	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	14.4
Total Del/Veh (s)	16.2
Stop Delay (hr)	7.9
Stop Del/Veh (s)	8.8
Total Stops	1028
Stop/Veh	0.32
Travel Dist (mi)	586.1
Travel Time (hr)	28.2
Avg Speed (mph)	21
Fuel Used (gal)	29.1
Fuel Eff. (mpg)	20.1
HC Emissions (g)	370
CO Emissions (g)	18556
NOx Emissions (g)	1365
Vehicles Entered	3164
Vehicles Exited	3176
Hourly Exit Rate	3176
Input Volume	3690
% of Volume	86
Density (ft/veh)	314
Occupancy (veh)	28

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	4.8	4.6	2.4	0.3	0.3	1.6
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	3.5	2.5	2.2	0.3	0.4	1.4
Total Stops	3	6	65	1	0	75
Stop/Veh	1.00	1.00	1.00	0.02	0.00	0.55
Travel Dist (mi)	0.1	0.1	1.4	2.9	0.9	5.4
Travel Time (hr)	0.0	0.0	0.1	0.3	0.1	0.5
Avg Speed (mph)	11	10	10	10	10	10
Fuel Used (gal)	0.0	0.0	0.0	0.1	0.0	0.2
Fuel Eff. (mpg)	42.3	28.7	35.1	20.6	22.4	23.8
HC Emissions (g)	0	0	0	1	0	1
CO Emissions (g)	0	0	5	20	5	31
NOx Emissions (g)	0	0	1	3	1	4
Vehicles Entered	3	6	65	49	14	137
Vehicles Exited	3	6	65	49	14	137
Hourly Exit Rate	3	6	65	49	14	137
Input Volume	4	6	61	48	18	137
% of Volume	75	100	107	102	78	100
Density (ft/veh)						1372
Occupancy (veh)	0	0	0	0	0	1

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.7	1.0	0.1	0.1	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	15.1	15.6	14.8	2.7	0.3	0.6
Total Delay (hr)	1.4	5.1	0.2	7.7	44.8	2.2	24.1	6.8	0.3	2.5	12.3	2.3
Total Del/Veh (s)	72.6	28.3	6.5	90.4	109.3	52.9	234.7	39.5	3.7	60.8	55.7	53.4
Stop Delay (hr)	1.3	3.4	0.0	5.9	32.5	1.5	23.2	5.2	0.0	2.2	9.8	2.0
Stop Del/Veh (s)	68.4	18.9	0.2	69.0	79.4	36.1	226.6	30.3	0.1	53.3	44.3	46.1
Total Stops	68	327	1	486	2111	202	510	477	2	179	715	145
Stop/Veh	0.99	0.50	0.01	1.58	1.43	1.36	1.38	0.77	0.01	1.21	0.90	0.94
Travel Dist (mi)	17.1	157.9	21.4	49.7	237.4	23.7	44.7	79.4	30.9	12.3	67.6	13.4
Travel Time (hr)	1.8	8.5	0.7	9.1	49.5	2.9	27.0	11.4	2.3	3.0	14.1	2.9
Avg Speed (mph)	9	19	29	5	5	8	2	9	25	4	5	5
Fuel Used (gal)	0.8	6.2	0.7	3.5	17.2	1.4	7.3	5.0	1.1	1.1	5.1	1.0
Fuel Eff. (mpg)	21.4	25.6	30.2	14.1	13.8	17.2	6.1	15.8	28.0	11.4	13.3	13.7
HC Emissions (g)	4	89	9	16	69	39	30	51	11	10	37	6
CO Emissions (g)	323	3865	446	751	2099	920	1047	2015	580	297	1101	221
NOx Emissions (g)	18	286	32	65	245	95	71	156	32	30	115	19
Vehicles Entered	68	647	89	298	1443	142	354	605	252	141	773	154
Vehicles Exited	69	645	88	298	1436	142	325	597	250	144	771	151
Hourly Exit Rate	69	645	88	298	1436	142	325	597	250	144	771	151
Input Volume	95	814	155	336	1590	141	371	658	252	178	771	174
% of Volume	73	79	57	89	90	101	88	91	99	81	100	87
Density (ft/veh)												
Occupancy (veh)	2	9	1	9	50	3	25	9	1	3	14	3

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	5.4
Denied Del/Veh (s)	3.9
Total Delay (hr)	109.5
Total Del/Veh (s)	77.7
Stop Delay (hr)	87.0
Stop Del/Veh (s)	61.7
Total Stops	5223
Stop/Veh	1.03
Travel Dist (mi)	755.4
Travel Time (hr)	133.2
Avg Speed (mph)	6
Fuel Used (gal)	50.3
Fuel Eff. (mpg)	15.0
HC Emissions (g)	369
CO Emissions (g)	13665
NOx Emissions (g)	1162
Vehicles Entered	4966
Vehicles Exited	4916
Hourly Exit Rate	4916
Input Volume	5535
% of Volume	89
Density (ft/veh)	125
Occupancy (veh)	128

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0	0.0	4.1	0.3	4.0	4.1	0.6	3.6
Total Delay (hr)	1.3	1.9	0.0	5.9	11.6	0.3	0.6	0.3	0.1	1.2	0.3	0.2
Total Del/Veh (s)	54.7	7.2	2.3	193.5	21.7	8.5	50.3	56.4	6.5	57.2	64.4	10.6
Stop Delay (hr)	1.2	1.2	0.0	5.6	3.4	0.0	0.6	0.2	0.1	1.1	0.3	0.2
Stop Del/Veh (s)	52.2	4.5	2.0	182.2	6.3	0.7	48.5	54.0	5.9	54.9	61.5	10.0
Total Stops	70	217	13	125	641	31	38	15	56	71	14	77
Stop/Veh	0.84	0.23	0.35	1.14	0.33	0.23	0.86	0.94	0.95	0.95	0.93	0.93
Travel Dist (mi)	13.6	161.4	6.3	24.9	448.3	32.6	3.3	1.1	4.4	5.3	1.1	6.0
Travel Time (hr)	1.6	5.2	0.2	6.5	20.8	1.2	0.8	0.3	0.4	1.5	0.3	0.6
Avg Speed (mph)	8	31	32	4	22	27	4	4	14	4	3	11
Fuel Used (gal)	0.6	4.7	0.2	2.1	14.6	1.2	0.3	0.1	0.2	0.5	0.1	0.2
Fuel Eff. (mpg)	22.8	34.5	42.2	11.8	30.8	28.1	12.7	12.9	26.0	11.2	11.3	24.9
HC Emissions (g)	8	61	2	15	176	23	0	1	1	1	0	2
CO Emissions (g)	236	2239	78	552	6243	993	32	26	40	64	11	56
NOx Emissions (g)	23	253	7	42	607	68	3	2	4	5	1	6
Vehicles Entered	80	944	37	105	1931	137	44	15	59	74	15	83
Vehicles Exited	75	944	37	103	1923	136	41	14	59	71	15	83
Hourly Exit Rate	75	944	37	103	1923	136	41	14	59	71	15	83
Input Volume	88	1118	48	113	2085	138	42	26	62	75	14	69
% of Volume	85	84	77	91	92	99	98	54	95	95	107	120
Density (ft/veh)												
Occupancy (veh)	2	5	0	7	21	1	1	0	0	1	0	1

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.3
Denied Del/Veh (s)	0.3
Total Delay (hr)	23.7
Total Del/Veh (s)	24.1
Stop Delay (hr)	13.9
Stop Del/Veh (s)	14.2
Total Stops	1368
Stop/Veh	0.39
Travel Dist (mi)	708.3
Travel Time (hr)	39.4
Avg Speed (mph)	18
Fuel Used (gal)	24.6
Fuel Eff. (mpg)	28.8
HC Emissions (g)	291
CO Emissions (g)	10570
NOx Emissions (g)	1021
Vehicles Entered	3524
Vehicles Exited	3501
Hourly Exit Rate	3501
Input Volume	3878
% of Volume	90
Density (ft/veh)	331
Occupancy (veh)	39

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.1	0.2	4.1	0.1	0.1
Total Delay (hr)	0.3	1.8	0.0	1.4	5.3	0.1	0.5	0.2	0.5	0.4	0.0	0.1
Total Del/Veh (s)	61.7	6.5	1.8	52.4	8.8	7.5	53.9	77.6	15.4	69.7	104.1	36.4
Stop Delay (hr)	0.2	0.7	0.0	1.2	0.6	0.0	0.5	0.2	0.5	0.4	0.0	0.1
Stop Del/Veh (s)	58.4	2.4	0.6	45.6	1.0	1.1	51.5	75.1	14.3	67.7	100.5	35.9
Total Stops	14	180	10	88	198	2	36	8	111	20	1	7
Stop/Veh	0.93	0.18	0.17	0.94	0.09	0.07	1.00	1.00	0.97	1.00	1.00	0.88
Travel Dist (mi)	3.7	245.2	14.0	17.1	394.7	4.9	2.7	0.6	8.8	1.0	0.1	0.4
Travel Time (hr)	0.4	7.0	0.4	1.8	13.3	0.2	0.7	0.2	0.9	0.5	0.0	0.1
Avg Speed (mph)	10	35	37	9	30	25	4	3	10	2	2	4
Fuel Used (gal)	0.2	9.1	0.5	0.8	12.7	0.1	0.2	0.1	0.4	0.1	0.0	0.0
Fuel Eff. (mpg)	22.1	26.8	30.3	22.1	31.0	39.4	12.6	10.2	24.1	8.4	6.9	14.0
HC Emissions (g)	1	120	15	6	176	2	2	0	3	0	0	0
CO Emissions (g)	60	5725	488	239	6154	38	51	8	97	12	0	5
NOx Emissions (g)	4	478	44	21	658	6	4	1	11	1	0	0
Vehicles Entered	15	1012	58	93	2137	27	36	8	115	20	1	8
Vehicles Exited	15	1012	58	93	2129	27	36	8	115	20	1	8
Hourly Exit Rate	15	1012	58	93	2129	27	36	8	115	20	1	8
Input Volume	11	1202	56	103	2293	29	34	4	124	19	2	9
% of Volume	136	84	104	90	93	93	106	200	93	105	50	89
Density (ft/veh)												
Occupancy (veh)	0	7	0	2	13	0	1	0	1	0	0	0

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	10.5
Total Del/Veh (s)	10.7
Stop Delay (hr)	4.4
Stop Del/Veh (s)	4.4
Total Stops	675
Stop/Veh	0.19
Travel Dist (mi)	693.2
Travel Time (hr)	25.4
Avg Speed (mph)	27
Fuel Used (gal)	24.2
Fuel Eff. (mpg)	28.6
HC Emissions (g)	325
CO Emissions (g)	12877
NOx Emissions (g)	1228
Vehicles Entered	3530
Vehicles Exited	3522
Hourly Exit Rate	3522
Input Volume	3886
% of Volume	91
Density (ft/veh)	418
Occupancy (veh)	25

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.7	3.8	0.5	0.6	3.2
Total Delay (hr)	3.5	6.6	0.0	5.2	24.1	0.6	0.5	0.7	0.1	6.8	1.6	0.4
Total Del/Veh (s)	93.1	23.6	3.3	88.3	45.6	11.6	54.9	55.7	2.1	83.8	64.1	4.3
Stop Delay (hr)	3.3	4.9	0.0	4.7	14.7	0.2	0.5	0.7	0.0	6.3	1.4	0.0
Stop Del/Veh (s)	89.2	17.4	0.0	79.6	27.9	4.8	53.0	52.7	0.0	77.1	57.7	0.0
Total Stops	125	467	0	230	1119	22	27	43	2	299	73	0
Stop/Veh	0.93	0.47	0.00	1.08	0.59	0.13	0.87	0.91	0.01	1.02	0.81	0.00
Travel Dist (mi)	25.2	192.5	4.5	19.7	175.6	14.8	5.0	7.9	32.1	57.3	17.8	59.5
Travel Time (hr)	4.1	10.5	0.1	5.9	27.6	1.1	0.7	1.1	1.7	8.5	2.1	2.4
Avg Speed (mph)	6	18	31	3	6	14	7	7	22	7	9	28
Fuel Used (gal)	1.3	5.8	0.1	2.1	11.6	0.8	0.3	0.4	1.0	3.4	0.9	1.9
Fuel Eff. (mpg)	19.4	33.3	56.4	9.5	15.1	19.6	19.2	20.0	32.1	17.0	20.4	31.3
HC Emissions (g)	11	54	3	19	81	7	0	5	8	39	10	21
CO Emissions (g)	330	1798	65	603	1936	350	26	109	215	1503	374	1146
NOx Emissions (g)	30	224	7	53	280	27	2	13	27	104	29	70
Vehicles Entered	132	1003	24	211	1874	173	30	47	197	290	90	314
Vehicles Exited	124	1001	24	201	1888	172	30	45	198	277	84	314
Hourly Exit Rate	124	1001	24	201	1888	172	30	45	198	277	84	314
Input Volume	150	1164	32	219	2039	216	32	43	174	280	87	316
% of Volume	83	86	75	92	93	80	94	105	114	99	97	99
Density (ft/veh)												
Occupancy (veh)	4	10	0	6	28	1	1	1	1	9	2	2

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.5
Total Delay (hr)	50.0
Total Del/Veh (s)	40.7
Stop Delay (hr)	36.7
Stop Del/Veh (s)	29.8
Total Stops	2407
Stop/Veh	0.54
Travel Dist (mi)	611.8
Travel Time (hr)	65.7
Avg Speed (mph)	9
Fuel Used (gal)	29.4
Fuel Eff. (mpg)	20.8
HC Emissions (g)	259
CO Emissions (g)	8456
NOx Emissions (g)	866
Vehicles Entered	4385
Vehicles Exited	4358
Hourly Exit Rate	4358
Input Volume	4752
% of Volume	92
Density (ft/veh)	232
Occupancy (veh)	65

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	5.2	0.2	0.1	5.5
Total Del/Veh (s)	70.5	1.7	1.3	22.5
Stop Delay (hr)	5.1	0.0	0.0	5.1
Stop Del/Veh (s)	69.2	0.1	0.1	21.1
Total Stops	34	0	0	34
Stop/Veh	0.13	0.00	0.00	0.04
Travel Dist (mi)	22.9	17.6	7.5	48.0
Travel Time (hr)	5.9	0.8	0.5	7.1
Avg Speed (mph)	4	23	16	7
Fuel Used (gal)	1.7	1.5	0.3	3.4
Fuel Eff. (mpg)	13.9	12.1	26.5	14.2
HC Emissions (g)	2	16	7	25
CO Emissions (g)	102	868	166	1136
NOx Emissions (g)	8	67	22	97
Vehicles Entered	262	427	183	872
Vehicles Exited	243	428	182	853
Hourly Exit Rate	243	428	182	853
Input Volume	372	554	229	1155
% of Volume	65	77	79	74
Density (ft/veh)				126
Occupancy (veh)	6	1	0	7

Total Network Performance

Denied Delay (hr)	825.7
Denied Del/Veh (s)	179.7
Total Delay (hr)	836.0
Total Del/Veh (s)	188.2
Stop Delay (hr)	627.5
Stop Del/Veh (s)	141.3
Total Stops	30651
Stop/Veh	1.92
Travel Dist (mi)	13085.9
Travel Time (hr)	2006.2
Avg Speed (mph)	11
Fuel Used (gal)	843.3
Fuel Eff. (mpg)	15.5
HC Emissions (g)	8101
CO Emissions (g)	279454
NOx Emissions (g)	24791
Vehicles Entered	15048
Vehicles Exited	14378
Hourly Exit Rate	14378
Input Volume	92182
% of Volume	16
Density (ft/veh)	138
Occupancy (veh)	1180

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	2.8	27.1	0.2	21
Total		2.8	27.1	0.2	21

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	52.8	57.1	0.0	3
	573	122.8	137.0	0.2	4
Laurel St	5	77.4	104.2	0.1	2
	627	506.5	531.5	0.3	2
	641	278.3	286.3	0.1	1
SH 128	6	392.3	399.1	0.1	1
Total		1430.1	1515.3	0.7	2

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	11.7	18.6	0.1	15
	627	4.6	13.1	0.1	23
Laurel St	5	23.7	50.0	0.3	20
	573	0.6	6.0	0.1	31
Nickel St	3	17.8	32.7	0.2	17
US 287 WB	214	1.9	6.2	0.0	24
Total		60.2	126.5	0.7	19

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	94.5	111.7	0.1	2
3rd Ave	4	1.7	18.0	0.2	33
Total		96.2	129.7	0.2	7

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	0.4	7.9	0.1	29
US 287	3	35.3	50.8	0.2	12
Total		35.7	58.7	0.2	14

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	L	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	150	218	230	483	483	261	370	445	443	501	220	649
Average Queue (ft)	32	73	212	423	440	176	284	408	417	290	160	604
95th Queue (ft)	81	162	293	535	501	261	444	463	460	554	264	624
Link Distance (ft)		331		431	431			418	418	418		586
Upstream Blk Time (%)				46	56			10	14	4		40
Queuing Penalty (veh)				0	0			68	100	28		0
Storage Bay Dist (ft)	125		205			270	270				195	
Storage Blk Time (%)	0	4	12	54		0	1	28			1	48
Queuing Penalty (veh)	0	11	34	158		1	13	94			15	58

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	640	638
Average Queue (ft)	607	542
95th Queue (ft)	626	841
Link Distance (ft)	586	586
Upstream Blk Time (%)	64	35
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	R	L	T	T	T	T	R
Maximum Queue (ft)	99	375	1336	1296	455	434	487
Average Queue (ft)	14	148	374	390	29	29	25
95th Queue (ft)	61	359	1083	1073	206	206	184
Link Distance (ft)	611		1656	1656	418	418	418
Upstream Blk Time (%)					0	1	0
Queuing Penalty (veh)					4	9	2
Storage Bay Dist (ft)		350					
Storage Blk Time (%)			14				
Queuing Penalty (veh)			15				

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	R	L	T	TR
Maximum Queue (ft)	29	141	53	309	418	165	250	250	235	74	543	168
Average Queue (ft)	2	104	24	70	158	40	54	81	50	33	92	38
95th Queue (ft)	13	159	53	163	309	133	178	210	193	73	306	116
Link Distance (ft)	136	136	136		724		235	235	235		786	
Upstream Blk Time (%)		28					11	15	14			
Queuing Penalty (veh)		35					0	0	0			
Storage Bay Dist (ft)				290		140				50		215
Storage Blk Time (%)					10	0				29	1	
Queuing Penalty (veh)					25	0				34	2	

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	55	31
Average Queue (ft)	33	5
95th Queue (ft)	52	23
Link Distance (ft)	379	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		45
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 5: Laurel St & US 287

Movement	EB	EB	B573	WB	WB	B627	B641	SB
Directions Served	L	TR	T	UL	TR	T	T	LTR
Maximum Queue (ft)	30	288	735	120	1484	449	465	222
Average Queue (ft)	6	111	242	34	160	30	60	75
95th Queue (ft)	25	333	789	107	875	213	311	208
Link Distance (ft)		216	724		1412	380	300	218
Upstream Blk Time (%)		38	26		6	5	4	22
Queuing Penalty (veh)		139	98		69	52	40	0
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)		39		13				
Queuing Penalty (veh)		3		122				

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B670	B670	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	290	979	979	979	150	887	1036	365	289	355	140	272
Average Queue (ft)	81	513	484	261	39	147	201	55	17	71	43	84
95th Queue (ft)	286	1088	1070	973	100	489	645	263	122	281	104	197
Link Distance (ft)		964	964	964		1493	1493		238	238		407
Upstream Blk Time (%)		24	25	22					0	2		
Queuing Penalty (veh)		0	0	0					0	13		
Storage Bay Dist (ft)	240				115			315			90	
Storage Blk Time (%)		55			4	8	5	4			0	18
Queuing Penalty (veh)		9			21	3	50	19			0	11

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	SB	SB	B641	B627
Directions Served	L	L	TR	T	T
Maximum Queue (ft)	140	165	374	452	1428
Average Queue (ft)	126	154	306	326	772
95th Queue (ft)	144	174	514	652	1806
Link Distance (ft)			300	380	1412
Upstream Blk Time (%)			73	69	39
Queuing Penalty (veh)			299	283	160
Storage Bay Dist (ft)	115	115			
Storage Blk Time (%)	77	80	0		
Queuing Penalty (veh)	65	68	0		

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T	L	T	T	R	L	L
Maximum Queue (ft)	237	328	327	95	1526	1548	190	659	674	71	209	235
Average Queue (ft)	231	308	128	29	1452	1452	106	621	621	38	66	185
95th Queue (ft)	245	317	295	93	1713	1744	217	713	719	68	184	282
Link Distance (ft)		238	238		1493	1493		621	621	621		
Upstream Blk Time (%)	62	93	3		58	48		21	26			
Queuing Penalty (veh)	0	463	14		287	236		137	168			
Storage Bay Dist (ft)	280			45			140				185	185
Storage Blk Time (%)	62	93	24	2			6	47			0	7
Queuing Penalty (veh)	251	185	20	8			56	48			1	27

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	317	235	199	371	423	260
Average Queue (ft)	243	109	94	144	289	149
95th Queue (ft)	344	302	218	251	479	312
Link Distance (ft)	265			389	389	
Upstream Blk Time (%)	29			0	23	
Queuing Penalty (veh)	0			0	0	
Storage Bay Dist (ft)		185	150			210
Storage Blk Time (%)	41		1	13	35	
Queuing Penalty (veh)	128		1	14	123	

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	L	TR	L	TR
Maximum Queue (ft)	29	28	51	224	588	575	30	31	31	56
Average Queue (ft)	3	1	5	27	420	434	6	3	3	15
95th Queue (ft)	17	9	28	136	655	648	26	18	18	43
Link Distance (ft)		621	621		548	548		282		232
Upstream Blk Time (%)					2	2				
Queuing Penalty (veh)					13	17				
Storage Bay Dist (ft)	150			175			120		30	
Storage Blk Time (%)					32				4	6
Queuing Penalty (veh)					3				1	0

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	175	169	164	16	53	600	610	490	111	87	107	155
Average Queue (ft)	27	66	66	1	26	214	241	43	40	31	29	154
95th Queue (ft)	94	153	154	5	54	413	453	183	90	74	75	158
Link Distance (ft)		548	548	548		1958	1958			400		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	255				315			440	130		60	105
Storage Blk Time (%)						2	1		0	7	1	97
Queuing Penalty (veh)						1	3		0	7	1	30

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	323	120
Average Queue (ft)	274	41
95th Queue (ft)	300	95
Link Distance (ft)	260	260
Upstream Blk Time (%)	78	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Queuing and Blocking Report
AM 2050

2050 AM Peak Hour
No Action

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	67	153	172	13	148	219	226	54	94	150	320	52
Average Queue (ft)	26	42	54	1	16	146	164	22	28	40	116	21
95th Queue (ft)	58	104	122	7	74	212	225	50	65	102	235	53
Link Distance (ft)		532	532			1246	1246			241	286	286
Upstream Blk Time (%)												3
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	180			425	100			950	45			
Storage Blk Time (%)						15			13	18		
Queuing Penalty (veh)						3			6	5		

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB
Directions Served	R
Maximum Queue (ft)	102
Average Queue (ft)	52
95th Queue (ft)	89
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	105
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB	SB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	29	55	28
Average Queue (ft)	3	28	1
95th Queue (ft)	16	51	9
Link Distance (ft)	146	112	241
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B597	B597
Directions Served	L	L	T	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	70	94	338	368	300	204	445	935	922	500	863	892
Average Queue (ft)	24	45	119	136	10	110	413	804	832	326	234	252
95th Queue (ft)	57	76	217	248	99	191	569	1027	1037	677	638	661
Link Distance (ft)			1246	1246				828	828		864	864
Upstream Blk Time (%)								21	27		0	0
Queuing Penalty (veh)								215	276		0	1
Storage Bay Dist (ft)	460	460			250	395	395			450		
Storage Blk Time (%)				2				50	52			
Queuing Penalty (veh)				3				168	73			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	T	T	L	L	T	TR
Maximum Queue (ft)	340	365	728	708	142	270	469	469
Average Queue (ft)	273	307	417	364	39	161	343	322
95th Queue (ft)	382	414	835	744	102	315	483	450
Link Distance (ft)			693	693			454	454
Upstream Blk Time (%)			27	0			1	1
Queuing Penalty (veh)			0	0			0	0
Storage Bay Dist (ft)	315	315			220	220		
Storage Blk Time (%)	10	39	0				32	
Queuing Penalty (veh)	32	127	0				57	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	R	L	T	T	R	L	T
Maximum Queue (ft)	67	104	151	128	180	30	338	521	533	69	95	51
Average Queue (ft)	16	45	42	46	69	5	173	206	225	20	38	16
95th Queue (ft)	46	77	103	102	153	18	320	433	446	49	74	46
Link Distance (ft)			864	864	864			1198	1198			393
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	260	260				450	470			590	115	
Storage Blk Time (%)								1			0	
Queuing Penalty (veh)								1			0	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	L	T	R
Maximum Queue (ft)	69	29	113	72	117
Average Queue (ft)	31	5	56	19	40
95th Queue (ft)	49	21	107	51	82
Link Distance (ft)				378	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	115	120	120		110
Storage Blk Time (%)			2		0
Queuing Penalty (veh)			2		0

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	B672	B672	NB	NB
Directions Served	L	T	T	T	R	L	T	TR	T	T	L	TR
Maximum Queue (ft)	51	182	165	184	25	182	229	252	981	948	81	161
Average Queue (ft)	13	50	63	69	8	75	81	90	149	84	31	56
95th Queue (ft)	43	126	143	153	26	141	201	214	705	505	69	112
Link Distance (ft)		1198	1198	1198	1198		928	928	964	964		403
Upstream Blk Time (%)									0	0		
Queuing Penalty (veh)									1	0		
Storage Bay Dist (ft)	150					305					85	
Storage Blk Time (%)		0									1	7
Queuing Penalty (veh)		0									1	2

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	104	31
Average Queue (ft)	22	8
95th Queue (ft)	58	29
Link Distance (ft)		266
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B636	B636
Directions Served	L	L	T	T	T	L	L	T	T	R	T	T
Maximum Queue (ft)	122	130	256	293	312	178	433	542	553	434	1403	1392
Average Queue (ft)	61	74	120	157	177	88	310	508	511	303	1329	1305
95th Queue (ft)	109	124	213	254	268	163	579	520	530	631	1494	1541
Link Distance (ft)			964	964	964			434	434		1340	1340
Upstream Blk Time (%)						0	31	32	1	42	39	
Queuing Penalty (veh)						0	0	0	0	0	0	
Storage Bay Dist (ft)	400	400				400	400			415		
Storage Blk Time (%)					0		0	33	33	1		
Queuing Penalty (veh)					0		1	72	72	8		

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	L	T
Maximum Queue (ft)	91	114	136	254	311	222
Average Queue (ft)	30	48	5	136	181	80
95th Queue (ft)	72	94	45	259	275	155
Link Distance (ft)		901		1046	1046	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		95	335		
Storage Blk Time (%)	0	2				
Queuing Penalty (veh)	0	5				

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement	EB	B225	B229
Directions Served	T	T	T
Maximum Queue (ft)	494	703	254
Average Queue (ft)	128	94	25
95th Queue (ft)	457	455	150
Link Distance (ft)	422	630	137
Upstream Blk Time (%)	20	9	7
Queuing Penalty (veh)	74	34	27
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 5737

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	26.2	71.6	159.7	121.7	40.7	66.9	0.0	0.8	0.2	76.4	686.9	9.1
Denied Del/Veh (s)	1523.9	1408.6	1412.7	1196.8	1108.7	1130.9	0.9	1.8	1.4	1131.2	1128.6	965.5
Total Delay (hr)	1.6	4.5	7.3	23.4	4.0	2.2	8.0	9.3	1.7	11.4	43.4	0.3
Total Del/Veh (s)	388.5	326.1	261.8	637.7	273.5	98.3	186.7	19.6	10.5	424.6	200.2	106.3
Stop Delay (hr)	1.6	4.4	7.1	23.2	3.8	2.0	7.8	5.7	0.3	11.2	41.6	0.3
Stop Del/Veh (s)	381.6	317.4	255.4	632.8	260.2	89.4	180.4	12.1	2.1	416.7	191.7	99.5
Total Stops	23	52	28	155	57	39	179	501	70	124	701	4
Stop/Veh	1.53	1.04	0.28	1.17	1.08	0.49	1.15	0.29	0.12	1.28	0.90	0.40
Travel Dist (mi)	0.9	2.9	4.6	8.8	4.3	5.0	13.9	168.4	51.3	13.1	116.3	1.5
Travel Time (hr)	27.9	76.2	167.2	145.4	44.8	69.3	8.6	14.8	3.7	88.2	733.6	9.5
Avg Speed (mph)	1	1	1	0	1	2	2	12	15	1	2	4
Fuel Used (gal)	6.2	17.2	37.8	33.1	10.2	15.6	2.3	10.4	2.2	20.0	168.6	2.2
Fuel Eff. (mpg)	0.1	0.2	0.1	0.3	0.4	0.3	6.0	16.1	23.6	0.7	0.7	0.7
HC Emissions (g)	63	135	213	184	69	115	34	176	27	196	1340	25
CO Emissions (g)	1035	2415	4304	3760	1305	2104	638	5774	650	3296	24797	421
NOx Emissions (g)	46	106	159	144	53	85	55	555	91	156	1220	19
Vehicles Entered	14	47	95	109	51	77	135	1671	566	78	729	10
Vehicles Exited	15	49	89	112	53	79	146	1678	565	96	739	10
Hourly Exit Rate	15	49	89	112	53	79	146	1678	565	96	739	10
Input Volume	59	151	332	307	116	185	162	2006	667	215	1986	23
% of Volume	25	32	27	36	46	43	90	84	85	45	37	43
Density (ft/veh)												
Occupancy (veh)	2	5	7	24	4	2	9	14	4	12	47	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	1260.2
Denied Del/Veh (s)	731.4
Total Delay (hr)	117.2
Total Del/Veh (s)	112.6
Stop Delay (hr)	109.0
Stop Del/Veh (s)	104.7
Total Stops	1933
Stop/Veh	0.52
Travel Dist (mi)	391.0
Travel Time (hr)	1389.2
Avg Speed (mph)	3
Fuel Used (gal)	325.8
Fuel Eff. (mpg)	1.2
HC Emissions (g)	2576
CO Emissions (g)	50497
NOx Emissions (g)	2689
Vehicles Entered	3582
Vehicles Exited	3631
Hourly Exit Rate	3631
Input Volume	6209
% of Volume	58
Density (ft/veh)	64
Occupancy (veh)	129

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	5.5	96.9	0.0	0.0	102.4
Denied Del/Veh (s)	0.0	0.0	161.3	155.4	0.0	0.0	98.4
Total Delay (hr)	0.1	0.1	13.0	17.3	5.2	8.5	44.3
Total Del/Veh (s)	2.0	1.8	488.0	34.3	23.0	249.3	48.4
Stop Delay (hr)	0.0	0.0	12.8	9.6	4.5	8.3	35.3
Stop Del/Veh (s)	0.0	0.5	481.7	19.0	19.9	244.3	38.6
Total Stops	0	10	105	826	50	31	1022
Stop/Veh	0.00	0.05	1.09	0.45	0.06	0.25	0.31
Travel Dist (mi)	5.3	25.8	12.7	246.4	71.9	8.6	370.6
Travel Time (hr)	0.4	1.4	18.9	121.4	7.2	8.8	158.1
Avg Speed (mph)	14	18	1	10	10	1	7
Fuel Used (gal)	0.1	1.3	4.6	33.8	5.5	2.2	47.5
Fuel Eff. (mpg)	58.8	20.5	2.7	7.3	13.1	3.9	7.8
HC Emissions (g)	0	15	2	108	117	3	246
CO Emissions (g)	6	805	340	3917	4465	206	9739
NOx Emissions (g)	0	51	11	308	341	14	726
Vehicles Entered	242	195	93	1763	817	123	3233
Vehicles Exited	242	195	77	1791	810	109	3224
Hourly Exit Rate	242	195	77	1791	810	109	3224
Input Volume	301	231	127	2226	2239	386	5510
% of Volume	80	84	61	80	36	28	59
Density (ft/veh)							83
Occupancy (veh)	0	1	13	24	7	9	56

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	13.6	24.3	34.5	0.1	0.7	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	434.7	483.5	495.2	12.6	38.8	0.2
Total Delay (hr)	0.0	5.0	0.0	0.6	1.6	0.1	0.8	5.8	10.9	11.1	4.0	1.6
Total Del/Veh (s)	30.8	194.0	3.2	15.2	14.3	4.7	41.7	190.6	253.2	973.9	237.7	263.9
Stop Delay (hr)	0.0	4.9	0.0	0.4	1.0	0.0	0.7	5.8	11.0	11.1	3.9	1.6
Stop Del/Veh (s)	29.4	190.7	2.6	11.4	8.9	2.4	39.0	188.5	255.8	973.6	234.7	261.9
Total Stops	2	65	19	92	205	21	59	59	105	41	55	22
Stop/Veh	1.00	0.70	0.66	0.67	0.49	0.43	0.91	0.54	0.68	1.00	0.92	1.00
Travel Dist (mi)	0.1	3.8	1.2	20.2	57.7	7.3	2.9	4.8	7.0	5.1	7.9	2.7
Travel Time (hr)	0.0	5.1	0.1	1.2	3.3	0.3	14.5	30.3	45.8	11.4	4.9	1.7
Avg Speed (mph)	4	1	13	16	17	23	3	1	1	0	2	2
Fuel Used (gal)	0.0	1.2	0.0	0.6	1.7	0.2	3.4	7.1	10.5	2.7	1.3	0.4
Fuel Eff. (mpg)	17.9	3.1	31.1	32.8	33.9	41.2	0.9	0.7	0.7	1.9	6.2	6.2
HC Emissions (g)	0	12	0	4	14	2	0	16	45	1	19	0
CO Emissions (g)	0	211	10	116	352	46	178	550	1062	157	319	37
NOx Emissions (g)	0	12	1	13	45	6	3	17	40	3	21	2
Vehicles Entered	2	92	28	135	410	49	64	109	154	41	60	20
Vehicles Exited	2	86	29	137	408	49	64	101	147	22	49	18
Hourly Exit Rate	2	86	29	137	408	49	64	101	147	22	49	18
Input Volume	13	367	124	154	416	72	123	162	238	74	97	39
% of Volume	15	23	23	89	98	68	52	62	62	30	51	46
Density (ft/veh)												
Occupancy (veh)	0	5	0	1	3	0	1	6	11	11	4	2

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	73.3
Denied Del/Veh (s)	190.5
Total Delay (hr)	41.5
Total Del/Veh (s)	126.6
Stop Delay (hr)	40.5
Stop Del/Veh (s)	123.7
Total Stops	745
Stop/Veh	0.63
Travel Dist (mi)	120.8
Travel Time (hr)	118.8
Avg Speed (mph)	3
Fuel Used (gal)	29.2
Fuel Eff. (mpg)	4.1
HC Emissions (g)	113
CO Emissions (g)	3038
NOx Emissions (g)	162
Vehicles Entered	1164
Vehicles Exited	1112
Hourly Exit Rate	1112
Input Volume	1879
% of Volume	59
Density (ft/veh)	130
Occupancy (veh)	45

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.3	0.1	0.0	0.0	3.7	6.6	10.8
Denied Del/Veh (s)	42.9	9.1	0.0	0.0	134.6	150.3	77.1
Total Delay (hr)	1.8	2.9	0.1	0.0	1.8	2.8	9.4
Total Del/Veh (s)	279.6	201.8	2.4	1.8	81.8	96.0	79.8
Stop Delay (hr)	1.8	2.9	0.0	0.0	1.7	2.8	9.2
Stop Del/Veh (s)	277.5	200.6	0.2	0.2	80.2	95.2	78.3
Total Stops	23	50	0	0	19	10	102
Stop/Veh	1.00	0.96	0.00	0.00	0.24	0.10	0.24
Travel Dist (mi)	1.6	3.7	23.1	1.7	5.2	7.3	42.6
Travel Time (hr)	2.2	3.2	0.9	0.1	5.7	9.6	21.7
Avg Speed (mph)	1	1	25	23	3	2	4
Fuel Used (gal)	0.5	0.8	1.0	0.1	1.4	2.4	6.2
Fuel Eff. (mpg)	3.1	4.6	23.1	26.9	3.6	3.1	6.9
HC Emissions (g)	9	0	12	0	1	13	35
CO Emissions (g)	130	57	392	23	105	312	1018
NOx Emissions (g)	7	2	43	2	4	17	75
Vehicles Entered	23	52	152	11	76	105	419
Vehicles Exited	16	40	154	11	70	100	391
Hourly Exit Rate	16	40	154	11	70	100	391
Input Volume	31	48	242	17	101	170	609
% of Volume	52	83	64	65	69	59	64
Density (ft/veh)							182
Occupancy (veh)	2	3	1	0	2	3	11

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	4.1	0.0	0.0	0.0	2.5	1.6	8.2
Denied Del/Veh (s)	0.0	63.3	0.0	0.0	0.0	559.8	442.7	31.4
Total Delay (hr)	0.3	10.2	2.2	0.4	0.0	4.6	2.7	20.5
Total Del/Veh (s)	79.8	166.3	1007.8	2.3	2.0	1385.5	899.0	79.6
Stop Delay (hr)	0.3	10.4	2.2	0.0	0.0	4.6	2.8	20.3
Stop Del/Veh (s)	80.3	168.7	1007.1	0.0	0.1	1387.1	900.9	78.6
Total Stops	10	38	8	0	1	5	7	69
Stop/Veh	0.77	0.17	1.00	0.00	0.05	0.42	0.64	0.07
Travel Dist (mi)	0.6	10.4	2.2	172.6	5.3	0.4	0.4	192.0
Travel Time (hr)	0.3	14.6	2.3	5.4	0.2	7.1	4.4	34.3
Avg Speed (mph)	2	1	1	32	30	0	0	7
Fuel Used (gal)	0.1	3.4	0.6	4.7	0.1	1.7	1.0	11.6
Fuel Eff. (mpg)	7.7	3.0	3.9	36.9	44.6	0.2	0.4	16.6
HC Emissions (g)	3	22	0	52	1	0	0	77
CO Emissions (g)	44	456	32	848	9	80	49	1518
NOx Emissions (g)	4	22	1	169	2	0	0	199
Vehicles Entered	13	219	8	639	19	12	11	921
Vehicles Exited	13	209	8	634	18	5	7	894
Hourly Exit Rate	13	209	8	634	18	5	7	894
Input Volume	25	679	14	677	22	20	12	1449
% of Volume	52	31	57	94	82	25	58	62
Density (ft/veh)								140
Occupancy (veh)	0	11	2	5	0	5	3	26

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	7.8	301.7	12.5	0.0	0.0	0.0	0.1	0.0	0.0	8.9	1.0	0.8
Denied Del/Veh (s)	830.7	835.5	789.8	0.0	0.0	0.0	4.0	0.4	0.3	122.7	193.5	248.1
Total Delay (hr)	1.7	69.8	0.3	0.7	3.3	1.6	0.6	2.7	0.7	20.8	0.5	0.1
Total Del/Veh (s)	326.8	335.8	30.7	103.7	14.5	9.9	42.7	126.1	62.9	289.5	93.8	47.5
Stop Delay (hr)	1.7	69.0	0.2	0.7	2.5	0.0	0.5	2.6	0.7	20.7	0.4	0.1
Stop Del/Veh (s)	325.5	332.2	25.7	101.0	11.1	0.1	38.7	122.6	61.2	287.8	88.3	42.8
Total Stops	22	457	35	21	195	6	60	73	25	188	11	0
Stop/Veh	1.16	0.61	1.09	0.88	0.24	0.01	1.18	0.96	0.60	0.73	0.61	0.00
Travel Dist (mi)	2.8	108.3	5.2	6.5	202.6	158.9	4.0	5.8	2.9	14.7	0.9	0.5
Travel Time (hr)	9.7	374.2	12.9	0.9	9.2	6.3	0.8	2.9	0.9	30.3	1.5	0.9
Avg Speed (mph)	2	1	12	7	22	25	5	2	3	1	2	3
Fuel Used (gal)	2.3	87.6	3.2	0.3	6.9	4.7	0.3	0.8	0.3	7.3	0.4	0.2
Fuel Eff. (mpg)	1.2	1.2	1.7	18.8	29.3	33.8	12.3	7.1	10.4	2.0	2.4	2.9
HC Emissions (g)	0	266	19	1	57	65	1	2	1	39	0	22
CO Emissions (g)	129	7670	510	43	1915	1566	62	101	41	856	30	274
NOx Emissions (g)	3	271	25	4	213	220	6	8	3	43	1	18
Vehicles Entered	19	675	32	23	813	571	50	73	42	239	16	10
Vehicles Exited	16	669	32	23	815	571	50	75	42	238	16	10
Hourly Exit Rate	16	669	32	23	815	571	50	75	42	238	16	10
Input Volume	32	1281	60	24	896	611	55	70	44	687	66	35
% of Volume	50	52	53	96	91	93	91	107	95	35	24	29
Density (ft/veh)												
Occupancy (veh)	2	73	0	1	9	6	1	3	1	21	0	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	332.8
Denied Del/Veh (s)	368.2
Total Delay (hr)	102.8
Total Del/Veh (s)	138.1
Stop Delay (hr)	99.3
Stop Del/Veh (s)	133.4
Total Stops	1093
Stop/Veh	0.41
Travel Dist (mi)	513.1
Travel Time (hr)	450.6
Avg Speed (mph)	4
Fuel Used (gal)	114.2
Fuel Eff. (mpg)	4.5
HC Emissions (g)	473
CO Emissions (g)	13197
NOx Emissions (g)	816
Vehicles Entered	2563
Vehicles Exited	2557
Hourly Exit Rate	2557
Input Volume	3861
% of Volume	66
Density (ft/veh)	95
Occupancy (veh)	118

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	31.0	107.7	5.4	0.0	0.1	0.0	17.6	41.4	23.4	9.7	16.5	15.7
Denied Del/Veh (s)	523.4	434.6	238.1	1.0	0.3	0.9	451.3	446.7	466.3	188.8	189.4	196.4
Total Delay (hr)	13.2	5.9	0.4	6.5	9.4	0.1	3.0	9.8	0.6	4.5	11.5	3.7
Total Del/Veh (s)	264.1	29.1	19.2	137.5	33.5	2.5	89.1	117.8	14.2	86.1	129.1	45.8
Stop Delay (hr)	13.0	4.8	0.3	6.2	6.6	0.1	2.9	9.2	0.4	4.3	10.8	3.3
Stop Del/Veh (s)	259.3	23.9	16.2	129.6	23.6	1.7	84.5	111.3	10.2	82.2	121.2	41.6
Total Stops	223	359	57	230	680	45	140	287	33	217	415	359
Stop/Veh	1.24	0.49	0.76	1.35	0.67	0.30	1.14	0.96	0.22	1.15	1.29	1.24
Travel Dist (mi)	9.3	41.3	4.3	20.4	126.6	19.0	6.0	14.9	6.5	13.4	22.9	21.1
Travel Time (hr)	44.5	114.7	6.0	7.2	12.7	0.8	20.8	51.7	24.3	14.7	28.9	20.3
Avg Speed (mph)	1	6	7	3	10	25	2	1	7	3	2	5
Fuel Used (gal)	10.4	28.0	1.5	2.0	5.7	0.5	4.9	12.3	5.7	3.7	7.4	5.2
Fuel Eff. (mpg)	0.9	1.5	2.9	10.1	22.1	35.6	1.2	1.2	1.1	3.6	3.1	4.0
HC Emissions (g)	58	65	2	14	44	5	21	30	17	5	25	19
CO Emissions (g)	1213	2632	120	359	1609	314	522	972	510	309	717	567
NOx Emissions (g)	58	129	9	30	154	17	25	40	20	17	48	43
Vehicles Entered	164	720	74	159	972	150	115	288	152	183	311	286
Vehicles Exited	165	722	75	165	1003	149	119	286	151	175	308	282
Hourly Exit Rate	165	722	75	165	1003	149	119	286	151	175	308	282
Input Volume	381	1632	153	178	1095	165	144	339	179	198	309	292
% of Volume	43	44	49	93	92	90	83	84	84	88	100	97
Density (ft/veh)												
Occupancy (veh)	14	7	1	7	13	1	3	10	1	5	12	5

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	268.4
Denied Del/Veh (s)	247.4
Total Delay (hr)	68.6
Total Del/Veh (s)	67.0
Stop Delay (hr)	61.9
Stop Del/Veh (s)	60.5
Total Stops	3045
Stop/Veh	0.83
Travel Dist (mi)	305.6
Travel Time (hr)	346.8
Avg Speed (mph)	4
Fuel Used (gal)	87.4
Fuel Eff. (mpg)	3.5
HC Emissions (g)	306
CO Emissions (g)	9843
NOx Emissions (g)	592
Vehicles Entered	3574
Vehicles Exited	3600
Hourly Exit Rate	3600
Input Volume	5065
% of Volume	71
Density (ft/veh)	81
Occupancy (veh)	78

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.1	0.2	3.9	0.4	0.3
Total Delay (hr)	0.1	1.7	0.0	0.2	0.8	0.0	0.6	0.0	0.2	0.5	0.1	0.1
Total Del/Veh (s)	22.7	5.9	4.0	16.2	2.4	0.8	53.6	53.5	9.1	52.8	57.5	19.1
Stop Delay (hr)	0.1	0.2	0.0	0.2	0.1	0.0	0.6	0.0	0.2	0.4	0.1	0.1
Stop Del/Veh (s)	17.9	0.7	0.6	13.9	0.2	0.2	51.7	51.7	8.6	51.0	55.2	18.6
Total Stops	16	103	10	32	31	2	37	2	76	25	5	19
Stop/Veh	1.07	0.10	0.25	0.73	0.03	0.07	0.92	0.67	0.94	0.81	1.00	0.90
Travel Dist (mi)	2.0	133.2	5.4	5.3	143.9	3.3	2.1	0.1	4.3	1.3	0.2	0.9
Travel Time (hr)	0.2	5.4	0.2	0.4	4.6	0.1	0.7	0.0	0.4	0.5	0.1	0.2
Avg Speed (mph)	12	24	22	14	32	28	3	2	10	3	2	6
Fuel Used (gal)	0.1	7.2	0.3	0.2	5.0	0.1	0.2	0.0	0.2	0.1	0.0	0.0
Fuel Eff. (mpg)	17.1	18.5	21.1	28.1	28.7	34.8	9.4	8.4	26.6	8.9	9.9	19.8
HC Emissions (g)	1	89	5	2	68	1	1	0	2	0	0	0
CO Emissions (g)	58	4264	231	74	2740	65	41	1	45	12	1	5
NOx Emissions (g)	3	347	15	6	243	4	4	0	5	1	0	0
Vehicles Entered	15	993	40	43	1213	28	38	2	80	30	5	21
Vehicles Exited	15	1006	40	43	1216	27	39	3	81	29	5	21
Hourly Exit Rate	15	1006	40	43	1216	27	39	3	81	29	5	21
Input Volume	33	1900	76	46	1352	29	38	5	75	36	7	25
% of Volume	45	53	53	93	90	93	103	60	108	81	71	84
Density (ft/veh)												
Occupancy (veh)	0	5	0	0	5	0	1	0	0	1	0	0

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	4.3
Total Del/Veh (s)	6.1
Stop Delay (hr)	2.0
Stop Del/Veh (s)	2.8
Total Stops	358
Stop/Veh	0.14
Travel Dist (mi)	301.9
Travel Time (hr)	12.9
Avg Speed (mph)	24
Fuel Used (gal)	13.5
Fuel Eff. (mpg)	22.4
HC Emissions (g)	171
CO Emissions (g)	7537
NOx Emissions (g)	630
Vehicles Entered	2508
Vehicles Exited	2525
Hourly Exit Rate	2525
Input Volume	3622
% of Volume	70
Density (ft/veh)	486
Occupancy (veh)	13

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	144.1	25.3	54.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.6	0.1	0.7	4.0	0.7	3.9	1386.9	1421.4	1467.5
Total Delay (hr)	0.1	1.6	0.0	0.5	2.8	0.6	0.5	0.5	0.5	10.4	1.1	0.5
Total Del/Veh (s)	15.3	5.7	1.5	17.0	8.5	6.3	64.3	72.6	18.1	228.5	140.9	28.9
Stop Delay (hr)	0.1	0.8	0.0	0.4	0.9	0.1	0.5	0.5	0.5	10.3	1.0	0.5
Stop Del/Veh (s)	12.7	2.7	1.2	13.1	2.6	0.9	62.7	69.9	17.9	226.6	138.1	28.5
Total Stops	23	133	8	76	177	60	21	19	99	107	25	48
Stop/Veh	0.82	0.13	0.24	0.72	0.15	0.17	0.75	0.79	0.96	0.65	0.93	0.77
Travel Dist (mi)	3.3	120.0	3.9	36.4	412.3	120.9	2.0	1.7	7.9	7.5	1.2	3.1
Travel Time (hr)	0.2	4.8	0.2	1.4	11.2	3.7	0.6	0.6	1.0	154.8	26.4	54.9
Avg Speed (mph)	14	25	26	27	37	33	3	3	9	1	1	5
Fuel Used (gal)	0.1	4.5	0.1	1.0	11.7	3.1	0.2	0.2	0.4	35.5	6.1	12.6
Fuel Eff. (mpg)	24.3	26.7	28.3	36.1	35.3	39.2	10.9	10.4	20.7	0.2	0.2	0.2
HC Emissions (g)	2	51	1	6	152	35	0	1	2	119	0	42
CO Emissions (g)	81	1963	87	314	5930	1319	26	26	86	3097	304	1089
NOx Emissions (g)	7	197	4	34	617	145	2	2	9	93	2	31
Vehicles Entered	28	1024	33	105	1194	347	26	22	101	152	25	62
Vehicles Exited	28	1024	33	103	1194	346	28	24	103	153	26	62
Hourly Exit Rate	28	1024	33	103	1194	346	28	24	103	153	26	62
Input Volume	55	1844	58	108	1275	325	30	32	106	334	66	122
% of Volume	51	56	57	95	94	106	93	75	97	46	39	51
Density (ft/veh)												
Occupancy (veh)	0	5	0	1	11	4	1	1	1	11	1	1

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	223.8
Denied Del/Veh (s)	233.4
Total Delay (hr)	19.2
Total Del/Veh (s)	21.8
Stop Delay (hr)	15.5
Stop Del/Veh (s)	17.7
Total Stops	796
Stop/Veh	0.25
Travel Dist (mi)	720.3
Travel Time (hr)	259.7
Avg Speed (mph)	20
Fuel Used (gal)	75.4
Fuel Eff. (mpg)	9.5
HC Emissions (g)	412
CO Emissions (g)	14323
NOx Emissions (g)	1143
Vehicles Entered	3119
Vehicles Exited	3124
Hourly Exit Rate	3124
Input Volume	4355
% of Volume	72
Density (ft/veh)	344
Occupancy (veh)	36

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.4	3.6
Total Delay (hr)	0.5	1.5	0.0	0.2	3.9	0.3	0.5	0.7	0.3	3.3	0.6	0.2
Total Del/Veh (s)	21.0	4.7	1.1	23.7	11.6	6.9	50.9	50.6	24.0	69.6	52.8	5.9
Stop Delay (hr)	0.5	0.7	0.0	0.2	1.1	0.0	0.4	0.7	0.3	3.1	0.6	0.2
Stop Del/Veh (s)	18.8	2.1	0.7	18.6	3.2	1.0	49.0	48.7	23.9	66.1	49.8	4.8
Total Stops	69	149	8	32	216	33	31	34	44	169	38	116
Stop/Veh	0.78	0.13	0.20	0.94	0.18	0.22	0.94	0.64	0.98	1.00	0.86	0.89
Travel Dist (mi)	9.6	116.9	4.4	8.5	302.8	37.2	1.5	2.1	2.1	9.2	2.4	7.1
Travel Time (hr)	0.8	3.9	0.2	0.5	10.6	1.3	0.6	0.9	0.4	3.7	0.7	0.7
Avg Speed (mph)	12	30	27	18	29	29	3	2	5	2	3	12
Fuel Used (gal)	0.3	3.4	0.1	0.4	14.5	1.6	0.2	0.3	0.2	1.1	0.2	0.3
Fuel Eff. (mpg)	32.7	34.3	40.6	21.7	20.9	23.1	8.0	7.4	12.0	8.2	10.2	22.3
HC Emissions (g)	3	43	2	3	200	21	1	4	1	10	0	2
CO Emissions (g)	82	1700	98	237	10449	1306	28	94	33	245	31	81
NOx Emissions (g)	9	168	5	13	726	72	3	10	4	25	3	9
Vehicles Entered	85	1136	39	34	1204	148	33	53	45	168	44	131
Vehicles Exited	86	1135	40	33	1190	147	33	53	45	167	44	131
Hourly Exit Rate	86	1135	40	33	1190	147	33	53	45	167	44	131
Input Volume	148	2012	83	42	1253	161	33	63	47	173	41	152
% of Volume	58	56	48	79	95	91	100	84	96	97	107	86
Density (ft/veh)												
Occupancy (veh)	1	4	0	0	11	1	1	1	0	4	1	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	12.1
Total Del/Veh (s)	13.8
Stop Delay (hr)	7.8
Stop Del/Veh (s)	9.0
Total Stops	939
Stop/Veh	0.30
Travel Dist (mi)	504.0
Travel Time (hr)	24.2
Avg Speed (mph)	21
Fuel Used (gal)	22.7
Fuel Eff. (mpg)	22.2
HC Emissions (g)	290
CO Emissions (g)	14384
NOx Emissions (g)	1047
Vehicles Entered	3120
Vehicles Exited	3104
Hourly Exit Rate	3104
Input Volume	4208
% of Volume	74
Density (ft/veh)	362
Occupancy (veh)	24

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.0	0.2
Total Del/Veh (s)	4.7	4.8	7.5	3.1	0.5	0.4	2.2
Stop Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Stop Del/Veh (s)	3.2	2.5	5.2	2.6	0.3	0.4	1.7
Total Stops	39	11	6	92	1	0	149
Stop/Veh	1.00	1.00	1.00	1.00	0.01	0.00	0.54
Travel Dist (mi)	2.1	0.6	0.2	3.1	5.5	0.9	12.5
Travel Time (hr)	0.1	0.0	0.0	0.3	0.5	0.1	1.1
Avg Speed (mph)	14	15	10	12	10	10	11
Fuel Used (gal)	0.1	0.0	0.0	0.1	0.3	0.0	0.5
Fuel Eff. (mpg)	35.3	41.3	32.2	38.4	20.9	18.7	26.2
HC Emissions (g)	1	0	0	0	1	0	2
CO Emissions (g)	15	1	1	9	39	5	70
NOx Emissions (g)	2	0	0	1	5	1	9
Vehicles Entered	38	11	6	92	111	17	275
Vehicles Exited	39	11	6	92	111	18	277
Hourly Exit Rate	39	11	6	92	111	18	277
Input Volume	40	14	9	103	155	21	343
% of Volume	98	79	67	89	72	86	81
Density (ft/veh)							813
Occupancy (veh)	0	0	0	0	1	0	1

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	42.9	114.5	65.5	116.2	228.8	39.8
Denied Del/Veh (s)	0.2	0.0	0.4	0.1	0.0	0.0	482.5	464.2	478.1	909.4	911.0	943.2
Total Delay (hr)	2.5	7.7	0.4	49.6	16.7	2.7	19.9	45.6	1.9	25.2	15.8	2.6
Total Del/Veh (s)	68.1	29.2	8.2	497.3	60.0	33.9	236.8	205.5	16.3	277.2	95.6	90.6
Stop Delay (hr)	2.2	4.6	0.0	48.1	9.9	1.2	18.6	41.2	0.7	24.4	13.7	2.3
Stop Del/Veh (s)	61.7	17.4	0.1	482.7	35.4	15.0	220.6	186.0	6.0	268.4	82.4	81.2
Total Stops	112	489	2	471	759	197	555	1383	106	482	654	102
Stop/Veh	0.85	0.52	0.01	1.31	0.76	0.68	1.83	1.73	0.25	1.47	1.10	0.99
Travel Dist (mi)	30.9	225.8	39.1	52.7	165.7	47.9	37.1	97.8	52.2	26.4	50.5	8.7
Travel Time (hr)	3.3	12.5	1.4	51.0	20.1	4.2	64.0	162.5	69.0	142.3	245.9	42.8
Avg Speed (mph)	9	18	27	1	8	11	2	2	15	1	3	3
Fuel Used (gal)	1.6	8.7	1.2	12.9	10.5	2.4	15.7	39.6	17.1	33.2	57.5	9.9
Fuel Eff. (mpg)	19.3	26.0	31.9	4.1	15.8	20.3	2.4	2.5	3.0	0.8	0.9	0.9
HC Emissions (g)	21	115	12	20	88	16	28	117	73	103	133	30
CO Emissions (g)	884	4952	666	1001	3834	790	1241	3497	2211	2864	4489	846
NOx Emissions (g)	62	381	45	53	314	65	61	179	133	102	153	29
Vehicles Entered	126	942	169	333	1004	290	279	741	425	297	578	100
Vehicles Exited	131	934	172	307	977	285	281	743	428	310	584	100
Hourly Exit Rate	131	934	172	307	977	285	281	743	428	310	584	100
Input Volume	228	1444	269	384	1003	304	300	879	482	415	795	125
% of Volume	57	65	64	80	97	94	94	85	89	75	73	80
Density (ft/veh)												
Occupancy (veh)	3	13	1	51	20	4	21	48	4	26	17	3

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	607.7
Denied Del/Veh (s)	359.8
Total Delay (hr)	190.6
Total Del/Veh (s)	125.7
Stop Delay (hr)	166.9
Stop Del/Veh (s)	110.1
Total Stops	5312
Stop/Veh	0.97
Travel Dist (mi)	834.7
Travel Time (hr)	819.1
Avg Speed (mph)	4
Fuel Used (gal)	210.4
Fuel Eff. (mpg)	4.0
HC Emissions (g)	756
CO Emissions (g)	27276
NOx Emissions (g)	1577
Vehicles Entered	5284
Vehicles Exited	5252
Hourly Exit Rate	5252
Input Volume	6628
% of Volume	79
Density (ft/veh)	75
Occupancy (veh)	211

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	26.5	4.7	10.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.6	1.1	3.7	256.1	245.8	244.6
Total Delay (hr)	4.1	2.4	0.1	23.5	27.5	2.0	2.2	1.2	0.6	15.0	2.4	2.6
Total Del/Veh (s)	93.7	6.0	3.4	470.5	66.1	28.7	73.0	73.3	12.6	152.3	140.1	69.1
Stop Delay (hr)	3.9	0.8	0.0	22.7	16.2	0.8	2.1	1.2	0.6	14.3	2.3	2.4
Stop Del/Veh (s)	89.2	1.9	1.9	454.0	38.9	10.9	70.2	69.9	11.1	145.4	132.9	63.4
Total Stops	145	164	17	258	1673	199	107	59	171	524	81	170
Stop/Veh	0.92	0.11	0.21	1.43	1.12	0.78	1.00	0.98	0.96	1.48	1.31	1.25
Travel Dist (mi)	26.8	245.5	14.4	38.6	342.6	61.0	7.8	4.3	13.3	24.4	4.4	9.7
Travel Time (hr)	4.8	7.4	0.5	24.5	34.5	3.7	2.6	1.4	1.4	42.5	7.3	13.1
Avg Speed (mph)	6	33	30	2	10	16	3	3	11	2	2	3
Fuel Used (gal)	1.5	7.1	0.4	6.4	17.1	2.7	0.8	0.4	0.6	10.4	1.8	3.3
Fuel Eff. (mpg)	17.8	34.3	39.7	6.0	20.0	22.6	9.6	10.5	20.9	2.3	2.4	2.9
HC Emissions (g)	9	97	3	13	125	40	2	1	3	37	1	2
CO Emissions (g)	328	3851	189	616	4873	1614	112	46	161	1001	110	211
NOx Emissions (g)	27	373	12	37	473	122	9	3	15	56	5	10
Vehicles Entered	153	1445	82	168	1463	254	105	58	178	336	62	134
Vehicles Exited	153	1439	82	150	1449	251	105	58	177	338	56	133
Hourly Exit Rate	153	1439	82	150	1449	251	105	58	177	338	56	133
Input Volume	212	2022	107	172	1478	241	107	63	166	364	67	146
% of Volume	72	71	77	87	98	104	98	92	107	93	84	91
Density (ft/veh)												
Occupancy (veh)	5	7	0	25	34	4	3	1	1	16	3	3

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	41.5
Denied Del/Veh (s)	33.3
Total Delay (hr)	83.7
Total Del/Veh (s)	66.6
Stop Delay (hr)	67.2
Stop Del/Veh (s)	53.5
Total Stops	3568
Stop/Veh	0.79
Travel Dist (mi)	792.9
Travel Time (hr)	143.8
Avg Speed (mph)	8
Fuel Used (gal)	52.6
Fuel Eff. (mpg)	15.1
HC Emissions (g)	332
CO Emissions (g)	13112
NOx Emissions (g)	1142
Vehicles Entered	4438
Vehicles Exited	4391
Hourly Exit Rate	4391
Input Volume	5145
% of Volume	85
Density (ft/veh)	127
Occupancy (veh)	102

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.3	0.4	4.0	0.3	0.1
Total Delay (hr)	0.1	6.4	0.0	4.5	13.8	0.3	1.0	0.2	1.1	1.0	0.2	0.1
Total Del/Veh (s)	109.9	12.6	2.2	110.6	26.7	24.0	67.1	94.1	23.6	61.7	65.4	34.0
Stop Delay (hr)	0.1	3.2	0.0	4.0	6.1	0.2	1.0	0.2	1.1	0.9	0.2	0.1
Stop Del/Veh (s)	101.6	6.3	0.8	97.6	11.8	12.6	64.2	91.6	22.5	59.3	62.1	33.6
Total Stops	4	386	4	174	784	20	57	7	161	47	10	11
Stop/Veh	1.00	0.21	0.09	1.18	0.42	0.40	1.06	0.88	0.93	0.84	0.91	0.85
Travel Dist (mi)	0.9	440.3	11.5	26.2	342.0	9.3	3.9	0.5	13.1	2.9	0.6	0.7
Travel Time (hr)	0.1	16.2	0.3	5.2	20.8	0.6	1.2	0.2	1.8	1.1	0.2	0.2
Avg Speed (mph)	6	27	35	5	16	15	3	2	7	3	3	4
Fuel Used (gal)	0.0	18.7	0.4	1.7	10.8	0.3	0.4	0.1	0.7	0.3	0.1	0.0
Fuel Eff. (mpg)	18.6	23.6	26.7	15.3	31.6	34.2	10.2	8.4	19.5	8.6	10.5	16.0
HC Emissions (g)	0	257	9	19	98	1	1	0	5	3	0	0
CO Emissions (g)	10	12648	397	452	3181	37	50	6	177	74	6	5
NOx Emissions (g)	1	938	26	43	344	4	4	0	17	6	0	0
Vehicles Entered	3	1808	47	141	1851	50	51	7	172	53	11	13
Vehicles Exited	3	1802	47	138	1838	49	52	7	170	54	11	12
Hourly Exit Rate	3	1802	47	138	1838	49	52	7	170	54	11	12
Input Volume	7	2345	63	147	1842	42	49	5	171	50	8	12
% of Volume	43	77	75	94	100	117	106	140	99	108	138	100
Density (ft/veh)												
Occupancy (veh)	0	16	0	5	21	1	1	0	2	1	0	0

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	28.9
Total Del/Veh (s)	24.4
Stop Delay (hr)	17.1
Stop Del/Veh (s)	14.4
Total Stops	1665
Stop/Veh	0.39
Travel Dist (mi)	851.9
Travel Time (hr)	48.0
Avg Speed (mph)	18
Fuel Used (gal)	33.5
Fuel Eff. (mpg)	25.4
HC Emissions (g)	393
CO Emissions (g)	17042
NOx Emissions (g)	1383
Vehicles Entered	4207
Vehicles Exited	4183
Hourly Exit Rate	4183
Input Volume	4741
% of Volume	88
Density (ft/veh)	222
Occupancy (veh)	48

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	4.0	0.3	3.9	0.5	0.5	3.2
Total Delay (hr)	6.5	8.9	0.0	1.7	17.0	0.8	0.2	0.7	0.1	33.0	0.6	0.4
Total Del/Veh (s)	71.7	18.0	3.8	61.9	35.4	7.6	62.6	56.7	2.0	355.7	63.1	4.1
Stop Delay (hr)	5.9	5.0	0.0	1.6	10.1	0.2	0.2	0.7	0.0	32.0	0.6	0.0
Stop Del/Veh (s)	65.2	10.0	0.0	55.8	21.1	1.5	60.5	53.9	0.0	344.9	56.6	0.0
Total Stops	268	686	0	97	1114	67	12	46	0	501	36	0
Stop/Veh	0.82	0.38	0.00	0.97	0.64	0.18	0.86	0.98	0.00	1.50	0.97	0.00
Travel Dist (mi)	59.2	337.6	1.9	9.4	160.1	31.4	2.4	8.0	19.6	61.9	7.3	57.9
Travel Time (hr)	8.1	15.7	0.1	2.0	20.2	1.9	0.4	1.1	1.0	34.8	0.8	2.3
Avg Speed (mph)	7	21	30	5	8	17	7	8	22	2	9	28
Fuel Used (gal)	2.8	10.4	0.0	0.7	8.3	1.1	0.1	0.4	0.6	9.5	0.3	1.8
Fuel Eff. (mpg)	21.4	32.5	54.0	12.6	19.3	27.3	19.0	20.2	31.1	6.5	21.2	31.4
HC Emissions (g)	17	119	0	4	51	14	0	1	3	32	2	22
CO Emissions (g)	659	4275	5	218	1378	561	13	36	107	1539	118	1106
NOx Emissions (g)	56	446	1	14	178	50	1	4	12	83	6	72
Vehicles Entered	307	1767	10	100	1714	363	13	47	121	315	37	305
Vehicles Exited	311	1782	10	96	1724	368	14	44	121	302	36	305
Hourly Exit Rate	311	1782	10	96	1724	368	14	44	121	302	36	305
Input Volume	382	2228	14	97	1708	351	12	44	100	318	48	310
% of Volume	81	80	71	99	101	105	117	100	121	95	75	98
Density (ft/veh)												
Occupancy (veh)	8	16	0	2	20	2	0	1	1	35	1	2

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.3
Total Delay (hr)	69.9
Total Del/Veh (s)	48.6
Stop Delay (hr)	56.2
Stop Del/Veh (s)	39.1
Total Stops	2827
Stop/Veh	0.55
Travel Dist (mi)	756.5
Travel Time (hr)	88.4
Avg Speed (mph)	9
Fuel Used (gal)	36.2
Fuel Eff. (mpg)	20.9
HC Emissions (g)	266
CO Emissions (g)	10016
NOx Emissions (g)	924
Vehicles Entered	5099
Vehicles Exited	5113
Hourly Exit Rate	5113
Input Volume	5612
% of Volume	91
Density (ft/veh)	172
Occupancy (veh)	88

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	17.2	0.1	0.1	17.4
Total Del/Veh (s)	419.3	1.5	1.5	106.1
Stop Delay (hr)	17.3	0.0	0.0	17.3
Stop Del/Veh (s)	419.9	0.2	0.1	105.3
Total Stops	30	0	0	30
Stop/Veh	0.20	0.00	0.00	0.05
Travel Dist (mi)	12.1	10.0	8.1	30.3
Travel Time (hr)	17.6	0.4	0.5	18.5
Avg Speed (mph)	1	23	16	2
Fuel Used (gal)	4.2	0.8	0.3	5.4
Fuel Eff. (mpg)	2.9	11.9	26.2	5.6
HC Emissions (g)	2	10	3	15
CO Emissions (g)	250	566	102	918
NOx Emissions (g)	10	39	11	60
Vehicles Entered	147	246	196	589
Vehicles Exited	125	247	195	567
Hourly Exit Rate	125	247	195	567
Input Volume	513	304	231	1048
% of Volume	24	81	84	54
Density (ft/veh)				48
Occupancy (veh)	18	0	1	19

Total Network Performance

Denied Delay (hr)	2930.6
Denied Del/Veh (s)	520.2
Total Delay (hr)	1133.9
Total Del/Veh (s)	255.8
Stop Delay (hr)	975.4
Stop Del/Veh (s)	220.0
Total Stops	27573
Stop/Veh	1.73
Travel Dist (mi)	12249.6
Travel Time (hr)	4381.7
Avg Speed (mph)	8
Fuel Used (gal)	1368.1
Fuel Eff. (mpg)	9.0
HC Emissions (g)	10090
CO Emissions (g)	343403
NOx Emissions (g)	25978
Vehicles Entered	14605
Vehicles Exited	14378
Hourly Exit Rate	14378
Input Volume	104663
% of Volume	14
Density (ft/veh)	111
Occupancy (veh)	1451

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	1.8	26.0	0.2	21
Total		1.8	26.0	0.2	21

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	194.0	198.4	0.0	1
	573	224.6	237.3	0.2	2
Laurel St	5	166.3	238.6	0.0	1
	627	796.0	818.4	0.3	1
	641	293.4	301.5	0.1	1
SH 128	6	93.8	303.4	0.1	3
Total		1768.1	2097.5	0.7	1

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	8.0	16.9	0.1	16
	627	0.5	9.1	0.1	33
Laurel St	5	2.3	30.0	0.3	34
	573	0.5	5.6	0.0	32
Nickel St	3	14.3	28.7	0.2	19
US 287 WB	214	1.7	6.0	0.0	25
Total		27.2	96.2	0.7	25

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	190.6	991.4	0.1	1
3rd Ave	4	3.1	21.3	0.2	27
Total		193.7	1012.7	0.2	4

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	96.0	329.1	0.1	3
US 287	3	237.3	298.3	0.2	2
Total		333.3	627.4	0.2	2

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	L	L	T	T	R	L
Maximum Queue (ft)	149	383	235	230	446	465	281	370	441	450	466	220
Average Queue (ft)	28	346	189	130	434	219	147	174	236	245	149	141
95th Queue (ft)	98	376	329	305	455	530	273	380	537	537	459	298
Link Distance (ft)		331			431	431			418	418	418	
Upstream Blk Time (%)		92			87	16			7	9	1	
Queuing Penalty (veh)		0			0	0			60	70	9	
Storage Bay Dist (ft)	125		210	205			270	270				195
Storage Blk Time (%)	0	36	58	35	96		2	2	15			49
Queuing Penalty (veh)	0	142	121	53	147		16	18	25			485

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	875	884	899
Average Queue (ft)	854	855	848
95th Queue (ft)	875	878	877
Link Distance (ft)	836	836	836
Upstream Blk Time (%)	84	94	66
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)	7		
Queuing Penalty (veh)	14		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	R	L	T	T	T	T	R
Maximum Queue (ft)	74	375	731	731	412	436	496
Average Queue (ft)	6	252	561	500	19	281	300
95th Queue (ft)	36	500	944	947	145	609	661
Link Distance (ft)	609		716	716	418	418	418
Upstream Blk Time (%)			36	16	0	63	48
Queuing Penalty (veh)			0	0	0	547	422
Storage Bay Dist (ft)		350					
Storage Blk Time (%)		38	7				
Queuing Penalty (veh)		425	9				

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	R	L	T	TR
Maximum Queue (ft)	28	155	27	93	260	165	269	287	251	74	764	240
Average Queue (ft)	2	127	10	45	110	16	184	218	194	56	390	59
95th Queue (ft)	13	170	31	86	209	66	333	318	343	87	896	201
Link Distance (ft)	135	135	135		724		235	235	235		752	
Upstream Blk Time (%)		76					51	73	52		34	
Queuing Penalty (veh)		128					0	0	0		68	
Storage Bay Dist (ft)				290		140				50		215
Storage Blk Time (%)					4					80	2	0
Queuing Penalty (veh)					8					108	3	0

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	437	69	387
Average Queue (ft)	134	15	113
95th Queue (ft)	387	52	387
Link Distance (ft)	424		372
Upstream Blk Time (%)	12		25
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)		45	
Storage Blk Time (%)		0	33
Queuing Penalty (veh)		1	33

Intersection: 5: Laurel St & US 287

Movement	EB	EB	B573	WB	WB	B641	SB
Directions Served	L	TR	T	UL	TR	T	LTR
Maximum Queue (ft)	125	294	741	122	154	433	242
Average Queue (ft)	34	258	632	50	5	71	163
95th Queue (ft)	125	349	1021	116	51	335	283
Link Distance (ft)		204	724		1424	290	226
Upstream Blk Time (%)		88	61			0	56
Queuing Penalty (veh)		597	412			1	0
Storage Bay Dist (ft)	100			100			
Storage Blk Time (%)	0	90		16			
Queuing Penalty (veh)	0	23		105			

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B670	B670	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	289	900	876	887	64	194	210	214	236	325	140	330
Average Queue (ft)	100	857	852	823	24	68	93	7	30	58	51	122
95th Queue (ft)	321	885	860	1076	53	145	166	70	154	253	135	265
Link Distance (ft)		836	836	836		1493	1493		238	238		408
Upstream Blk Time (%)		92	94	64					0	1		
Queuing Penalty (veh)		0	0	0					1	7		
Storage Bay Dist (ft)	240				115			315			90	
Storage Blk Time (%)		94				3					0	44
Queuing Penalty (veh)		30				1					0	24

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	SB	SB	B641	B627
Directions Served	L	L	TR	T	T
Maximum Queue (ft)	140	165	400	497	1438
Average Queue (ft)	133	160	363	458	1430
95th Queue (ft)	158	172	378	476	1439
Link Distance (ft)			290	388	1424
Upstream Blk Time (%)			93	97	70
Queuing Penalty (veh)			667	693	497
Storage Bay Dist (ft)	115	115			
Storage Blk Time (%)	72	87			
Queuing Penalty (veh)	73	88			

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T	L	T	T	R	L	L
Maximum Queue (ft)	237	357	327	95	1550	1552	190	603	580	56	183	234
Average Queue (ft)	233	316	173	38	1508	1525	171	294	288	25	40	163
95th Queue (ft)	243	341	390	111	1530	1553	222	543	520	52	142	281
Link Distance (ft)		238	238		1493	1493		621	621	621		
Upstream Blk Time (%)	49	88	14		42	53		0				
Queuing Penalty (veh)	0	887	138		422	536		0				
Storage Bay Dist (ft)	280			45			140				185	185
Storage Blk Time (%)	49	88	36	2			48	17			0	2
Queuing Penalty (veh)	402	336	55	13			264	30			0	10

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	304	235	200	404	413	260
Average Queue (ft)	282	187	91	223	404	239
95th Queue (ft)	292	341	219	438	407	327
Link Distance (ft)	265			389	389	
Upstream Blk Time (%)	73			5	70	
Queuing Penalty (veh)	0			0	0	
Storage Bay Dist (ft)		185	150			210
Storage Blk Time (%)	76		0	18	73	1
Queuing Penalty (veh)	246		0	17	212	2

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	29	162	645	23	74	52	53	28	96	125	63	75
Average Queue (ft)	12	22	46	4	27	8	20	2	37	44	28	23
95th Queue (ft)	32	83	243	19	57	32	48	13	77	84	53	52
Link Distance (ft)		621	621	621		548	548	548		282		232
Upstream Blk Time (%)			0									
Queuing Penalty (veh)			1									
Storage Bay Dist (ft)	150				175				120		30	
Storage Blk Time (%)		0								0	38	16
Queuing Penalty (veh)		0								0	12	6

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	70	388	404	20	116	198	251	114	64	116	110	154
Average Queue (ft)	18	52	66	4	46	66	76	27	25	27	36	152
95th Queue (ft)	50	216	225	14	84	167	198	70	54	77	76	159
Link Distance (ft)		548	548	548		1958	1958			400		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	255				315			440	130		60	105
Storage Blk Time (%)		1								8	7	94
Queuing Penalty (veh)		0								11	4	62

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	299	166
Average Queue (ft)	274	46
95th Queue (ft)	291	116
Link Distance (ft)	260	260
Upstream Blk Time (%)	95	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	107	111	147	16	64	182	229	96	94	126	294	93
Average Queue (ft)	41	57	62	3	18	88	102	24	27	59	145	34
95th Queue (ft)	82	108	115	12	46	163	190	64	74	123	262	75
Link Distance (ft)		532	532			1246	1246			199	286	286
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	180			425	100			950	45			
Storage Blk Time (%)						4			9	28		0
Queuing Penalty (veh)						2			8	9		0

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB
Directions Served	R
Maximum Queue (ft)	71
Average Queue (ft)	40
95th Queue (ft)	63
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	105
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB	SB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	67	56	31
Average Queue (ft)	28	34	1
95th Queue (ft)	54	51	10
Link Distance (ft)	289	179	199
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B597	B597
Directions Served	L	L	T	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	134	140	306	377	300	420	445	936	918	500	875	882
Average Queue (ft)	55	63	178	192	20	412	442	884	723	125	555	565
95th Queue (ft)	108	123	319	355	140	441	451	997	1148	312	1036	1050
Link Distance (ft)			1246	1246				828	828		864	864
Upstream Blk Time (%)								78	11		4	5
Queuing Penalty (veh)								652	89		22	27
Storage Bay Dist (ft)	460	460			250	395	395			450		
Storage Blk Time (%)				4		32	89	0	1			
Queuing Penalty (veh)				11		159	444	0	2			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	339	365	732	756	727	245	270	517	469
Average Queue (ft)	203	334	708	705	631	243	269	475	422
95th Queue (ft)	299	445	719	735	979	249	272	496	551
Link Distance (ft)			693	693	693			454	454
Upstream Blk Time (%)			69	48	30			82	11
Queuing Penalty (veh)			0	0	0			0	0
Storage Bay Dist (ft)	315	315				220	220		
Storage Blk Time (%)	2	4	74			38	84	10	
Queuing Penalty (veh)	8	16	221			153	334	42	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	R	L	T	T	R	L	T
Maximum Queue (ft)	168	195	132	178	204	40	520	1224	1222	640	164	361
Average Queue (ft)	66	78	32	41	55	7	507	814	789	84	91	79
95th Queue (ft)	128	147	100	130	166	25	553	1332	1369	330	146	201
Link Distance (ft)			864	864	864			1198	1198			393
Upstream Blk Time (%)								3	3			
Queuing Penalty (veh)								24	29			
Storage Bay Dist (ft)	260	260				450	470			590	115	
Storage Blk Time (%)							75	5	5		12	1
Queuing Penalty (veh)							533	9	13		27	4

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	L	T	R
Maximum Queue (ft)	165	145	170	431	160
Average Queue (ft)	62	142	169	398	69
95th Queue (ft)	124	151	171	415	141
Link Distance (ft)				378	
Upstream Blk Time (%)				76	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)	115	120	120		110
Storage Blk Time (%)	1	35	80	0	5
Queuing Penalty (veh)	3	74	171	0	21

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	B672	B672	NB	NB
Directions Served	L	T	T	T	R	L	T	TR	T	T	L	TR
Maximum Queue (ft)	31	325	352	336	30	354	735	738	946	982	135	224
Average Queue (ft)	4	96	118	140	3	186	299	303	32	63	61	90
95th Queue (ft)	20	222	252	274	18	321	624	627	312	455	132	167
Link Distance (ft)		1198	1198	1198	1198		928	928	964	964		403
Upstream Blk Time (%)									0	0		
Queuing Penalty (veh)									0	1		
Storage Bay Dist (ft)	150					305					85	
Storage Blk Time (%)		2				1	10				5	16
Queuing Penalty (veh)		0				6	15				10	8

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	101	53
Average Queue (ft)	50	23
95th Queue (ft)	90	49
Link Distance (ft)		286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)	5	
Queuing Penalty (veh)	1	

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B636	B636
Directions Served	L	L	T	T	T	L	L	T	T	R	T	T
Maximum Queue (ft)	324	303	262	306	308	109	433	525	506	434	484	546
Average Queue (ft)	133	139	150	174	194	25	108	388	384	175	85	79
95th Queue (ft)	229	232	270	311	336	68	322	602	585	502	353	351
Link Distance (ft)			964	964	964			434	434		1340	1340
Upstream Blk Time (%)						0	10	7	1			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	400	400				400	400			415		
Storage Blk Time (%)					0			13	8	1		
Queuing Penalty (veh)					0			12	29	5		

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB
Directions Served	L	T	L	L	T
Maximum Queue (ft)	31	94	385	852	92
Average Queue (ft)	15	46	372	533	37
95th Queue (ft)	36	84	421	756	78
Link Distance (ft)		901		1046	1046
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100		335		
Storage Blk Time (%)		1	51	79	
Queuing Penalty (veh)		1	82	125	

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement	EB	B225	B229
Directions Served	T	T	T
Maximum Queue (ft)	494	703	308
Average Queue (ft)	385	505	169
95th Queue (ft)	698	1001	355
Link Distance (ft)	422	630	137
Upstream Blk Time (%)	75	68	67
Queuing Penalty (veh)	386	350	341
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 14278

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.2	50.4	16.9	14.5	0.1	1.2	0.2	20.9	372.8	10.9
Denied Del/Veh (s)	3.5	1.0	3.7	284.9	290.4	280.3	1.6	2.4	2.6	607.2	593.3	611.0
Total Delay (hr)	0.3	1.4	0.2	19.2	6.9	3.4	7.8	14.7	0.7	4.5	32.8	0.2
Total Del/Veh (s)	41.9	62.0	3.5	113.4	117.0	68.1	91.5	29.8	9.2	159.2	70.4	12.7
Stop Delay (hr)	0.3	1.3	0.0	17.9	6.1	3.0	7.1	9.5	0.2	4.0	24.7	0.1
Stop Del/Veh (s)	38.1	56.2	0.0	105.7	104.4	59.8	83.9	19.3	2.4	143.5	53.0	7.3
Total Stops	28	78	0	766	180	116	347	872	48	152	1540	9
Stop/Veh	0.97	0.96	0.00	1.26	0.85	0.65	1.13	0.49	0.18	1.50	0.92	0.19
Travel Dist (mi)	1.8	5.1	11.5	48.3	16.7	11.1	31.6	180.5	23.4	10.9	182.7	4.7
Travel Time (hr)	0.4	1.6	0.9	71.5	24.4	18.2	9.0	20.6	1.7	25.8	410.9	11.2
Avg Speed (mph)	4	3	18	2	2	3	4	9	16	2	5	15
Fuel Used (gal)	0.1	0.5	0.6	17.4	5.8	4.3	2.9	9.6	0.9	6.1	97.5	2.6
Fuel Eff. (mpg)	12.9	10.6	20.7	2.8	2.9	2.6	10.9	18.7	26.5	1.8	1.9	1.8
HC Emissions (g)	4	4	8	149	63	32	19	138	12	50	822	66
CO Emissions (g)	84	113	290	2772	1102	632	580	3068	316	920	14966	1041
NOx Emissions (g)	10	11	28	190	77	37	53	392	38	54	912	73
Vehicles Entered	29	81	231	585	201	172	300	1766	269	97	1643	47
Vehicles Exited	28	80	230	591	205	178	305	1753	274	97	1634	47
Hourly Exit Rate	28	80	230	591	205	178	305	1753	274	97	1634	47
Input Volume	25	73	228	586	244	165	341	1809	283	121	2073	54
% of Volume	112	110	101	101	84	108	89	97	97	80	79	87
Density (ft/veh)												
Occupancy (veh)	0	2	1	21	7	4	9	19	2	5	38	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	488.2
Denied Del/Veh (s)	284.9
Total Delay (hr)	92.0
Total Del/Veh (s)	60.0
Stop Delay (hr)	74.1
Stop Del/Veh (s)	48.4
Total Stops	4136
Stop/Veh	0.75
Travel Dist (mi)	528.1
Travel Time (hr)	596.1
Avg Speed (mph)	5
Fuel Used (gal)	148.5
Fuel Eff. (mpg)	3.6
HC Emissions (g)	1367
CO Emissions (g)	25883
NOx Emissions (g)	1875
Vehicles Entered	5421
Vehicles Exited	5422
Hourly Exit Rate	5422
Input Volume	6002
% of Volume	90
Density (ft/veh)	68
Occupancy (veh)	108

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.3	0.0	0.0	0.4
Denied Del/Veh (s)	0.1	0.0	1.3	0.6	0.0	0.0	0.3
Total Delay (hr)	0.1	0.0	2.4	6.2	3.7	0.4	12.7
Total Del/Veh (s)	1.7	0.5	88.7	11.3	5.9	6.7	9.5
Stop Delay (hr)	0.0	0.0	2.2	2.1	0.1	0.0	4.4
Stop Del/Veh (s)	0.0	0.0	82.3	3.8	0.1	0.2	3.3
Total Stops	2	0	98	476	103	20	699
Stop/Veh	0.01	0.00	1.02	0.24	0.05	0.09	0.14
Travel Dist (mi)	4.0	10.7	30.5	616.6	199.7	16.9	878.6
Travel Time (hr)	0.3	0.6	3.3	24.2	9.4	1.1	38.9
Avg Speed (mph)	15	19	9	26	21	16	23
Fuel Used (gal)	0.1	0.5	1.4	17.9	14.0	0.8	34.7
Fuel Eff. (mpg)	58.1	20.4	21.4	34.4	14.2	22.0	25.3
HC Emissions (g)	0	11	9	149	283	7	458
CO Emissions (g)	8	429	280	3924	10629	237	15507
NOx Emissions (g)	0	31	30	524	942	29	1556
Vehicles Entered	214	80	95	1954	2227	228	4798
Vehicles Exited	216	81	93	1925	2228	227	4770
Hourly Exit Rate	216	81	93	1925	2228	227	4770
Input Volume	562	229	111	1889	2626	261	5678
% of Volume	38	35	84	102	85	87	84
Density (ft/veh)							192
Occupancy (veh)	0	1	3	24	9	1	39

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	0.8	0.1	0.2	0.5	0.0	0.3	0.2	0.1	0.2	0.3	0.0
Total Del/Veh (s)	12.9	13.0	3.0	15.6	10.7	0.8	12.7	13.7	3.5	11.9	10.2	2.5
Stop Delay (hr)	0.0	0.6	0.1	0.1	0.4	0.0	0.2	0.1	0.1	0.1	0.2	0.0
Stop Del/Veh (s)	10.7	10.3	2.9	13.5	8.2	0.4	10.7	10.9	3.1	9.6	8.5	2.2
Total Stops	1	118	75	27	68	2	45	28	41	33	34	16
Stop/Veh	1.00	0.55	0.69	0.73	0.42	0.17	0.60	0.58	0.52	0.70	0.38	0.50
Travel Dist (mi)	0.0	9.1	4.7	5.3	22.9	1.8	3.2	2.1	3.4	7.3	12.4	4.9
Travel Time (hr)	0.0	1.0	0.3	0.3	1.1	0.1	0.4	0.3	0.3	0.4	0.7	0.2
Avg Speed (mph)	8	9	14	16	20	28	8	8	13	17	18	23
Fuel Used (gal)	0.0	0.4	0.1	0.2	0.7	0.0	0.2	0.1	0.1	0.2	0.4	0.1
Fuel Eff. (mpg)	23.7	22.8	53.5	33.8	34.1	44.8	21.1	19.9	32.9	33.4	30.1	36.2
HC Emissions (g)	0	2	0	1	7	0	1	1	1	2	3	2
CO Emissions (g)	0	102	12	22	163	3	28	35	34	54	90	38
NOx Emissions (g)	0	8	1	2	21	1	3	3	4	7	12	6
Vehicles Entered	1	214	109	35	157	12	74	48	76	47	88	32
Vehicles Exited	1	214	108	37	160	12	75	48	79	47	89	31
Hourly Exit Rate	1	214	108	37	160	12	75	48	79	47	89	31
Input Volume	4	249	119	181	714	73	65	53	79	44	94	44
% of Volume	25	86	91	20	22	16	115	91	100	107	95	70
Density (ft/veh)												
Occupancy (veh)	0	1	0	0	1	0	0	0	0	0	1	0

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	2.5
Total Del/Veh (s)	9.8
Stop Delay (hr)	2.0
Stop Del/Veh (s)	8.0
Total Stops	488
Stop/Veh	0.54
Travel Dist (mi)	77.2
Travel Time (hr)	5.2
Avg Speed (mph)	15
Fuel Used (gal)	2.5
Fuel Eff. (mpg)	31.1
HC Emissions (g)	20
CO Emissions (g)	580
NOx Emissions (g)	68
Vehicles Entered	893
Vehicles Exited	901
Hourly Exit Rate	901
Input Volume	1719
% of Volume	52
Density (ft/veh)	1352
Occupancy (veh)	5

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	3.9	0.2	0.6
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	4.4	3.3	1.3	1.9	1.9	0.3	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	2.8	2.8	0.2	0.2	0.1	0.0	0.6
Total Stops	20	43	0	0	1	0	64
Stop/Veh	0.95	1.00	0.00	0.00	0.03	0.00	0.20
Travel Dist (mi)	1.5	3.1	10.9	0.4	2.1	8.7	26.7
Travel Time (hr)	0.1	0.2	0.4	0.0	0.1	0.3	1.2
Avg Speed (mph)	17	16	27	24	20	28	24
Fuel Used (gal)	0.0	0.1	0.4	0.0	0.1	0.3	0.9
Fuel Eff. (mpg)	39.8	35.9	25.1	41.4	33.7	31.0	29.3
HC Emissions (g)	0	1	7	0	0	3	11
CO Emissions (g)	4	19	177	5	11	86	301
NOx Emissions (g)	0	2	20	0	1	11	35
Vehicles Entered	21	43	73	3	35	146	321
Vehicles Exited	20	43	74	3	35	147	322
Hourly Exit Rate	20	43	74	3	35	147	322
Input Volume	34	41	129	9	39	148	400
% of Volume	59	105	57	33	90	99	80
Density (ft/veh)	1679						
Occupancy (veh)	0	0	0	0	0	0	1

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	1.5	0.0	0.0	0.0	0.2	0.1	0.9
Total Delay (hr)	0.0	3.2	0.0	0.0	0.0	0.2	0.4	3.9
Total Del/Veh (s)	1.6	37.6	5.7	0.5	0.0	52.3	36.9	25.3
Stop Delay (hr)	0.0	3.2	0.0	0.0	0.0	0.2	0.4	3.8
Stop Del/Veh (s)	0.0	37.1	3.0	0.0	0.0	50.7	36.2	24.7
Total Stops	0	23	1	0	0	13	42	79
Stop/Veh	0.00	0.07	0.50	0.00	0.00	1.00	0.98	0.14
Travel Dist (mi)	0.3	14.8	0.6	47.6	0.6	0.5	1.6	65.8
Travel Time (hr)	0.0	3.8	0.0	1.4	0.0	0.2	0.5	6.0
Avg Speed (mph)	21	4	26	34	32	2	3	11
Fuel Used (gal)	0.0	1.2	0.0	1.3	0.0	0.1	0.1	2.7
Fuel Eff. (mpg)	41.0	12.3	33.8	37.3	41.4	9.6	11.3	24.3
HC Emissions (g)	0	9	0	14	0	0	0	23
CO Emissions (g)	1	249	1	252	1	3	11	519
NOx Emissions (g)	0	20	0	48	0	0	1	69
Vehicles Entered	6	305	2	174	2	13	43	545
Vehicles Exited	6	284	2	178	2	11	36	519
Hourly Exit Rate	6	284	2	178	2	11	36	519
Input Volume	8	371	23	1043	17	15	35	1512
% of Volume	75	77	9	17	12	73	103	34
Density (ft/veh)								914
Occupancy (veh)	0	4	0	1	0	0	1	6

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.9	116.8	14.0	0.0	0.0	0.0	5.6	4.7	1.4	2.6	0.4	0.0
Denied Del/Veh (s)	679.8	601.7	613.4	0.0	0.0	0.0	320.9	316.0	246.3	75.7	64.6	0.0
Total Delay (hr)	0.6	56.7	0.0	0.5	20.0	4.2	2.7	3.9	1.4	17.1	0.3	0.1
Total Del/Veh (s)	737.2	678.5	1.8	590.7	264.5	86.8	256.4	467.3	398.1	482.3	59.2	13.6
Stop Delay (hr)	0.6	56.4	0.0	0.5	19.8	4.0	2.7	3.9	1.4	17.0	0.3	0.1
Stop Del/Veh (s)	736.0	674.6	1.7	588.7	262.1	82.4	253.8	464.2	396.1	479.2	55.1	12.5
Total Stops	2	158	12	2	107	27	32	31	4	104	17	3
Stop/Veh	0.67	0.52	0.36	0.67	0.39	0.16	0.84	1.03	0.31	0.81	0.81	0.16
Travel Dist (mi)	0.4	47.3	6.2	0.6	65.7	45.4	2.6	2.0	0.9	7.5	1.4	1.2
Travel Time (hr)	2.5	174.7	14.2	0.5	21.9	5.6	8.4	8.6	2.9	20.0	0.8	0.1
Avg Speed (mph)	1	1	30	1	3	8	1	1	1	0	4	10
Fuel Used (gal)	0.6	40.6	3.3	0.1	6.3	2.1	2.0	2.0	0.7	4.6	0.2	0.0
Fuel Eff. (mpg)	0.6	1.2	1.9	4.7	10.5	21.8	1.3	1.0	1.2	1.6	7.2	38.5
HC Emissions (g)	0	139	34	1	11	11	17	15	0	12	0	0
CO Emissions (g)	31	3851	580	14	524	308	318	287	39	363	12	5
NOx Emissions (g)	0	134	30	1	42	38	16	14	1	11	0	1
Vehicles Entered	3	297	33	2	262	171	37	29	13	115	21	19
Vehicles Exited	2	213	33	2	198	150	32	22	10	103	21	19
Hourly Exit Rate	2	213	33	2	198	150	32	22	10	103	21	19
Input Volume	16	635	71	35	1337	1012	60	55	17	342	49	36
% of Volume	12	34	46	6	15	15	53	40	59	30	43	53
Density (ft/veh)												
Occupancy (veh)	1	58	0	1	22	6	3	4	1	17	0	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	147.4
Denied Del/Veh (s)	347.3
Total Delay (hr)	107.6
Total Del/Veh (s)	374.4
Stop Delay (hr)	106.7
Stop Del/Veh (s)	371.2
Total Stops	499
Stop/Veh	0.48
Travel Dist (mi)	181.1
Travel Time (hr)	260.3
Avg Speed (mph)	2
Fuel Used (gal)	62.5
Fuel Eff. (mpg)	2.9
HC Emissions (g)	239
CO Emissions (g)	6332
NOx Emissions (g)	289
Vehicles Entered	1002
Vehicles Exited	805
Hourly Exit Rate	805
Input Volume	3665
% of Volume	22
Density (ft/veh)	104
Occupancy (veh)	113

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	20.0	68.0	12.5	0.0	0.0	0.0	53.3	60.8	27.2	40.4	58.1	84.8
Denied Del/Veh (s)	1057.1	877.0	1094.1	1.6	0.1	0.0	922.6	781.9	1029.9	670.6	794.8	818.4
Total Delay (hr)	7.8	18.3	0.8	0.2	0.7	0.0	2.4	5.1	5.1	18.9	3.2	0.9
Total Del/Veh (s)	549.4	369.4	131.5	50.0	9.3	0.6	126.9	156.2	574.0	842.2	111.5	27.8
Stop Delay (hr)	7.8	18.0	0.8	0.2	0.5	0.0	2.3	4.9	5.1	18.9	3.0	0.8
Stop Del/Veh (s)	549.3	364.9	128.4	48.4	7.2	0.4	121.7	149.7	570.1	838.8	105.2	24.3
Total Stops	29	106	21	13	70	2	92	116	15	85	126	135
Stop/Veh	0.57	0.60	0.91	1.00	0.28	0.09	1.33	0.98	0.47	1.05	1.21	1.17
Travel Dist (mi)	2.2	9.3	1.3	1.3	26.0	2.2	3.5	5.8	1.3	5.2	7.4	8.4
Travel Time (hr)	27.8	86.5	13.4	0.2	1.3	0.1	55.9	66.1	32.3	59.6	61.6	86.1
Avg Speed (mph)	0	1	1	6	20	27	1	1	0	0	2	7
Fuel Used (gal)	6.4	20.0	3.1	0.1	1.0	0.1	12.8	15.3	7.4	13.7	14.2	19.8
Fuel Eff. (mpg)	0.3	0.5	0.4	20.1	26.1	40.0	0.3	0.4	0.2	0.4	0.5	0.4
HC Emissions (g)	23	67	0	0	8	0	38	36	36	23	49	18
CO Emissions (g)	583	1808	151	9	447	33	1077	1161	782	958	1268	1183
NOx Emissions (g)	19	59	1	1	31	2	33	33	28	21	42	20
Vehicles Entered	37	171	23	13	250	22	68	109	31	80	99	114
Vehicles Exited	47	155	22	13	252	22	68	116	24	55	104	115
Hourly Exit Rate	47	155	22	13	252	22	68	116	24	55	104	115
Input Volume	199	813	85	102	1814	151	215	274	95	222	272	355
% of Volume	24	19	26	13	14	15	32	42	25	25	38	32
Density (ft/veh)												
Occupancy (veh)	8	19	1	0	1	0	3	5	5	19	4	1

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	425.0
Denied Del/Veh (s)	725.4
Total Delay (hr)	63.4
Total Del/Veh (s)	215.7
Stop Delay (hr)	62.3
Stop Del/Veh (s)	211.9
Total Stops	810
Stop/Veh	0.76
Travel Dist (mi)	73.9
Travel Time (hr)	491.0
Avg Speed (mph)	1
Fuel Used (gal)	113.9
Fuel Eff. (mpg)	0.6
HC Emissions (g)	299
CO Emissions (g)	9459
NOx Emissions (g)	290
Vehicles Entered	1017
Vehicles Exited	993
Hourly Exit Rate	993
Input Volume	4597
% of Volume	22
Density (ft/veh)	97
Occupancy (veh)	66

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	4.2	0.1	4.2	0.1	0.2
Total Delay (hr)	0.0	50.1	0.0	0.1	0.0	0.4	0.6	2.8	0.4	54.4
Total Del/Veh (s)	7.4	787.8	3.7	2.2	0.7	119.3	762.0	1984.5	147.0	449.1
Stop Delay (hr)	0.0	49.9	0.0	0.0	0.0	0.4	0.6	2.8	0.4	54.0
Stop Del/Veh (s)	0.0	783.7	0.0	0.9	0.0	116.8	761.8	1982.8	146.1	446.3
Total Stops	0	66	0	15	0	11	2	5	9	108
Stop/Veh	0.00	0.29	0.00	0.09	0.00	1.00	0.67	1.00	0.90	0.25
Travel Dist (mi)	0.4	26.5	0.4	19.7	0.2	0.6	0.2	0.2	0.4	48.6
Travel Time (hr)	0.0	50.9	0.0	0.6	0.0	0.4	0.6	2.8	0.4	55.8
Avg Speed (mph)	21	1	21	32	28	2	0	0	1	1
Fuel Used (gal)	0.0	12.8	0.0	0.7	0.0	0.1	0.1	0.6	0.1	14.5
Fuel Eff. (mpg)	21.6	2.1	17.6	28.6	47.9	5.3	1.1	0.3	3.6	3.3
HC Emissions (g)	0	17	0	6	0	0	0	0	0	23
CO Emissions (g)	7	1342	13	312	4	13	7	31	6	1734
NOx Emissions (g)	1	63	1	26	0	1	0	0	0	91
Vehicles Entered	3	228	3	169	2	11	3	5	10	434
Vehicles Exited	3	165	3	167	2	11	2	0	7	360
Hourly Exit Rate	3	165	3	167	2	11	2	0	7	360
Input Volume	9	1105	16	1987	18	7	6	5	14	3177
% of Volume	33	15	19	8	11	157	33	0	50	11
Density (ft/veh)										112
Occupancy (veh)	0	51	0	1	0	0	1	3	0	56

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	11.2	9.5	14.3	69.3	13.5	28.4
Denied Del/Veh (s)	0.0	0.0	0.0	1.5	0.1	3.8	1031.6	813.7	1010.5	1567.9	1388.3	1598.7
Total Delay (hr)	1.7	44.8	0.0	0.0	0.2	0.0	1.7	6.2	6.4	9.9	2.0	0.0
Total Del/Veh (s)	1022.8	937.4	0.6	8.3	3.9	0.6	514.0	1705.9	2089.5	1975.4	1455.4	3.9
Stop Delay (hr)	1.7	44.6	0.0	0.0	0.1	0.0	1.7	6.2	6.4	9.9	2.0	0.0
Stop Del/Veh (s)	1020.3	934.2	0.8	8.0	2.0	0.3	511.2	1703.1	2087.8	1973.1	1454.0	4.1
Total Stops	4	70	1	1	21	2	11	13	9	13	4	1
Stop/Veh	0.67	0.41	0.25	0.33	0.13	0.12	0.92	1.00	0.82	0.72	0.80	1.00
Travel Dist (mi)	0.6	15.8	0.5	0.8	30.7	3.4	0.8	0.6	0.7	0.5	0.2	0.0
Travel Time (hr)	1.7	45.2	0.0	0.0	0.8	0.1	12.9	15.7	20.7	79.2	15.5	28.4
Avg Speed (mph)	0	0	29	30	39	39	0	0	0	0	0	13
Fuel Used (gal)	0.4	10.6	0.0	0.0	0.9	0.1	3.0	3.5	4.8	18.1	3.6	6.5
Fuel Eff. (mpg)	1.5	1.5	56.3	39.1	36.0	37.7	0.3	0.2	0.1	0.0	0.0	0.0
HC Emissions (g)	0	5	0	0	8	1	12	27	0	23	0	1
CO Emissions (g)	20	586	1	7	376	56	292	493	231	1124	170	317
NOx Emissions (g)	0	14	0	1	40	4	10	20	1	17	0	1
Vehicles Entered	6	151	4	3	153	17	12	13	11	11	4	1
Vehicles Exited	4	120	4	3	160	17	10	5	3	8	3	1
Hourly Exit Rate	4	120	4	3	160	17	10	5	3	8	3	1
Input Volume	51	1019	25	55	1913	228	36	52	56	175	31	66
% of Volume	8	12	16	5	8	7	28	10	5	5	10	2
Density (ft/veh)												
Occupancy (veh)	2	45	0	0	1	0	2	6	6	10	2	0

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	146.2
Denied Del/Veh (s)	726.8
Total Delay (hr)	72.8
Total Del/Veh (s)	621.3
Stop Delay (hr)	72.6
Stop Del/Veh (s)	619.0
Total Stops	150
Stop/Veh	0.36
Travel Dist (mi)	54.6
Travel Time (hr)	220.3
Avg Speed (mph)	1
Fuel Used (gal)	51.4
Fuel Eff. (mpg)	1.1
HC Emissions (g)	77
CO Emissions (g)	3674
NOx Emissions (g)	108
Vehicles Entered	386
Vehicles Exited	338
Hourly Exit Rate	338
Input Volume	3707
% of Volume	9
Density (ft/veh)	166
Occupancy (veh)	74

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.7	0.6	0.8	45.9	5.8	67.4	121.2
Denied Del/Veh (s)			485.1	420.0	910.6	1489.8	1313.6	1565.2	1478.8
Total Delay (hr)	1.0	55.0	2.8	4.9	2.9	13.7	0.0	0.0	80.3
Total Del/Veh (s)	3600.0	3600.0	3301.8	3535.1	3502.0	3523.8	65.3	3.9	3142.6
Stop Delay (hr)	1.0	55.0	2.8	4.9	2.9	13.7	0.0	0.0	80.3
Stop Del/Veh (s)	3600.0	3600.0	3301.5	3533.6	3501.2	3523.0	63.5	3.5	3142.4
Total Stops	0	0	2	4	2	5	1	8	22
Stop/Veh	0.00	0.00	0.67	0.80	0.67	0.36	1.00	0.80	0.24
Travel Dist (mi)	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.5	1.0
Travel Time (hr)	1.0	55.0	3.4	5.5	3.7	59.6	5.9	67.4	201.5
Avg Speed (mph)	0	0	0	0	0	0	3	14	0
Fuel Used (gal)	0.2	12.6	0.8	1.3	0.8	13.6	1.3	15.4	46.1
Fuel Eff. (mpg)	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
HC Emissions (g)	0	0	0	0	0	7	0	24	31
CO Emissions (g)	11	594	37	62	40	720	64	1002	2530
NOx Emissions (g)	0	0	0	0	0	5	0	17	22
Vehicles Entered	0	0	3	4	2	7	1	10	27
Vehicles Exited	0	0	0	0	0	0	1	10	11
Hourly Exit Rate	0	0	0	0	0	0	1	10	11
Input Volume	70	1140	29	27	16	115	16	166	3690
% of Volume	0	0	0	0	0	0	6	6	0
Density (ft/veh)									109
Occupancy (veh)	1	55	3	5	3	14	0	0	80

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	2.8	26.4	0.0	0.0	29.1
Denied Del/Veh (s)	0.1	1106.9	1336.9	0.1	0.0	1104.0
Total Delay (hr)	2.5	0.0	4.2	0.0	0.0	6.6
Total Del/Veh (s)	1476.4	4.2	1074.0	0.0	0.2	796.6
Stop Delay (hr)	2.5	0.0	4.2	0.0	0.0	6.6
Stop Del/Veh (s)	1474.7	2.2	1073.6	0.0	0.4	796.1
Total Stops	5	1	13	0	0	19
Stop/Veh	0.83	1.00	0.93	0.00	0.00	0.63
Travel Dist (mi)	0.1	0.0	0.3	0.2	0.1	0.6
Travel Time (hr)	2.5	2.8	30.6	0.0	0.0	35.8
Avg Speed (mph)	0	11	0	9	10	0
Fuel Used (gal)	0.6	0.6	7.0	0.0	0.0	8.2
Fuel Eff. (mpg)	0.2	0.0	0.0	21.9	17.3	0.1
HC Emissions (g)	0	0	0	0	0	0
CO Emissions (g)	27	30	329	0	1	387
NOx Emissions (g)	0	0	0	0	0	0
Vehicles Entered	6	1	14	7	2	30
Vehicles Exited	0	1	9	7	2	19
Hourly Exit Rate	0	1	9	7	2	19
Input Volume	4	6	61	48	18	137
% of Volume	0	17	15	15	11	14
Density (ft/veh)						106
Occupancy (veh)	2	0	4	0	0	7

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL2	EBT	EBR	WBL2	WBT	WBR	NBT	SBT	SBR2	NEL2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0
Denied Del/Veh (s)								3600.0			3600.0
Total Delay (hr)	28.0	34.0	39.0	28.0	71.0	9.0	11.0	19.0	7.0	9.0	255.0
Total Del/Veh (s)	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0
Stop Delay (hr)	28.0	34.0	39.0	28.0	71.0	9.0	11.0	19.0	7.0	9.0	255.0
Stop Del/Veh (s)	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0
Total Stops	0	0	0	0	0	0	0	0	0	0	0
Stop/Veh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Travel Dist (mi)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Travel Time (hr)	28.0	34.0	39.0	28.0	71.0	9.0	11.0	20.0	7.0	9.0	256.0
Avg Speed (mph)	0	0	0	0	0	0	0	0	0	0	0
Fuel Used (gal)	6.4	7.8	9.0	6.4	16.2	2.1	2.5	4.6	1.5	2.1	58.6
Fuel Eff. (mpg)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HC Emissions (g)	0	0	0	36	36	0	0	0	36	0	108
CO Emissions (g)	302	367	421	724	1188	97	119	216	497	97	4028
NOx Emissions (g)	0	0	0	25	25	0	0	0	25	0	76
Vehicles Entered	0	0	0	0	0	0	0	0	0	0	0
Vehicles Exited	0	0	0	0	0	0	0	0	0	0	0
Hourly Exit Rate	0	0	0	0	0	0	0	0	0	0	0
Input Volume	95	814	155	336	1590	141	658	772	174	371	5536
% of Volume	0	0	0	0	0	0	0	0	0	0	0
Density (ft/veh)											47
Occupancy (veh)	28	34	39	28	71	9	11	19	7	9	255

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	20.9	18.4	37.2	51.0	5.2	42.7
Denied Del/Veh (s)	4.2	0.1	0.1				1670.1	1946.7	1835.3	1891.3	1861.9	1921.8
Total Delay (hr)	0.0	0.1	0.0	4.0	103.0	3.0	10.0	3.0	6.0	4.0	1.0	13.0
Total Del/Veh (s)	66.2	3.8	1.1	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3599.8
Stop Delay (hr)	0.0	0.0	0.0	4.0	103.0	3.0	10.0	3.0	6.0	4.0	1.0	13.0
Stop Del/Veh (s)	65.0	2.2	1.5	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0	3600.0
Total Stops	2	11	2	0	0	0	0	0	0	0	0	0
Stop/Veh	1.00	0.18	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Travel Dist (mi)	0.2	5.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Travel Time (hr)	0.0	0.2	0.0	4.0	103.0	3.0	30.9	21.4	43.2	55.0	6.2	55.7
Avg Speed (mph)	4	30	26	0	0	0	0	0	0	0	0	0
Fuel Used (gal)	0.0	0.3	0.0	0.9	23.6	0.7	7.1	4.9	9.7	12.7	1.4	12.3
Fuel Eff. (mpg)	10.1	19.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HC Emissions (g)	0	3	0	0	0	0	6	0	62	0	0	86
CO Emissions (g)	8	245	10	43	1112	32	406	225	1183	594	67	1589
NOx Emissions (g)	0	10	0	0	0	0	4	0	43	0	0	60
Vehicles Entered	2	60	4	0	0	0	0	0	0	0	0	0
Vehicles Exited	2	60	4	0	0	0	0	0	0	0	0	0
Hourly Exit Rate	2	60	4	0	0	0	0	0	0	0	0	0
Input Volume	88	1118	48	113	2085	138	42	26	62	75	14	69
% of Volume	2	5	8	0	0	0	0	0	0	0	0	0
Density (ft/veh)												
Occupancy (veh)	0	0	0	4	103	3	10	3	6	4	1	13

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	175.3
Denied Del/Veh (s)	1558.4
Total Delay (hr)	147.1
Total Del/Veh (s)	2486.2
Stop Delay (hr)	147.1
Stop Del/Veh (s)	2485.8
Total Stops	15
Stop/Veh	0.07
Travel Dist (mi)	5.5
Travel Time (hr)	322.5
Avg Speed (mph)	0
Fuel Used (gal)	73.7
Fuel Eff. (mpg)	0.1
HC Emissions (g)	157
CO Emissions (g)	5514
NOx Emissions (g)	119
Vehicles Entered	66
Vehicles Exited	66
Hourly Exit Rate	66
Input Volume	3878
% of Volume	2
Density (ft/veh)	88
Occupancy (veh)	147

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	1.5	24.5	0.2	11.0	1.5	56.4	2.5	2.6	100.4
Denied Del/Veh (s)	2.1	0.0	0.0	1113.3	2325.4	874.1	1363.9	1856.5	1335.4	693.5	594.0	1088.7
Total Delay (hr)	0.1	0.1	0.0	1.0	89.0	0.0	9.6	0.0	8.1	1.3	8.6	117.8
Total Del/Veh (s)	93.2	5.0	0.0	3600.0	3600.0		3473.7		1333.3	1502.2	3090.5	2019.1
Stop Delay (hr)	0.1	0.1	0.0	1.0	89.0	0.0	9.6	0.0	8.1	1.2	8.6	117.7
Stop Del/Veh (s)	92.8	2.7	0.0	3600.0	3600.0		3472.9		1331.8	1499.8	3088.4	2018.0
Total Stops	2	15	0	0	0	0	3	0	22	2	7	51
Stop/Veh	1.00	0.21	0.00	0.00	0.00		0.30		1.00	0.67	0.70	0.24
Travel Dist (mi)	0.4	15.3	0.6	0.0	0.0	0.0	0.1	0.0	1.1	0.1	0.2	17.7
Travel Time (hr)	0.1	0.4	0.0	2.5	113.5	0.2	20.6	1.5	64.6	3.8	11.2	218.6
Avg Speed (mph)	6	37	40	0	0		0		0	0	0	0
Fuel Used (gal)	0.0	0.5	0.0	0.6	25.9	0.1	4.7	0.4	14.8	0.9	2.6	50.4
Fuel Eff. (mpg)	17.2	29.5	51.9	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4
HC Emissions (g)	0	10	0	0	36	0	0	0	12	0	0	59
CO Emissions (g)	4	374	2	27	1647	3	225	17	848	42	124	3312
NOx Emissions (g)	0	35	0	0	25	0	0	0	9	0	0	71
Vehicles Entered	2	70	3	0	0	0	4	0	20	3	7	109
Vehicles Exited	2	67	3	0	0	0	0	0	13	1	0	86
Hourly Exit Rate	2	67	3	0	0	0	0	0	13	1	0	86
Input Volume	11	1202	56	103	2293	29	34	4	124	19	9	3886
% of Volume	18	6	5	0	0	0	0	0	10	5	0	2
Density (ft/veh)												90
Occupancy (veh)	0	0	0	1	89	0	10	0	8	1	9	118

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	13.7	17.7	58.3	155.7	48.1	166.1	459.5
Denied Del/Veh (s)	0.0	0.0	0.0			1299.5	1199.3	1171.6	1880.5	1989.0	1817.8	1548.8
Total Delay (hr)	0.2	0.0	0.0	2.0	43.0	11.5	7.1	20.7	1.0	0.0	45.0	130.6
Total Del/Veh (s)	68.0	1.9	1.3	3600.0	3600.0	3463.4	2323.5	2572.9	3600.0		3600.0	2062.1
Stop Delay (hr)	0.2	0.0	0.0	2.0	43.0	11.5	7.1	20.7	1.0	0.0	45.0	130.5
Stop Del/Veh (s)	67.4	1.0	0.0	3600.0	3600.0	3461.3	2321.2	2569.3	3600.0		3600.0	2061.1
Total Stops	9	6	0	0	0	8	8	24	0	0	0	55
Stop/Veh	0.90	0.08	0.00	0.00	0.00	0.67	0.73	0.83	0.00		0.00	0.24
Travel Dist (mi)	1.7	13.8	0.6	0.0	0.0	0.9	0.8	2.6	0.0	0.0	0.0	20.4
Travel Time (hr)	0.2	0.3	0.0	2.0	43.0	25.3	24.8	79.1	156.7	48.1	211.1	590.6
Avg Speed (mph)	7	44	33	0	0	0	0	0	0		0	0
Fuel Used (gal)	0.1	0.4	0.0	0.5	9.8	5.8	5.7	18.2	35.6	11.0	48.4	135.4
Fuel Eff. (mpg)	22.6	36.2	73.8	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.2
HC Emissions (g)	2	2	0	0	0	0	0	51	118	5	113	290
CO Emissions (g)	43	78	1	22	454	276	275	1463	3055	575	3597	9837
NOx Emissions (g)	6	16	0	0	0	0	1	37	82	3	79	225
Vehicles Entered	9	72	3	0	0	7	10	28	0	0	0	129
Vehicles Exited	10	72	3	0	0	0	3	6	0	0	0	94
Hourly Exit Rate	10	72	3	0	0	0	3	6	0	0	0	94
Input Volume	150	1164	32	219	2039	32	43	174	280	87	316	4752
% of Volume	7	6	9	0	0	0	7	3	0	0	0	2
Density (ft/veh)												115
Occupancy (veh)	0	0	0	2	43	12	7	21	1	0	45	131

20: Sheridan Blvd Performance by movement

Movement	SBL	SBT	All
Denied Delay (hr)	152.6	845.3	997.9
Denied Del/Veh (s)	2317.4	2308.9	2310.2
Total Delay (hr)	1.0	7.0	8.0
Total Del/Veh (s)	3600.0	3600.0	3600.0
Stop Delay (hr)	1.0	7.0	8.0
Stop Del/Veh (s)	3600.0	3600.0	3600.0
Total Stops	0	0	0
Stop/Veh	0.00	0.00	0.00
Travel Dist (mi)	0.0	0.0	0.0
Travel Time (hr)	153.6	852.3	1005.9
Avg Speed (mph)	0	0	0
Fuel Used (gal)	35.1	194.7	229.8
Fuel Eff. (mpg)	0.0	0.0	0.0
HC Emissions (g)	90	460	550
CO Emissions (g)	2711	14570	17281
NOx Emissions (g)	63	322	385
Vehicles Entered	0	0	0
Vehicles Exited	0	0	0
Hourly Exit Rate	0	0	0
Input Volume	178	945	2017
% of Volume	0	0	0
Density (ft/veh)			32
Occupancy (veh)	1	7	8

21: Sheridan Blvd Performance by movement

Movement	NBL	NBT	SBT	All
Denied Delay (hr)	322.1	775.6	0.0	1097.6
Denied Del/Veh (s)	2225.3	2249.9		2242.6
Total Delay (hr)	12.0	28.0	2.0	42.0
Total Del/Veh (s)	3600.0	3600.0	3600.0	3600.0
Stop Delay (hr)	12.0	28.0	2.0	42.0
Stop Del/Veh (s)	3600.0	3600.0	3600.0	3600.0
Total Stops	0	0	0	0
Stop/Veh	0.00	0.00	0.00	0.00
Travel Dist (mi)	0.0	0.0	0.0	0.0
Travel Time (hr)	334.1	803.6	2.0	1139.6
Avg Speed (mph)	0	0	0	0
Fuel Used (gal)	76.2	183.1	0.4	259.6
Fuel Eff. (mpg)	0.0	0.0	0.0	0.0
HC Emissions (g)	152	468	36	656
CO Emissions (g)	5369	14120	443	19932
NOx Emissions (g)	106	328	25	459
Vehicles Entered	0	0	0	0
Vehicles Exited	0	0	0	0
Hourly Exit Rate	0	0	0	0
Input Volume	371	910	1262	2543
% of Volume	0	0	0	0
Density (ft/veh)				39
Occupancy (veh)	12	28	2	42

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	0.6	1.1	1.0	0.8
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.2	0.3	0.1
Total Stops	0	0	0	0
Stop/Veh	0.00	0.00	0.00	0.00
Travel Dist (mi)	29.2	7.3	3.3	39.8
Travel Time (hr)	0.9	0.3	0.2	1.5
Avg Speed (mph)	33	21	15	27
Fuel Used (gal)	0.7	0.6	0.1	1.4
Fuel Eff. (mpg)	42.2	13.2	24.8	28.9
HC Emissions (g)	6	7	2	16
CO Emissions (g)	122	330	67	519
NOx Emissions (g)	20	26	8	55
Vehicles Entered	320	178	80	578
Vehicles Exited	324	179	80	583
Hourly Exit Rate	324	179	80	583
Input Volume	372	554	229	1155
% of Volume	87	32	35	50
Density (ft/veh)				625
Occupancy (veh)	1	0	0	1

Total Network Performance

Denied Delay (hr)	5852.8
Denied Del/Veh (s)	1155.5
Total Delay (hr)	1873.4
Total Del/Veh (s)	750.4
Stop Delay (hr)	1835.9
Stop Del/Veh (s)	735.4
Total Stops	7963
Stop/Veh	0.89
Travel Dist (mi)	3636.6
Travel Time (hr)	7836.7
Avg Speed (mph)	2
Fuel Used (gal)	1888.7
Fuel Eff. (mpg)	1.9
HC Emissions (g)	6712
CO Emissions (g)	197890
NOx Emissions (g)	9929
Vehicles Entered	7513
Vehicles Exited	6656
Hourly Exit Rate	6656
Input Volume	99131
% of Volume	7
Density (ft/veh)	85
Occupancy (veh)	1984

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	0.5	24.8	0.2	22
Total		0.5	24.8	0.2	22

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	13.0	17.4	0.0	9
	573	20.3	34.2	0.2	16
Laurel St	5	37.6	44.1	0.1	4
	627	498.5	521.0	0.3	2
	641	266.4	274.0	0.1	1
SH 128	6	59.2	134.0	0.1	4
Total		895.0	1024.7	0.7	3

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	104.0	113.4	0.1	2
	627	0.1	8.2	0.1	35
Laurel St	5	0.5	28.2	0.3	36
	573	0.2	5.5	0.1	34
Nickel St	3	10.7	25.7	0.2	21
US 287 WB	214	1.5	5.8	0.0	25
Total		116.9	186.8	0.7	13

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	13.7	19.2	0.1	10
3rd Ave	4	1.5	19.2	0.2	31
Total		15.2	38.4	0.2	21

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	0.3	7.8	0.1	30
US 287	3	10.6	27.7	0.2	21
Total		10.9	35.5	0.2	23

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	L	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	149	175	230	483	470	264	370	459	498	467	220	638
Average Queue (ft)	32	83	227	453	417	156	238	398	402	214	161	605
95th Queue (ft)	79	161	240	476	512	224	407	479	478	495	267	635
Link Distance (ft)		331		431	431			418	418	418		586
Upstream Blk Time (%)				66	23			9	9	2		42
Queuing Penalty (veh)				0	0			61	64	15		0
Storage Bay Dist (ft)	125		205			270	270				195	
Storage Blk Time (%)		4	19	69		0	1	25			6	47
Queuing Penalty (veh)		11	55	203		0	7	86			65	57

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	625	638
Average Queue (ft)	606	585
95th Queue (ft)	622	765
Link Distance (ft)	586	586
Upstream Blk Time (%)	63	39
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	T
Maximum Queue (ft)	220	419	410	445	414
Average Queue (ft)	60	135	136	28	14
95th Queue (ft)	148	326	331	204	137
Link Distance (ft)		1656	1656	418	418
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)	350				
Storage Blk Time (%)		1			
Queuing Penalty (veh)		1			

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	
Directions Served	L	T	T	R	L	T	T	R	L	TR	R	L	
Maximum Queue (ft)	29	90	93	68	50	126	64	22	69	105	20	74	
Average Queue (ft)	1	42	42	32	18	30	16	1	31	30	2	24	
95th Queue (ft)	9	74	85	61	44	80	47	10	63	66	11	59	
Link Distance (ft)	136	136	136	136		725	725		223	223	223		
Upstream Blk Time (%)													
Queuing Penalty (veh)													
Storage Bay Dist (ft)					290		140						50
Storage Blk Time (%)													0
Queuing Penalty (veh)													0

Intersection: 3: Nickel St & US 287

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	112	23
Average Queue (ft)	29	10
95th Queue (ft)	84	28
Link Distance (ft)	777	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	215	
Storage Blk Time (%)	4	
Queuing Penalty (veh)	5	

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	56	29
Average Queue (ft)	29	1
95th Queue (ft)	48	9
Link Distance (ft)	379	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	45	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 5: Laurel St & US 287

Movement	EB	EB	B573	B573	WB	B641	SB
Directions Served	T	TR	T	T	UL	T	LTR
Maximum Queue (ft)	284	286	465	468	29	419	200
Average Queue (ft)	41	41	35	31	1	28	43
95th Queue (ft)	198	198	207	200	9	200	104
Link Distance (ft)	216	216	725	725		309	206
Upstream Blk Time (%)	13	12				0	0
Queuing Penalty (veh)	24	22				3	0
Storage Bay Dist (ft)					100		
Storage Blk Time (%)	14						
Queuing Penalty (veh)	1						

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	L
Maximum Queue (ft)	20	970	979	33	27	1055	1073	365	89	415	164	382
Average Queue (ft)	1	654	654	2	6	283	288	24	23	200	117	279
95th Queue (ft)	9	1321	1349	11	17	842	849	173	67	481	175	482
Link Distance (ft)		964	964	964		1493	1493			407		309
Upstream Blk Time (%)		57	57							35		60
Queuing Penalty (veh)		0	0							0		123
Storage Bay Dist (ft)	240				115			315	90		115	
Storage Blk Time (%)		67				46	33	0	1	50	66	69
Queuing Penalty (veh)		11				16	334	0	0	30	114	117

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	B641	B641	B627	B627
Directions Served	TR	T	T	T	T
Maximum Queue (ft)	114	427	356	1437	1425
Average Queue (ft)	24	241	188	502	490
95th Queue (ft)	78	577	478	1466	1448
Link Distance (ft)	309	361	361	1412	1412
Upstream Blk Time (%)		53	50	16	16
Queuing Penalty (veh)		107	102	33	33
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T	L	T	T	R	L	L
Maximum Queue (ft)	237	332	308	95	1507	1527	49	114	116	26	182	235
Average Queue (ft)	104	306	274	13	1356	1352	11	35	31	2	32	89
95th Queue (ft)	290	317	363	64	1716	1725	32	83	84	12	129	266
Link Distance (ft)		238	238		1493	1493		621	621	621		
Upstream Blk Time (%)	26	97	77		64	64						
Queuing Penalty (veh)	0	484	382		319	320						
Storage Bay Dist (ft)	280			45			140				185	185
Storage Blk Time (%)	26	97	83	0							0	1
Queuing Penalty (veh)	104	194	71	2							0	2

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	328	235	191	404	404	260
Average Queue (ft)	274	153	136	304	124	67
95th Queue (ft)	293	307	235	509	413	246
Link Distance (ft)	265			389	389	
Upstream Blk Time (%)	89			65	14	
Queuing Penalty (veh)	0			0	0	
Storage Bay Dist (ft)		185	150			210
Storage Blk Time (%)	32	60	71	72	18	
Queuing Penalty (veh)	99	292	78	80	66	

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	L	TR	L	TR
Maximum Queue (ft)	634	633	51	51	72	31	77	177
Average Queue (ft)	500	502	6	7	14	13	48	36
95th Queue (ft)	890	891	31	33	45	28	93	132
Link Distance (ft)	621	621	548	548		282		232
Upstream Blk Time (%)	76	75						
Queuing Penalty (veh)	285	284						
Storage Bay Dist (ft)					120		30	
Storage Blk Time (%)	82						83	1
Queuing Penalty (veh)	7						12	0

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	25	564	562	562	26	73	50	24	68	397	51	154
Average Queue (ft)	2	496	499	404	1	12	11	2	9	305	41	149
95th Queue (ft)	12	719	707	803	9	43	37	12	38	535	62	151
Link Distance (ft)		548	548	548		1958	1958			400		
Upstream Blk Time (%)		82	82	73						72		
Queuing Penalty (veh)		300	300	268						0		
Storage Bay Dist (ft)	255				315			440	130		60	105
Storage Blk Time (%)		86								82	82	99
Queuing Penalty (veh)		44								75	72	31

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	273	31
Average Queue (ft)	254	1
95th Queue (ft)	266	10
Link Distance (ft)	260	260
Upstream Blk Time (%)	94	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	B671	B671	NB	SB	SB	SB
Directions Served	T	T	T	T	TR	L	T	R
Maximum Queue (ft)	593	591	1958	1959	241	301	30	53
Average Queue (ft)	593	591	1900	1903	234	295	2	4
95th Queue (ft)	593	591	2245	2234	272	317	11	26
Link Distance (ft)	532	532	1958	1958	241	286	286	
Upstream Blk Time (%)	100	100	88	88	90	94		
Queuing Penalty (veh)	615	615	544	544	58	0		
Storage Bay Dist (ft)							105	
Storage Blk Time (%)	100	100			100			
Queuing Penalty (veh)	70	19			29			

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	136	116
Average Queue (ft)	52	92
95th Queue (ft)	113	135
Link Distance (ft)	146	112
Upstream Blk Time (%)	0	80
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B597	B597
Directions Served	<	<	T	T	R	<	<	T	T	R	T	T
Maximum Queue (ft)	226	268	1238	1238	228	174	253	893	876	119	864	864
Average Queue (ft)	226	268	1238	1238	228	174	253	893	876	119	864	864
95th Queue (ft)	226	268	1238	1238	228	174	253	893	876	119	864	864
Link Distance (ft)			1230	1230				824	824		864	864
Upstream Blk Time (%)			100	100				100	100		100	100
Queuing Penalty (veh)			532	532				1034	1034		689	689
Storage Bay Dist (ft)	460	460			250	395	395			450		
Storage Blk Time (%)				100				100	100			
Queuing Penalty (veh)				155				336	141			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	B597	NB	NB	SB	SB	B17	B17	NE	NE	B18	B18
Directions Served		T	T	T	T>	T	T	<	<	T	T
Maximum Queue (ft)	864	71	71	273	283	97	111	64	70	43	124
Average Queue (ft)	864	71	71	273	283	97	111	64	70	43	124
95th Queue (ft)	864	71	71	273	283	97	111	64	70	43	124
Link Distance (ft)	864	71	71	210	210	-77	-77	21	21	16	16
Upstream Blk Time (%)	100	100	100	100	100	100	100	100	100	100	
Queuing Penalty (veh)	689	303	303	473	473	473	473	186	186	186	
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	T	R	T	T	L	T	T	R
Maximum Queue (ft)	21	42	21	17	13	1198	1198	149	385	376	143
Average Queue (ft)	2	7	1	1	1	1198	1198	149	385	376	143
95th Queue (ft)	11	25	7	6	6	1198	1198	149	385	376	143
Link Distance (ft)		864	864	864		1198	1198		393	378	
Upstream Blk Time (%)						100	100		100	100	
Queuing Penalty (veh)						1168	1168		0	0	
Storage Bay Dist (ft)	260				450			115			110
Storage Blk Time (%)						100	100	100			100
Queuing Penalty (veh)						113	138	88			88

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	WB	WB	B672	B672	NB	NB	SB	SB
Directions Served	L	T	T	T	TR	T	T	L	TR	L	TR
Maximum Queue (ft)	26	52	31	994	998	964	964	132	404	28	264
Average Queue (ft)	2	15	3	994	998	964	964	130	366	1	211
95th Queue (ft)	13	41	16	994	998	964	964	135	502	9	313
Link Distance (ft)		1198	1198	928	928	964	964		403		266
Upstream Blk Time (%)				100	100	100	100		87		61
Queuing Penalty (veh)				1194	1194	796	796		0		0
Storage Bay Dist (ft)	150							85		85	
Storage Blk Time (%)				100				100	0		92
Queuing Penalty (veh)				103				128	0		17

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	B636	B636	NB	NB	SB	SB
Directions Served	L	T	T	T	T	T	T	T	L	T	L	T
Maximum Queue (ft)	47	26	29	28	486	496	1341	1344	136	914	985	1046
Average Queue (ft)	10	3	1	1	486	496	1341	1344	134	848	985	1046
95th Queue (ft)	30	16	9	9	486	496	1341	1344	135	1106	985	1046
Link Distance (ft)		964	964	964	434	434	1340	1340		901	1046	1046
Upstream Blk Time (%)					100	100	100	100		81		100
Queuing Penalty (veh)					0	0	0	0		0		0
Storage Bay Dist (ft)	400								100			
Storage Blk Time (%)					100	100			100			
Queuing Penalty (veh)					218	216			217			

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	SB
Directions Served	R
Maximum Queue (ft)	461
Average Queue (ft)	461
95th Queue (ft)	461
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	435
Storage Blk Time (%)	100
Queuing Penalty (veh)	87

Intersection: 20: Sheridan Blvd

Movement	B17	B17	SB	SB	SB
Directions Served	T	T	L	T	T
Maximum Queue (ft)	231	272	17	83	67
Average Queue (ft)	231	272	17	83	67
95th Queue (ft)	231	272	17	83	67
Link Distance (ft)	210	210	71	71	71
Upstream Blk Time (%)	100	100		100	100
Queuing Penalty (veh)	447	447		0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 21: Sheridan Blvd

Movement	NB	NB	NB	NB	SB
Directions Served	L	L	T	T	T
Maximum Queue (ft)	145	102	308	295	75
Average Queue (ft)	145	102	308	295	75
95th Queue (ft)	145	102	308	295	75
Link Distance (ft)	300	300	300	300	71
Upstream Blk Time (%)			100	100	100
Queuing Penalty (veh)			0	0	631
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 26507

HCM Signalized Intersection Capacity Analysis

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

2050 AM Peak Hour

No Action

												
Movement	EBL2	EBT	EBR	WBL2	WBT	WBR	NBT	NBR2	SBT	SBR2	NEL2	SWL2
Lane Configurations												
Traffic Volume (vph)	228	1444	269	384	1003	304	879	482	795	125	300	178
Future Volume (vph)	228	1444	269	384	1003	304	879	482	795	125	300	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.95	1.00	0.95		0.97	0.97
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	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		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00		0.95	0.95
Satd. Flow (prot)	3433	3539	1583	3433	3539	1560	3539	1583	3461		3433	3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00		0.95	0.95
Satd. Flow (perm)	3433	3539	1583	3433	3539	1560	3539	1583	3461		3433	3433
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.91	0.91	0.92	0.92
Adj. Flow (vph)	253	1604	299	422	1102	334	916	502	874	137	326	193
RTOR Reduction (vph)	0	0	0	0	0	0	0	320	118	0	0	0
Lane Group Flow (vph)	253	1604	299	422	1102	334	916	182	893	0	326	193
Confl. Peds. (#/hr)	2					2				1		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA		D.Pm	D.Pm
Protected Phases	5	2		1	6		8		4			
Permitted Phases			2			6		8			8	4
Actuated Green, G (s)	6.0	52.1	52.1	17.3	63.4	63.4	33.6	33.6	33.6		33.6	33.6
Effective Green, g (s)	6.0	52.1	52.1	17.3	63.4	63.4	33.6	33.6	33.6		33.6	33.6
Actuated g/C Ratio	0.05	0.43	0.43	0.14	0.53	0.53	0.28	0.28	0.28		0.28	0.28
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	5.0	5.0	2.5	5.0	5.0	3.0	3.0	1.5		3.0	1.5
Lane Grp Cap (vph)	171	1536	687	494	1869	824	990	443	969		961	961
v/s Ratio Prot	c0.07	c0.45		c0.12	0.31		c0.26		0.26			
v/s Ratio Perm			0.19			0.21		0.12			0.09	0.06
v/c Ratio	1.48	1.04	0.44	0.85	0.59	0.41	0.93	0.41	0.92		0.34	0.20
Uniform Delay, d1	57.0	34.0	23.7	50.1	19.4	17.0	42.0	35.2	41.9		34.4	33.0
Progression Factor	1.08	0.75	0.76	1.20	0.89	0.99	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	244.0	35.3	2.0	6.9	0.7	0.7	13.9	0.6	13.5		0.2	0.0
Delay (s)	305.5	60.9	19.9	67.1	17.9	17.5	55.9	35.8	55.4		34.6	33.0
Level of Service	F	E	B	E	B	B	E	D	E		C	C
Approach Delay (s)		83.9			29.0		48.8		55.4			
Approach LOS		F			C		D		E			
Intersection Summary												
HCM 2000 Control Delay			54.2				HCM 2000 Level of Service		D			
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		22.0			
Intersection Capacity Utilization			104.6%				ICU Level of Service		G			
Analysis Period (min)			15									
c Critical Lane Group												

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.2	64.5	26.3	20.0	0.4	1.5	0.1	21.7	380.4	12.8
Denied Del/Veh (s)	4.0	0.7	3.7	364.0	368.3	357.4	3.6	3.2	1.4	611.6	609.2	639.8
Total Delay (hr)	0.3	1.4	0.2	17.4	7.8	3.8	12.2	14.9	0.8	4.7	32.6	0.2
Total Del/Veh (s)	45.3	70.6	3.4	107.4	118.6	77.5	123.4	30.6	10.8	160.2	69.9	11.5
Stop Delay (hr)	0.3	1.3	0.0	16.2	7.0	3.3	11.4	9.7	0.3	4.3	24.6	0.1
Stop Del/Veh (s)	41.5	65.4	0.0	99.9	106.2	68.6	115.0	20.0	3.7	146.0	52.6	6.8
Total Stops	22	64	0	746	189	119	491	936	47	164	1471	8
Stop/Veh	0.92	0.91	0.00	1.28	0.80	0.68	1.38	0.53	0.19	1.56	0.88	0.14
Travel Dist (mi)	1.5	4.2	11.2	45.8	18.8	11.1	36.3	180.5	22.5	10.7	183.8	5.8
Travel Time (hr)	0.4	1.5	0.9	83.6	34.7	24.1	13.9	21.5	1.7	26.8	418.4	13.2
Avg Speed (mph)	4	3	18	2	2	3	3	9	14	2	5	15
Fuel Used (gal)	0.1	0.4	0.5	20.1	8.3	5.7	4.1	10.4	0.9	6.3	99.2	3.1
Fuel Eff. (mpg)	11.4	9.5	21.0	2.3	2.3	2.0	8.8	17.4	24.4	1.7	1.9	1.9
HC Emissions (g)	4	6	14	137	87	36	42	133	10	21	837	45
CO Emissions (g)	79	139	384	2731	1518	731	913	3229	282	585	15285	822
NOx Emissions (g)	8	11	40	170	97	35	89	404	34	27	948	51
Vehicles Entered	24	68	225	559	230	174	350	1742	249	94	1652	58
Vehicles Exited	24	69	224	559	227	174	346	1735	249	101	1641	58
Hourly Exit Rate	24	69	224	559	227	174	346	1735	249	101	1641	58
Input Volume	25	73	228	586	244	165	341	1809	283	121	2073	54
% of Volume	96	95	98	95	93	105	101	96	88	83	79	107
Density (ft/veh)												
Occupancy (veh)	0	1	1	19	8	4	14	20	2	5	38	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	528.0
Denied Del/Veh (s)	306.1
Total Delay (hr)	96.2
Total Del/Veh (s)	62.8
Stop Delay (hr)	78.4
Stop Del/Veh (s)	51.1
Total Stops	4257
Stop/Veh	0.77
Travel Dist (mi)	532.3
Travel Time (hr)	640.7
Avg Speed (mph)	5
Fuel Used (gal)	159.2
Fuel Eff. (mpg)	3.3
HC Emissions (g)	1372
CO Emissions (g)	26698
NOx Emissions (g)	1913
Vehicles Entered	5425
Vehicles Exited	5407
Hourly Exit Rate	5407
Input Volume	6002
% of Volume	90
Density (ft/veh)	65
Occupancy (veh)	113

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.4	0.0	0.0	0.4
Denied Del/Veh (s)	0.1	0.0	1.3	0.7	0.0	0.0	0.3
Total Delay (hr)	0.3	0.1	3.2	7.1	3.4	0.4	14.7
Total Del/Veh (s)	2.6	2.0	105.8	13.7	5.6	6.9	10.3
Stop Delay (hr)	0.0	0.0	3.0	2.6	0.1	0.0	5.7
Stop Del/Veh (s)	0.1	0.8	99.7	5.0	0.1	0.2	4.0
Total Stops	16	20	118	619	68	16	857
Stop/Veh	0.03	0.10	1.08	0.33	0.03	0.07	0.17
Travel Dist (mi)	10.3	27.2	34.6	588.4	196.0	16.5	873.1
Travel Time (hr)	0.8	1.5	4.3	24.5	9.1	1.0	41.3
Avg Speed (mph)	13	18	8	24	22	16	21
Fuel Used (gal)	0.2	1.3	1.7	17.1	13.6	0.7	34.6
Fuel Eff. (mpg)	47.2	20.7	20.6	34.4	14.4	22.5	25.2
HC Emissions (g)	1	18	8	177	272	13	489
CO Emissions (g)	33	845	284	4346	10414	327	16249
NOx Emissions (g)	3	59	27	585	899	43	1616
Vehicles Entered	492	203	108	1855	2202	222	5082
Vehicles Exited	491	208	107	1840	2198	222	5066
Hourly Exit Rate	491	208	107	1840	2198	222	5066
Input Volume	562	229	111	1889	2626	261	5678
% of Volume	87	91	96	97	84	85	89
Density (ft/veh)							182
Occupancy (veh)	1	2	4	24	9	1	41

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	0.8	0.1	0.6	2.1	0.1	0.2	0.2	0.1	0.1	0.4	0.1
Total Del/Veh (s)	22.8	13.1	2.7	14.4	12.3	3.3	11.8	9.6	3.3	12.5	11.9	5.9
Stop Delay (hr)	0.0	0.6	0.1	0.4	1.4	0.0	0.2	0.1	0.1	0.1	0.3	0.1
Stop Del/Veh (s)	21.3	10.2	2.6	11.0	8.2	2.5	9.8	7.4	3.0	10.0	9.6	5.4
Total Stops	1	123	71	98	322	33	39	29	40	32	54	25
Stop/Veh	1.00	0.55	0.69	0.68	0.52	0.57	0.63	0.48	0.60	0.82	0.50	0.60
Travel Dist (mi)	0.0	9.5	4.4	21.2	89.4	8.7	2.7	2.6	2.9	5.8	15.4	6.6
Travel Time (hr)	0.0	1.1	0.3	1.3	4.7	0.4	0.3	0.3	0.2	0.4	0.9	0.3
Avg Speed (mph)	5	9	14	17	19	24	8	10	14	16	17	20
Fuel Used (gal)	0.0	0.4	0.1	0.6	2.6	0.2	0.1	0.1	0.1	0.2	0.5	0.2
Fuel Eff. (mpg)	22.9	23.1	55.3	34.0	34.8	41.4	25.6	23.0	37.3	28.7	28.9	36.2
HC Emissions (g)	0	2	1	6	23	2	0	0	1	1	4	2
CO Emissions (g)	0	100	18	171	549	55	19	28	20	37	114	50
NOx Emissions (g)	0	9	2	20	75	7	2	2	2	4	12	6
Vehicles Entered	1	223	102	143	613	58	61	60	67	37	107	42
Vehicles Exited	1	222	103	142	616	58	62	61	67	39	107	42
Hourly Exit Rate	1	222	103	142	616	58	62	61	67	39	107	42
Input Volume	4	249	119	181	714	73	65	53	79	44	94	44
% of Volume	25	89	87	78	86	79	95	115	85	89	114	95
Density (ft/veh)												
Occupancy (veh)	0	1	0	1	5	0	0	0	0	0	1	0

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	4.6
Total Del/Veh (s)	10.9
Stop Delay (hr)	3.4
Stop Del/Veh (s)	8.0
Total Stops	867
Stop/Veh	0.57
Travel Dist (mi)	169.3
Travel Time (hr)	10.1
Avg Speed (mph)	17
Fuel Used (gal)	5.1
Fuel Eff. (mpg)	33.1
HC Emissions (g)	43
CO Emissions (g)	1161
NOx Emissions (g)	138
Vehicles Entered	1514
Vehicles Exited	1520
Hourly Exit Rate	1520
Input Volume	1719
% of Volume	88
Density (ft/veh)	690
Occupancy (veh)	10

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	3.7	0.4	0.5
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	5.9	3.5	1.0	0.8	2.2	0.5	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	4.4	2.9	0.3	0.3	0.4	0.0	0.7
Total Stops	29	40	0	0	7	0	76
Stop/Veh	1.00	0.98	0.00	0.00	0.17	0.00	0.19
Travel Dist (mi)	2.1	2.9	18.7	1.4	2.4	9.4	36.9
Travel Time (hr)	0.1	0.2	0.7	0.1	0.2	0.4	1.6
Avg Speed (mph)	15	16	26	22	20	28	24
Fuel Used (gal)	0.1	0.1	0.8	0.0	0.1	0.3	1.3
Fuel Eff. (mpg)	36.1	34.8	24.8	29.9	32.3	30.6	27.9
HC Emissions (g)	0	1	8	0	0	3	13
CO Emissions (g)	6	29	294	15	14	75	432
NOx Emissions (g)	1	3	28	1	1	9	44
Vehicles Entered	29	41	121	9	41	159	400
Vehicles Exited	29	40	122	9	41	157	398
Hourly Exit Rate	29	40	122	9	41	157	398
Input Volume	34	41	129	9	39	148	400
% of Volume	85	98	95	100	105	106	100
Density (ft/veh)	1193						
Occupancy (veh)	0	0	1	0	0	0	2

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.4
Total Del/Veh (s)	6.9	0.2	2.3	1.0	0.6	9.2	4.7	1.0
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	5.1	0.0	0.8	0.0	0.0	7.4	4.5	0.2
Total Stops	1	0	5	0	0	16	40	62
Stop/Veh	0.50	0.00	0.28	0.00	0.00	1.00	1.00	0.05
Travel Dist (mi)	0.1	17.0	5.0	226.7	4.2	0.6	1.6	255.2
Travel Time (hr)	0.0	0.5	0.2	6.8	0.1	0.1	0.1	7.8
Avg Speed (mph)	13	34	28	33	30	9	11	33
Fuel Used (gal)	0.0	0.5	0.1	6.3	0.1	0.0	0.0	7.0
Fuel Eff. (mpg)	39.9	34.8	40.7	36.2	38.6	23.9	36.5	36.2
HC Emissions (g)	0	5	1	71	0	0	0	78
CO Emissions (g)	0	135	14	1449	8	4	6	1617
NOx Emissions (g)	0	19	2	244	2	1	1	268
Vehicles Entered	2	334	18	859	15	16	40	1284
Vehicles Exited	2	337	18	863	15	16	40	1291
Hourly Exit Rate	2	337	18	863	15	16	40	1291
Input Volume	8	371	23	1043	17	15	35	1512
% of Volume	25	91	78	83	88	107	114	85
Density (ft/veh)								681
Occupancy (veh)	0	1	0	7	0	0	0	8

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	2.8	0.2	0.1	0.0	0.0	0.0	3.9	0.4	0.2	0.1	0.0	0.0
Total Delay (hr)	0.2	1.6	0.0	0.4	2.8	3.0	0.7	1.2	0.0	4.4	0.7	0.1
Total Del/Veh (s)	65.1	9.0	1.9	55.1	8.7	12.9	42.2	72.3	7.0	47.9	61.4	9.5
Stop Delay (hr)	0.2	1.1	0.0	0.4	1.4	0.1	0.7	1.1	0.0	4.0	0.7	0.1
Stop Del/Veh (s)	62.7	5.8	1.7	51.3	4.3	0.3	39.3	68.8	5.0	44.5	56.9	8.0
Total Stops	12	187	26	24	218	39	52	59	3	295	41	7
Stop/Veh	0.92	0.28	0.34	0.89	0.19	0.05	0.85	1.00	0.15	0.90	0.95	0.20
Travel Dist (mi)	2.4	122.0	14.2	7.5	305.3	228.7	4.6	4.5	1.4	22.0	2.8	2.2
Travel Time (hr)	0.3	4.8	0.5	0.6	11.6	9.9	1.0	1.4	0.1	5.2	0.8	0.2
Avg Speed (mph)	8	26	30	12	26	23	5	3	14	4	3	12
Fuel Used (gal)	0.1	3.6	0.3	0.3	10.7	7.1	0.4	0.4	0.1	1.5	0.2	0.0
Fuel Eff. (mpg)	19.0	33.9	41.1	24.0	28.5	32.4	12.6	10.4	24.7	14.7	14.2	45.4
HC Emissions (g)	1	46	7	1	142	76	2	6	0	7	2	0
CO Emissions (g)	39	1560	166	58	4076	1945	88	136	12	191	34	8
NOx Emissions (g)	2	164	21	6	492	273	9	14	1	17	2	1
Vehicles Entered	13	656	76	26	1144	825	58	56	20	316	41	35
Vehicles Exited	13	656	76	25	1150	820	60	57	20	321	43	35
Hourly Exit Rate	13	656	76	25	1150	820	60	57	20	321	43	35
Input Volume	16	635	71	35	1337	1012	60	55	17	342	49	36
% of Volume	81	103	107	71	86	81	100	104	118	94	88	97
Density (ft/veh)												
Occupancy (veh)	0	5	0	1	12	10	1	1	0	5	1	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	15.3
Total Del/Veh (s)	16.6
Stop Delay (hr)	9.8
Stop Del/Veh (s)	10.6
Total Stops	963
Stop/Veh	0.29
Travel Dist (mi)	717.8
Travel Time (hr)	36.4
Avg Speed (mph)	20
Fuel Used (gal)	24.8
Fuel Eff. (mpg)	29.0
HC Emissions (g)	291
CO Emissions (g)	8312
NOx Emissions (g)	1003
Vehicles Entered	3266
Vehicles Exited	3276
Hourly Exit Rate	3276
Input Volume	3665
% of Volume	89
Density (ft/veh)	325
Occupancy (veh)	36

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	11.5	66.4	6.2	3.4	52.8	5.5	0.2	0.2	0.1	0.1	0.1	0.3
Denied Del/Veh (s)	242.7	291.2	250.9	145.5	126.1	155.6	3.9	2.2	4.6	0.8	1.3	3.1
Total Delay (hr)	13.7	5.1	0.2	2.4	37.8	0.3	4.2	3.7	0.1	3.4	2.8	0.7
Total Del/Veh (s)	298.8	25.7	11.3	102.3	92.9	8.3	70.6	45.9	3.0	51.2	40.0	7.0
Stop Delay (hr)	13.6	4.2	0.2	1.9	28.4	0.2	4.0	3.2	0.0	3.2	2.5	0.5
Stop Del/Veh (s)	295.8	21.0	9.3	81.8	69.8	4.7	67.4	40.3	0.4	47.6	35.9	5.0
Total Stops	178	394	67	144	1946	91	232	234	5	257	196	276
Stop/Veh	1.08	0.55	0.89	1.73	1.33	0.75	1.09	0.81	0.06	1.07	0.78	0.73
Travel Dist (mi)	8.5	40.8	4.3	10.5	184.6	15.3	10.5	14.8	3.8	17.4	18.5	28.0
Travel Time (hr)	25.6	72.7	6.6	6.1	95.2	6.3	4.8	4.4	0.4	4.2	3.6	2.4
Avg Speed (mph)	1	6	10	4	4	19	2	4	16	4	5	14
Fuel Used (gal)	6.2	17.9	1.6	1.7	26.5	2.1	1.4	1.5	0.2	1.5	1.3	1.2
Fuel Eff. (mpg)	1.4	2.3	2.7	6.2	7.0	7.3	7.3	10.1	18.8	11.9	14.3	23.4
HC Emissions (g)	8	48	1	1	171	8	10	4	2	7	5	12
CO Emissions (g)	421	1733	97	120	3783	664	272	188	73	284	193	410
NOx Emissions (g)	17	91	4	9	334	28	27	20	7	26	19	44
Vehicles Entered	149	710	74	81	1424	118	205	285	89	237	250	379
Vehicles Exited	150	711	75	81	1415	119	206	282	88	233	249	380
Hourly Exit Rate	150	711	75	81	1415	119	206	282	88	233	249	380
Input Volume	199	813	85	102	1814	151	215	274	95	222	272	355
% of Volume	75	87	88	79	78	79	96	103	93	105	92	107
Density (ft/veh)												
Occupancy (veh)	14	6	0	3	42	1	5	4	0	4	4	2

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	146.8
Denied Del/Veh (s)	124.5
Total Delay (hr)	74.4
Total Del/Veh (s)	65.4
Stop Delay (hr)	61.8
Stop Del/Veh (s)	54.4
Total Stops	4020
Stop/Veh	0.98
Travel Dist (mi)	356.9
Travel Time (hr)	232.4
Avg Speed (mph)	4
Fuel Used (gal)	63.0
Fuel Eff. (mpg)	5.7
HC Emissions (g)	277
CO Emissions (g)	8238
NOx Emissions (g)	625
Vehicles Entered	4001
Vehicles Exited	3989
Hourly Exit Rate	3989
Input Volume	4597
% of Volume	87
Density (ft/veh)	74
Occupancy (veh)	86

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.1	3.5	0.2	0.0
Total Delay (hr)	0.0	0.9	0.0	0.1	29.1	0.0	0.2	0.0	0.1	0.1	30.4
Total Del/Veh (s)	11.9	3.1	2.3	43.2	64.1	2.9	61.7	4.1	41.4	14.3	40.1
Stop Delay (hr)	0.0	0.0	0.0	0.1	21.1	0.0	0.2	0.0	0.1	0.1	21.5
Stop Del/Veh (s)	9.2	0.1	0.0	30.1	46.4	0.0	60.3	4.0	39.8	13.9	28.3
Total Stops	5	7	0	14	1807	0	9	4	5	15	1866
Stop/Veh	0.62	0.01	0.00	1.40	1.10	0.00	1.00	1.00	1.00	0.94	0.68
Travel Dist (mi)	1.1	135.1	1.9	1.2	193.6	1.6	0.5	0.2	0.2	0.7	336.0
Travel Time (hr)	0.1	4.7	0.1	0.2	34.1	0.1	0.2	0.0	0.1	0.1	39.6
Avg Speed (mph)	17	28	23	8	6	24	3	14	3	7	8
Fuel Used (gal)	0.1	7.5	0.1	0.1	12.4	0.1	0.0	0.0	0.0	0.0	20.3
Fuel Eff. (mpg)	20.3	18.0	18.7	17.1	15.7	17.9	10.2	39.9	12.7	25.9	16.6
HC Emissions (g)	0	103	1	0	81	1	0	0	0	0	187
CO Emissions (g)	32	4888	66	11	2204	66	3	0	1	2	7272
NOx Emissions (g)	2	381	3	1	248	3	0	0	0	0	639
Vehicles Entered	8	1010	14	10	1624	13	9	4	5	16	2713
Vehicles Exited	8	1007	14	10	1609	13	9	4	5	16	2695
Hourly Exit Rate	8	1007	14	10	1609	13	9	4	5	16	2695
Input Volume	9	1105	16	10	1987	18	7	6	5	14	3177
% of Volume	89	91	88	100	81	72	129	67	100	114	85
Density (ft/veh)											158
Occupancy (veh)	0	5	0	0	34	0	0	0	0	0	40

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	1.0	29.9	4.1	0.0	0.0	0.1	49.2	6.7	16.8
Denied Del/Veh (s)	0.0	0.0	0.0	67.3	60.2	72.1	3.8	0.6	3.9	936.4	889.4	993.2
Total Delay (hr)	0.2	1.5	0.0	2.1	87.1	7.6	0.5	0.8	0.1	11.0	0.8	0.5
Total Del/Veh (s)	21.4	5.9	0.8	134.5	182.8	143.3	61.1	62.4	7.6	353.1	229.5	50.1
Stop Delay (hr)	0.2	0.9	0.0	1.4	64.2	6.0	0.5	0.8	0.1	11.1	0.8	0.5
Stop Del/Veh (s)	19.4	3.5	0.9	90.7	134.8	112.3	59.1	59.4	6.3	356.2	228.8	49.8
Total Stops	29	189	7	94	2966	227	26	43	49	11	14	32
Stop/Veh	0.76	0.20	0.28	1.71	1.73	1.19	0.87	0.93	1.00	0.10	1.17	0.91
Travel Dist (mi)	4.5	108.6	3.0	19.4	611.1	68.1	2.1	3.5	3.7	4.9	0.6	1.7
Travel Time (hr)	0.4	4.3	0.1	3.5	129.3	13.4	0.6	0.9	0.3	60.4	7.5	17.4
Avg Speed (mph)	12	25	28	8	6	7	4	4	13	0	1	3
Fuel Used (gal)	0.1	3.1	0.1	1.2	41.1	4.4	0.2	0.3	0.2	13.9	1.7	4.0
Fuel Eff. (mpg)	32.1	34.7	41.8	16.2	14.9	15.3	10.6	11.8	22.5	0.4	0.3	0.4
HC Emissions (g)	0	31	2	2	200	9	2	2	1	25	0	15
CO Emissions (g)	20	935	60	172	6150	769	58	59	35	970	87	367
NOx Emissions (g)	2	126	6	12	579	46	6	5	4	23	1	11
Vehicles Entered	38	925	25	53	1692	191	29	46	49	100	12	35
Vehicles Exited	38	925	25	50	1583	176	29	46	49	100	11	35
Hourly Exit Rate	38	925	25	50	1583	176	29	46	49	100	11	35
Input Volume	51	1019	25	55	1913	228	36	52	56	175	31	66
% of Volume	75	91	100	91	83	77	81	88	88	57	35	53
Density (ft/veh)												
Occupancy (veh)	0	4	0	3	99	9	1	1	0	11	1	1

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	107.7
Denied Del/Veh (s)	113.0
Total Delay (hr)	112.1
Total Del/Veh (s)	124.9
Stop Delay (hr)	86.3
Stop Del/Veh (s)	96.1
Total Stops	3687
Stop/Veh	1.14
Travel Dist (mi)	831.2
Travel Time (hr)	238.1
Avg Speed (mph)	6
Fuel Used (gal)	70.4
Fuel Eff. (mpg)	11.8
HC Emissions (g)	290
CO Emissions (g)	9682
NOx Emissions (g)	822
Vehicles Entered	3195
Vehicles Exited	3067
Hourly Exit Rate	3067
Input Volume	3707
% of Volume	83
Density (ft/veh)	95
Occupancy (veh)	130

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.2	0.4	3.7
Total Delay (hr)	0.3	0.7	0.0	0.1	10.0	0.3	0.4	0.3	0.0	2.4	0.2	0.2
Total Del/Veh (s)	21.3	2.6	0.9	14.1	19.5	6.4	59.5	58.7	14.1	84.5	59.9	5.2
Stop Delay (hr)	0.3	0.3	0.0	0.0	3.1	0.0	0.4	0.3	0.0	2.3	0.2	0.2
Stop Del/Veh (s)	19.7	1.0	1.1	6.4	6.1	0.9	58.3	56.4	13.8	81.3	57.7	4.7
Total Stops	45	96	4	16	560	35	20	19	11	101	12	140
Stop/Veh	0.82	0.10	0.33	0.84	0.30	0.19	0.77	1.00	0.92	1.00	0.86	0.90
Travel Dist (mi)	6.2	103.2	1.4	4.9	454.4	46.1	1.1	0.9	0.6	5.3	0.8	8.4
Travel Time (hr)	0.5	2.8	0.0	0.2	20.1	1.6	0.5	0.4	0.1	2.6	0.3	0.8
Avg Speed (mph)	12	37	29	24	23	29	2	3	7	2	3	13
Fuel Used (gal)	0.2	2.8	0.0	0.2	21.6	2.0	0.2	0.1	0.0	0.8	0.1	0.3
Fuel Eff. (mpg)	32.3	36.3	46.1	22.1	21.0	22.9	6.8	8.2	14.2	6.9	10.5	24.4
HC Emissions (g)	1	33	0	2	283	33	1	2	0	4	0	2
CO Emissions (g)	48	1192	14	108	13304	1779	36	48	8	123	6	82
NOx Emissions (g)	5	153	1	8	1017	104	4	5	1	11	0	8
Vehicles Entered	55	991	12	19	1834	183	24	19	12	98	14	155
Vehicles Exited	55	993	12	19	1798	178	23	19	12	98	13	155
Hourly Exit Rate	55	993	12	19	1798	178	23	19	12	98	13	155
Input Volume	70	1140	19	22	1905	165	29	27	16	115	16	166
% of Volume	79	87	63	86	94	108	79	70	75	85	81	93
Density (ft/veh)												
Occupancy (veh)	1	3	0	0	20	2	0	0	0	3	0	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	15.0
Total Del/Veh (s)	15.8
Stop Delay (hr)	7.2
Stop Del/Veh (s)	7.6
Total Stops	1059
Stop/Veh	0.31
Travel Dist (mi)	633.1
Travel Time (hr)	29.9
Avg Speed (mph)	21
Fuel Used (gal)	28.4
Fuel Eff. (mpg)	22.3
HC Emissions (g)	361
CO Emissions (g)	16748
NOx Emissions (g)	1317
Vehicles Entered	3416
Vehicles Exited	3375
Hourly Exit Rate	3375
Input Volume	3690
% of Volume	91
Density (ft/veh)	358
Occupancy (veh)	30

11: Frontage Rd & Chase St Performance by movement

Movement	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.1	2.5	0.3	0.2	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.2	2.3	0.4	0.3	1.3
Total Stops	9	45	0	0	54
Stop/Veh	1.00	1.00	0.00	0.00	0.50
Travel Dist (mi)	0.2	1.0	2.0	0.9	4.1
Travel Time (hr)	0.0	0.1	0.2	0.1	0.4
Avg Speed (mph)	11	10	10	11	10
Fuel Used (gal)	0.0	0.0	0.1	0.0	0.2
Fuel Eff. (mpg)	37.3	34.0	20.5	19.2	22.8
HC Emissions (g)	0	0	1	0	1
CO Emissions (g)	0	3	17	5	26
NOx Emissions (g)	0	0	2	1	3
Vehicles Entered	9	45	37	17	108
Vehicles Exited	9	45	38	17	109
Hourly Exit Rate	9	45	38	17	109
Input Volume	6	61	48	18	137
% of Volume	150	74	79	94	80
Density (ft/veh)					
Occupancy (veh)	0	0	0	0	0

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.3	0.4	2.5	0.3	0.3
Total Delay (hr)	1.3	5.7	0.2	6.3	13.4	0.3	8.2	6.4	0.2	2.5	9.5	0.6
Total Del/Veh (s)	63.9	28.3	4.5	68.2	30.5	8.5	79.6	36.1	3.1	62.6	45.2	12.8
Stop Delay (hr)	1.2	4.3	0.0	5.6	8.5	0.2	7.4	5.1	0.0	2.3	7.6	0.5
Stop Del/Veh (s)	60.6	21.3	0.1	60.8	19.2	5.3	72.2	28.3	0.0	56.4	36.0	11.5
Total Stops	69	390	0	300	694	63	450	445	0	162	645	120
Stop/Veh	0.96	0.53	0.00	0.90	0.44	0.46	1.22	0.69	0.00	1.11	0.85	0.71
Travel Dist (mi)	17.6	176.2	33.2	54.8	258.4	22.9	46.0	82.6	32.7	11.9	63.3	14.4
Travel Time (hr)	1.7	9.5	1.0	7.8	18.7	1.0	9.9	8.6	1.3	3.1	11.2	1.2
Avg Speed (mph)	10	19	32	7	14	23	5	10	26	4	6	12
Fuel Used (gal)	0.8	6.6	1.0	2.7	9.6	0.7	3.4	4.1	0.9	1.1	4.4	0.6
Fuel Eff. (mpg)	22.7	26.9	34.9	19.9	26.9	32.8	13.4	19.9	35.9	11.3	14.3	24.6
HC Emissions (g)	4	76	10	20	89	10	31	42	12	13	34	4
CO Emissions (g)	291	3533	566	688	3456	467	1050	1876	624	360	1160	241
NOx Emissions (g)	18	280	38	61	304	30	83	128	34	34	114	16
Vehicles Entered	70	723	136	329	1575	137	350	629	265	141	742	169
Vehicles Exited	69	727	137	325	1567	138	356	622	267	139	743	168
Hourly Exit Rate	69	727	137	325	1567	138	356	622	267	139	743	168
Input Volume	95	814	155	336	1590	141	371	658	252	178	771	174
% of Volume	73	89	88	97	99	98	96	95	106	78	96	97
Density (ft/veh)												
Occupancy (veh)	2	9	1	8	19	1	10	9	1	3	11	1

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.3
Total Delay (hr)	54.8
Total Del/Veh (s)	36.9
Stop Delay (hr)	42.7
Stop Del/Veh (s)	28.7
Total Stops	3338
Stop/Veh	0.62
Travel Dist (mi)	813.9
Travel Time (hr)	74.9
Avg Speed (mph)	11
Fuel Used (gal)	35.9
Fuel Eff. (mpg)	22.7
HC Emissions (g)	346
CO Emissions (g)	14313
NOx Emissions (g)	1140
Vehicles Entered	5266
Vehicles Exited	5258
Hourly Exit Rate	5258
Input Volume	5535
% of Volume	95
Density (ft/veh)	248
Occupancy (veh)	74

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Denied Del/Veh (s)	0.3	0.0	0.0	0.0	0.0	0.0	4.1	0.2	3.9	4.0	0.7	3.7
Total Delay (hr)	1.6	3.4	0.0	1.8	6.9	0.2	0.6	0.5	0.1	1.3	0.3	0.4
Total Del/Veh (s)	65.3	11.9	2.2	65.0	12.2	5.0	50.3	68.3	5.4	56.5	62.4	17.3
Stop Delay (hr)	1.5	2.0	0.0	1.6	2.2	0.1	0.5	0.4	0.1	1.3	0.3	0.4
Stop Del/Veh (s)	61.9	7.0	1.8	59.5	3.8	1.5	48.5	65.6	5.1	54.3	60.0	17.0
Total Stops	78	342	14	93	524	37	35	23	59	78	16	74
Stop/Veh	0.90	0.33	0.29	0.95	0.26	0.28	0.88	0.96	0.94	0.93	0.89	0.85
Travel Dist (mi)	14.6	175.2	8.4	23.5	469.8	31.4	2.9	1.8	4.8	5.8	1.3	6.2
Travel Time (hr)	2.0	7.0	0.3	2.4	16.5	1.0	0.7	0.5	0.4	1.7	0.4	0.8
Avg Speed (mph)	7	25	32	10	29	31	4	3	14	4	4	9
Fuel Used (gal)	0.7	5.6	0.2	1.1	15.9	1.1	0.2	0.1	0.2	0.5	0.1	0.3
Fuel Eff. (mpg)	21.2	31.2	37.8	21.7	29.6	28.3	11.9	12.4	25.4	11.3	12.1	20.8
HC Emissions (g)	7	64	2	6	210	16	1	0	3	8	0	1
CO Emissions (g)	221	2844	124	397	10287	956	35	16	74	161	9	51
NOx Emissions (g)	19	248	7	24	730	53	3	1	9	17	1	4
Vehicles Entered	86	1029	48	98	2013	130	38	24	63	82	18	87
Vehicles Exited	85	1026	48	97	2025	131	40	24	61	82	18	84
Hourly Exit Rate	85	1026	48	97	2025	131	40	24	61	82	18	84
Input Volume	88	1118	48	113	2085	138	42	26	62	75	14	69
% of Volume	97	92	100	86	97	95	95	92	98	109	129	122
Density (ft/veh)												
Occupancy (veh)	2	7	0	2	16	1	1	1	0	2	0	1

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.3
Denied Del/Veh (s)	0.3
Total Delay (hr)	17.0
Total Del/Veh (s)	16.4
Stop Delay (hr)	10.4
Stop Del/Veh (s)	10.0
Total Stops	1373
Stop/Veh	0.37
Travel Dist (mi)	745.6
Travel Time (hr)	33.6
Avg Speed (mph)	22
Fuel Used (gal)	26.1
Fuel Eff. (mpg)	28.6
HC Emissions (g)	316
CO Emissions (g)	15174
NOx Emissions (g)	1115
Vehicles Entered	3716
Vehicles Exited	3721
Hourly Exit Rate	3721
Input Volume	3878
% of Volume	96
Density (ft/veh)	427
Occupancy (veh)	33

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.1	0.2	4.2	0.1	0.1
Total Delay (hr)	0.3	3.4	0.0	2.1	4.5	0.1	0.6	0.1	0.3	0.3	0.0	0.0
Total Del/Veh (s)	70.1	11.0	3.0	67.1	7.4	6.2	59.2	51.1	7.4	65.2	46.9	8.2
Stop Delay (hr)	0.3	1.0	0.0	1.9	0.4	0.0	0.6	0.1	0.3	0.3	0.0	0.0
Stop Del/Veh (s)	65.3	3.3	1.2	60.7	0.6	0.8	57.2	48.0	6.5	63.2	41.4	8.2
Total Stops	13	272	14	120	139	2	36	4	132	18	1	13
Stop/Veh	0.93	0.24	0.29	1.05	0.06	0.07	0.97	1.00	0.95	0.95	1.00	1.00
Travel Dist (mi)	3.4	271.8	11.7	20.9	405.4	5.4	2.9	0.3	10.6	0.9	0.0	0.6
Travel Time (hr)	0.4	9.2	0.3	2.7	12.7	0.2	0.8	0.1	0.8	0.4	0.0	0.1
Avg Speed (mph)	10	30	35	8	32	26	4	4	13	2	3	10
Fuel Used (gal)	0.2	10.8	0.4	1.0	14.0	0.1	0.2	0.0	0.4	0.1	0.0	0.0
Fuel Eff. (mpg)	18.7	25.1	26.3	19.9	28.9	37.4	12.0	14.4	28.2	8.4	8.9	35.5
HC Emissions (g)	1	172	13	7	179	2	0	0	2	0	0	0
CO Emissions (g)	67	7311	461	284	7444	54	29	3	82	14	1	5
NOx Emissions (g)	4	610	37	24	697	6	2	0	8	1	0	0
Vehicles Entered	14	1112	48	112	2190	30	37	4	139	19	1	13
Vehicles Exited	13	1103	48	113	2191	29	37	4	139	18	1	13
Hourly Exit Rate	13	1103	48	113	2191	29	37	4	139	18	1	13
Input Volume	11	1202	56	103	2293	29	34	4	124	19	2	9
% of Volume	118	92	86	110	96	100	109	100	112	95	50	144
Density (ft/veh)												
Occupancy (veh)	0	9	0	3	13	0	1	0	1	0	0	0

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	11.8
Total Del/Veh (s)	11.3
Stop Delay (hr)	4.9
Stop Del/Veh (s)	4.7
Total Stops	764
Stop/Veh	0.20
Travel Dist (mi)	734.1
Travel Time (hr)	27.7
Avg Speed (mph)	27
Fuel Used (gal)	27.5
Fuel Eff. (mpg)	26.7
HC Emissions (g)	375
CO Emissions (g)	15756
NOx Emissions (g)	1391
Vehicles Entered	3719
Vehicles Exited	3709
Hourly Exit Rate	3709
Input Volume	3886
% of Volume	95
Density (ft/veh)	337
Occupancy (veh)	28

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.8	1.1	3.8	0.5	0.7	3.2
Total Delay (hr)	2.4	6.9	0.0	3.1	24.5	0.6	0.5	0.6	0.1	5.5	1.2	0.4
Total Del/Veh (s)	67.8	22.6	5.2	51.9	44.6	10.2	57.2	57.4	2.1	69.2	51.3	4.2
Stop Delay (hr)	2.2	4.3	0.0	2.6	14.5	0.2	0.5	0.5	0.0	5.0	1.1	0.0
Stop Del/Veh (s)	63.0	13.8	0.0	43.4	26.4	3.0	54.9	53.9	0.0	62.6	44.4	0.0
Total Stops	114	604	0	220	1456	28	33	36	1	322	78	0
Stop/Veh	0.91	0.55	0.00	1.01	0.74	0.14	1.00	1.00	0.01	1.12	0.90	0.00
Travel Dist (mi)	23.9	211.2	6.0	20.3	182.1	17.5	5.6	6.2	27.3	56.5	17.1	59.7
Travel Time (hr)	3.0	11.2	0.2	3.8	28.2	1.2	0.8	0.8	1.4	7.2	1.7	2.4
Avg Speed (mph)	8	19	29	5	6	15	7	7	22	8	10	28
Fuel Used (gal)	1.0	6.2	0.1	1.6	11.8	0.9	0.3	0.3	0.8	3.1	0.8	1.9
Fuel Eff. (mpg)	22.8	34.3	43.1	12.5	15.4	19.5	18.7	19.4	32.2	18.2	21.4	31.1
HC Emissions (g)	7	70	1	15	59	12	2	1	5	40	6	25
CO Emissions (g)	290	2091	48	563	1614	479	62	33	154	1453	311	1193
NOx Emissions (g)	21	256	4	49	229	43	7	3	18	109	20	80
Vehicles Entered	124	1106	32	216	1949	204	32	36	169	286	87	315
Vehicles Exited	117	1104	32	214	1955	203	30	35	167	279	85	314
Hourly Exit Rate	117	1104	32	214	1955	203	30	35	167	279	85	314
Input Volume	150	1164	32	219	2039	216	32	43	174	280	87	316
% of Volume	78	95	100	98	96	94	94	81	96	100	98	99
Density (ft/veh)												
Occupancy (veh)	3	11	0	4	28	1	1	1	1	7	2	2

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.4
Total Delay (hr)	45.9
Total Del/Veh (s)	36.0
Stop Delay (hr)	30.9
Stop Del/Veh (s)	24.2
Total Stops	2892
Stop/Veh	0.63
Travel Dist (mi)	633.2
Travel Time (hr)	61.9
Avg Speed (mph)	10
Fuel Used (gal)	29.0
Fuel Eff. (mpg)	21.8
HC Emissions (g)	243
CO Emissions (g)	8291
NOx Emissions (g)	837
Vehicles Entered	4556
Vehicles Exited	4535
Hourly Exit Rate	4535
Input Volume	4752
% of Volume	95
Density (ft/veh)	230
Occupancy (veh)	61

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.2	0.1	0.4
Total Del/Veh (s)	0.6	1.8	1.6	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.2	0.2	0.1
Total Stops	0	0	2	2
Stop/Veh	0.00	0.00	0.01	0.00
Travel Dist (mi)	29.5	19.9	8.4	57.7
Travel Time (hr)	0.9	0.9	0.5	2.4
Avg Speed (mph)	32	22	15	25
Fuel Used (gal)	0.7	1.5	0.3	2.5
Fuel Eff. (mpg)	44.0	13.2	27.9	23.3
HC Emissions (g)	10	24	2	36
CO Emissions (g)	180	862	83	1125
NOx Emissions (g)	31	92	10	132
Vehicles Entered	326	485	203	1014
Vehicles Exited	326	485	203	1014
Hourly Exit Rate	326	485	203	1014
Input Volume	372	554	229	1155
% of Volume	88	88	89	88
Density (ft/veh)				385
Occupancy (veh)	1	1	1	2

Total Network Performance

Denied Delay (hr)	804.0
Denied Del/Veh (s)	174.5
Total Delay (hr)	625.5
Total Del/Veh (s)	140.1
Stop Delay (hr)	424.3
Stop Del/Veh (s)	95.0
Total Stops	31138
Stop/Veh	1.94
Travel Dist (mi)	13718.6
Travel Time (hr)	1791.2
Avg Speed (mph)	14
Fuel Used (gal)	814.2
Fuel Eff. (mpg)	16.8
HC Emissions (g)	8263
CO Emissions (g)	294907
NOx Emissions (g)	25627
Vehicles Entered	15283
Vehicles Exited	14907
Hourly Exit Rate	14907
Input Volume	92182
% of Volume	16
Density (ft/veh)	176
Occupancy (veh)	987

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	2.0	26.1	0.2	21
Total		2.0	26.1	0.2	21

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	13.1	17.5	0.0	8
	573	2.5	18.5	0.2	29
Laurel St	5	0.2	5.4	0.1	34
	627	0.9	29.7	0.3	34
	641	0.4	8.6	0.1	33
SH 128	6	61.4	68.3	0.1	4
Total		78.5	148.0	0.7	17

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	3.2	12.3	0.1	23
	627	0.2	8.3	0.1	34
Laurel St	5	1.0	28.0	0.3	36
	573	0.3	5.7	0.1	33
Nickel St	3	12.3	27.4	0.2	20
US 287 WB	214	2.1	6.4	0.0	23
Total		19.0	88.1	0.7	28

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	9.6	15.1	0.1	13
3rd Ave	4	1.3	20.0	0.2	30
Total		10.9	35.1	0.2	22

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	0.5	8.1	0.1	29
US 287	3	12.3	29.8	0.2	20
Total		12.8	37.8	0.2	22

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	L	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	149	173	230	470	450	319	370	450	460	448	220	638
Average Queue (ft)	27	72	223	440	430	218	289	390	397	173	147	613
95th Queue (ft)	81	131	257	495	516	321	423	516	497	469	260	636
Link Distance (ft)		331		431	431			418	418	418		586
Upstream Blk Time (%)				47	39			10	12	1		47
Queuing Penalty (veh)				0	0			71	83	9		0
Storage Bay Dist (ft)	125		205			270	270				195	
Storage Blk Time (%)	0	1	14	64		7	11	27			13	47
Queuing Penalty (veh)	0	3	41	189		59	100	91			133	56

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	635	625
Average Queue (ft)	611	581
95th Queue (ft)	629	759
Link Distance (ft)	586	586
Upstream Blk Time (%)	67	31
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB	SB
Directions Served	R	L	T	T	T
Maximum Queue (ft)	121	228	353	385	20
Average Queue (ft)	15	90	135	152	1
95th Queue (ft)	62	190	323	350	7
Link Distance (ft)	611		1656	1656	418
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		350			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	R	L
Maximum Queue (ft)	28	76	93	60	112	238	150	60	65	108	38	74
Average Queue (ft)	1	43	35	31	55	120	52	15	28	32	4	26
95th Queue (ft)	9	73	72	54	96	188	99	39	56	64	19	64
Link Distance (ft)	136	136	136	136		725	725		223	223	223	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					290		140					
Storage Blk Time (%)									0			
Queuing Penalty (veh)									0			

Intersection: 3: Nickel St & US 287

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	90	105
Average Queue (ft)	36	21
95th Queue (ft)	74	57
Link Distance (ft)	777	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	215	
Storage Blk Time (%)	6	
Queuing Penalty (veh)	8	

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	55	31
Average Queue (ft)	34	5
95th Queue (ft)	50	24
Link Distance (ft)	379	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	45	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 5: Laurel St & US 287

Movement	EB	WB	SB
Directions Served	L	UL	LTR
Maximum Queue (ft)	28	29	54
Average Queue (ft)	1	5	32
95th Queue (ft)	9	22	48
Link Distance (ft)			206
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B670	B670	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	42	168	185	32	64	137	146	169	318	355	139	213
Average Queue (ft)	8	78	48	4	20	66	88	6	27	103	45	54
95th Queue (ft)	24	148	123	16	51	124	141	56	162	343	85	125
Link Distance (ft)		964	964	964		1493	1493		238	238		407
Upstream Blk Time (%)									0	2		
Queuing Penalty (veh)									2	17		
Storage Bay Dist (ft)	240				115			315			90	
Storage Blk Time (%)						0					1	6
Queuing Penalty (veh)						0					1	4

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	164	250	158
Average Queue (ft)	97	122	56
95th Queue (ft)	156	182	125
Link Distance (ft)		309	309
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	115		
Storage Blk Time (%)	7	10	
Queuing Penalty (veh)	11	18	

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T	L	T	T	R	L	L
Maximum Queue (ft)	237	309	308	95	1066	1047	189	648	702	94	168	235
Average Queue (ft)	235	308	198	49	451	397	104	633	638	40	67	165
95th Queue (ft)	238	309	330	115	1027	992	213	643	661	76	178	254
Link Distance (ft)		238	238		1493	1493		621	621	621		
Upstream Blk Time (%)	71	88	6					30	34			
Queuing Penalty (veh)	0	439	30					194	219			
Storage Bay Dist (ft)	280			45			140				185	185
Storage Blk Time (%)	71	88	39	1				55			0	4
Queuing Penalty (veh)	288	176	33	6				56			0	13

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	285	235	169	209	286	260
Average Queue (ft)	202	31	70	126	158	93
95th Queue (ft)	311	162	159	202	247	204
Link Distance (ft)	265			389	389	
Upstream Blk Time (%)	4					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)		185	150		210	
Storage Blk Time (%)	9		0	6	3	
Queuing Penalty (veh)	28		0	6	12	

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	L	TR	L	TR
Maximum Queue (ft)	27	47	224	582	583	31	31	31	52
Average Queue (ft)	6	2	21	537	541	9	3	5	13
95th Queue (ft)	23	18	112	652	638	31	18	24	39
Link Distance (ft)		621		548	548		282		232
Upstream Blk Time (%)				15	18				
Queuing Penalty (veh)				98	124				
Storage Bay Dist (ft)	150		175			120		30	
Storage Blk Time (%)				52				6	6
Queuing Penalty (veh)				5				1	0

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B671	B671	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	T
Maximum Queue (ft)	66	153	151	18	365	2048	2052	490	540	545	92	116
Average Queue (ft)	17	69	76	3	123	1489	1504	381	85	93	28	44
95th Queue (ft)	46	142	142	13	381	2383	2390	706	374	401	70	86
Link Distance (ft)		548	548	548		1958	1958		532	532		400
Upstream Blk Time (%)						17	22		0	0		
Queuing Penalty (veh)						173	218		0	3		
Storage Bay Dist (ft)	255				315			440			130	
Storage Blk Time (%)					0	50	54	0				7
Queuing Penalty (veh)					0	27	123	0				7

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	NB	SB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (ft)	110	154	323	97
Average Queue (ft)	29	154	278	36
95th Queue (ft)	69	154	295	83
Link Distance (ft)			260	260
Upstream Blk Time (%)			100	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)	60	105		
Storage Blk Time (%)	0	99	0	
Queuing Penalty (veh)	0	31	0	

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	TR
Maximum Queue (ft)	90	104	84	106	14	149	439	461	356	52	62	84
Average Queue (ft)	27	16	17	30	2	18	168	194	36	18	21	23
95th Queue (ft)	61	59	50	82	8	79	324	350	166	46	53	62
Link Distance (ft)		532	532	532			1234	1234	1234			229
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	180				425	100				950	45	
Storage Blk Time (%)							13				11	7
Queuing Penalty (veh)							3				5	2

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (ft)	177	47	69
Average Queue (ft)	98	12	37
95th Queue (ft)	163	32	61
Link Distance (ft)	277	277	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			105
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Frontage Rd & Chase St

Movement	WB
Directions Served	TR
Maximum Queue (ft)	56
Average Queue (ft)	28
95th Queue (ft)	49
Link Distance (ft)	112
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	L	L	T	T	T	R	L
Maximum Queue (ft)	68	66	189	240	150	204	218	346	418	367	80	277
Average Queue (ft)	20	33	94	110	76	119	130	174	198	158	38	177
95th Queue (ft)	51	61	161	188	138	193	197	302	354	296	72	261
Link Distance (ft)			1234	1234	1234			828	828	828		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	460	460				395	395				450	315
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	L	L	T	T	R
Maximum Queue (ft)	329	292	254	154	270	404	340	152
Average Queue (ft)	226	181	168	40	161	269	221	62
95th Queue (ft)	299	261	240	117	290	377	317	118
Link Distance (ft)		690	690			442	442	442
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	315			220	220			
Storage Blk Time (%)	0					17		
Queuing Penalty (veh)	1					31		

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	T	T	T	R	L
Maximum Queue (ft)	74	106	262	275	197	19	182	263	352	290	69	66
Average Queue (ft)	21	48	109	118	49	5	84	128	133	139	23	32
95th Queue (ft)	55	84	198	225	123	16	145	214	236	239	49	61
Link Distance (ft)			864	864	864			1198	1198	1198		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	260	260				450	470				590	115
Storage Blk Time (%)			0									
Queuing Penalty (veh)			0									

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	82	55	144	149	48	84
Average Queue (ft)	20	20	15	68	16	36
95th Queue (ft)	51	41	69	121	42	68
Link Distance (ft)	392				371	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		115	120	120		110
Storage Blk Time (%)			0	1		
Queuing Penalty (veh)			0	1		

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	B672	B672	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	T	T	L	TR	L
Maximum Queue (ft)	73	241	269	50	200	161	222	959	955	98	94	84
Average Queue (ft)	13	105	123	11	100	56	75	32	94	29	43	14
95th Queue (ft)	43	223	237	36	174	133	186	316	557	70	77	48
Link Distance (ft)		1198	1198	1198		928	928	964	964		402	
Upstream Blk Time (%)								0	0			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	150				305					85		85
Storage Blk Time (%)		2								2	1	0
Queuing Penalty (veh)		0								2	0	0

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	SB
Directions Served	TR
Maximum Queue (ft)	30
Average Queue (ft)	12
95th Queue (ft)	35
Link Distance (ft)	253
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	B636	B636	NB
Directions Served	L	L	T	T	L	L	T	T	R	T	T	L
Maximum Queue (ft)	95	109	345	348	127	433	553	530	434	1403	1403	86
Average Queue (ft)	40	59	213	226	66	343	510	510	291	1225	1186	32
95th Queue (ft)	83	96	302	308	119	590	528	523	624	1672	1738	79
Link Distance (ft)			964	964			434	434		1340	1340	
Upstream Blk Time (%)						0	30	32	1	22	17	
Queuing Penalty (veh)						0	0	0	0	0	0	
Storage Bay Dist (ft)	400	400			400	400			415			100
Storage Blk Time (%)				1		0	33	33	1			0
Queuing Penalty (veh)				0		0	71	72	9			0

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	NB	SB	SB	SB
Directions Served	T	L	L	T
Maximum Queue (ft)	94	219	232	177
Average Queue (ft)	34	127	167	71
95th Queue (ft)	71	219	227	135
Link Distance (ft)	901		1046	1046
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		335		
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement	WB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	136
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 3407

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	16.6	39.5	87.3	78.7	25.9	45.1	0.1	1.7	0.5	34.3	360.0	5.1
Denied Del/Veh (s)	853.4	769.0	809.9	766.1	718.0	820.4	1.9	3.1	2.6	577.1	601.4	632.7
Total Delay (hr)	2.9	8.5	2.9	24.2	4.4	2.6	8.0	13.5	2.5	13.3	38.4	0.1
Total Del/Veh (s)	256.0	270.5	45.1	337.5	205.1	68.1	165.0	24.2	13.8	289.1	85.5	10.7
Stop Delay (hr)	2.8	8.2	2.4	23.7	4.2	2.3	7.6	8.6	0.7	12.6	30.8	0.0
Stop Del/Veh (s)	248.6	261.4	37.5	331.0	192.7	60.2	157.8	15.5	3.9	272.3	68.7	4.9
Total Stops	59	125	72	371	67	61	197	623	142	242	1760	3
Stop/Veh	1.44	1.11	0.31	1.44	0.86	0.45	1.13	0.31	0.21	1.46	1.09	0.14
Travel Dist (mi)	2.5	6.9	11.4	19.8	6.3	8.3	16.9	203.4	60.2	23.9	247.6	3.2
Travel Time (hr)	19.6	48.2	90.7	103.7	30.6	48.0	8.7	20.8	5.2	48.4	405.5	5.3
Avg Speed (mph)	1	1	3	1	1	3	2	11	13	2	5	19
Fuel Used (gal)	4.5	11.0	20.5	23.9	7.1	11.1	2.5	13.9	2.9	11.4	100.0	1.2
Fuel Eff. (mpg)	0.6	0.6	0.6	0.8	0.9	0.7	6.6	14.6	21.1	2.1	2.5	2.6
HC Emissions (g)	65	112	183	163	42	44	16	223	38	115	910	45
CO Emissions (g)	1009	1875	3171	3124	854	1087	446	6860	840	1992	17695	701
NOx Emissions (g)	59	96	154	148	38	41	41	721	119	125	1207	54
Vehicles Entered	40	110	231	247	75	127	162	1973	659	151	1558	22
Vehicles Exited	40	108	230	235	77	133	160	1971	659	157	1553	21
Hourly Exit Rate	40	108	230	235	77	133	160	1971	659	157	1553	21
Input Volume	59	151	332	307	116	185	162	2006	667	215	1986	23
% of Volume	68	72	69	77	66	72	99	98	99	73	78	91
Density (ft/veh)												
Occupancy (veh)	3	9	3	25	5	3	9	19	5	14	45	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	694.9
Denied Del/Veh (s)	382.7
Total Delay (hr)	121.3
Total Del/Veh (s)	79.3
Stop Delay (hr)	104.1
Stop Del/Veh (s)	68.0
Total Stops	3722
Stop/Veh	0.68
Travel Dist (mi)	610.3
Travel Time (hr)	834.6
Avg Speed (mph)	4
Fuel Used (gal)	210.0
Fuel Eff. (mpg)	2.9
HC Emissions (g)	1957
CO Emissions (g)	39655
NOx Emissions (g)	2803
Vehicles Entered	5355
Vehicles Exited	5344
Hourly Exit Rate	5344
Input Volume	6209
% of Volume	86
Density (ft/veh)	59
Occupancy (veh)	140

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	4.5	70.1	0.0	0.0	74.6
Denied Del/Veh (s)	0.0	0.0	115.0	107.9	0.0	0.0	53.2
Total Delay (hr)	0.2	0.4	5.3	32.1	2.1	0.5	40.7
Total Del/Veh (s)	2.0	6.3	135.4	51.4	4.5	6.9	29.5
Stop Delay (hr)	0.0	0.3	4.7	18.0	0.1	0.0	23.2
Stop Del/Veh (s)	0.0	4.8	120.8	28.8	0.2	0.6	16.8
Total Stops	2	58	174	1555	95	46	1930
Stop/Veh	0.01	0.25	1.24	0.69	0.05	0.16	0.39
Travel Dist (mi)	6.8	30.7	19.8	307.0	154.8	20.9	540.0
Travel Time (hr)	0.5	2.0	10.5	111.1	6.4	1.3	131.7
Avg Speed (mph)	14	15	3	7	24	16	9
Fuel Used (gal)	0.1	1.6	2.9	32.3	9.6	0.8	47.4
Fuel Eff. (mpg)	58.3	19.4	6.8	9.5	16.1	25.3	11.4
HC Emissions (g)	1	24	13	128	236	9	412
CO Emissions (g)	16	1008	420	3720	8478	279	13922
NOx Emissions (g)	1	76	31	331	726	33	1198
Vehicles Entered	314	232	138	2230	1734	284	4932
Vehicles Exited	314	232	136	2190	1734	284	4890
Hourly Exit Rate	314	232	136	2190	1734	284	4890
Input Volume	301	231	127	2226	2239	386	5510
% of Volume	104	100	107	98	77	74	89
Density (ft/veh)							81
Occupancy (veh)	0	2	6	41	6	1	57

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.2	0.0	0.0
Total Delay (hr)	0.1	1.3	0.1	0.6	1.3	0.1	0.4	0.8	0.5	0.3	0.3	0.1
Total Del/Veh (s)	16.4	15.5	3.4	16.9	11.1	4.3	12.1	17.8	8.6	16.9	13.8	5.4
Stop Delay (hr)	0.0	1.0	0.1	0.5	0.9	0.1	0.4	0.6	0.5	0.3	0.3	0.1
Stop Del/Veh (s)	14.7	12.2	3.2	14.1	7.8	3.7	9.8	13.6	7.3	14.7	11.0	5.0
Total Stops	10	180	75	110	197	43	91	94	152	65	56	33
Stop/Veh	0.91	0.60	0.72	0.84	0.48	0.56	0.69	0.61	0.67	0.88	0.62	0.73
Travel Dist (mi)	0.5	12.7	4.5	19.4	58.6	11.5	5.7	6.8	10.0	10.7	13.4	6.8
Travel Time (hr)	0.1	1.6	0.3	1.3	3.0	0.5	0.7	1.0	1.1	0.7	0.8	0.3
Avg Speed (mph)	7	8	14	16	20	23	8	7	9	15	17	20
Fuel Used (gal)	0.0	0.6	0.1	0.6	1.6	0.3	0.3	0.4	0.4	0.4	0.5	0.2
Fuel Eff. (mpg)	23.9	20.3	49.0	33.1	35.8	40.5	21.3	17.0	23.1	27.9	27.0	32.9
HC Emissions (g)	0	4	0	3	14	2	1	4	4	2	2	5
CO Emissions (g)	2	153	17	109	339	54	48	110	126	65	114	99
NOx Emissions (g)	0	14	1	12	45	8	5	12	14	6	9	12
Vehicles Entered	11	297	104	131	413	77	131	154	227	73	91	45
Vehicles Exited	11	298	104	131	405	76	132	154	227	73	91	45
Hourly Exit Rate	11	298	104	131	405	76	132	154	227	73	91	45
Input Volume	13	367	124	154	416	72	123	162	238	74	97	39
% of Volume	85	81	84	85	97	106	107	95	95	99	94	115
Density (ft/veh)												
Occupancy (veh)	0	2	0	1	3	1	1	1	1	1	1	0

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	5.9
Total Del/Veh (s)	12.1
Stop Delay (hr)	4.7
Stop Del/Veh (s)	9.6
Total Stops	1106
Stop/Veh	0.63
Travel Dist (mi)	160.5
Travel Time (hr)	11.4
Avg Speed (mph)	14
Fuel Used (gal)	5.4
Fuel Eff. (mpg)	29.6
HC Emissions (g)	43
CO Emissions (g)	1237
NOx Emissions (g)	139
Vehicles Entered	1754
Vehicles Exited	1747
Hourly Exit Rate	1747
Input Volume	1879
% of Volume	93
Density (ft/veh)	602
Occupancy (veh)	11

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	3.7	0.5	0.7
Total Delay (hr)	0.1	0.1	0.1	0.0	0.1	0.0	0.4
Total Del/Veh (s)	7.2	4.1	2.1	1.7	2.7	1.0	2.4
Stop Delay (hr)	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	5.4	3.4	0.3	0.1	0.8	0.0	0.9
Total Stops	35	55	0	0	19	0	109
Stop/Veh	1.00	1.00	0.00	0.00	0.20	0.00	0.18
Travel Dist (mi)	2.7	4.4	35.2	3.2	6.8	11.8	64.1
Travel Time (hr)	0.2	0.3	1.4	0.1	0.4	0.5	2.9
Avg Speed (mph)	15	17	25	23	20	27	23
Fuel Used (gal)	0.1	0.1	1.6	0.1	0.2	0.4	2.5
Fuel Eff. (mpg)	34.3	35.2	22.4	27.0	31.8	28.7	25.5
HC Emissions (g)	0	2	25	1	2	5	35
CO Emissions (g)	10	48	742	43	56	152	1050
NOx Emissions (g)	1	6	80	3	6	15	110
Vehicles Entered	34	55	230	22	95	166	602
Vehicles Exited	35	55	228	22	95	167	602
Hourly Exit Rate	35	55	228	22	95	167	602
Input Volume	31	48	242	17	101	170	609
% of Volume	113	115	94	129	94	98	99
Density (ft/veh)							721
Occupancy (veh)	0	0	1	0	0	0	3

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3
Total Del/Veh (s)	4.4	0.2	5.4	0.9	0.5	11.7	5.2	0.8
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	2.6	0.0	4.5	0.0	0.0	10.0	4.7	0.2
Total Stops	9	0	2	0	0	9	17	37
Stop/Veh	0.56	0.00	0.29	0.00	0.00	1.00	1.00	0.03
Travel Dist (mi)	0.8	29.2	2.0	177.7	6.6	0.4	0.7	217.3
Travel Time (hr)	0.1	0.9	0.1	5.3	0.2	0.0	0.1	6.6
Avg Speed (mph)	15	33	26	34	31	8	11	33
Fuel Used (gal)	0.0	0.9	0.1	4.9	0.2	0.0	0.0	6.0
Fuel Eff. (mpg)	43.9	32.9	37.4	36.5	40.6	33.6	38.3	36.1
HC Emissions (g)	0	12	0	49	1	0	0	62
CO Emissions (g)	3	301	5	1026	20	1	3	1358
NOx Emissions (g)	0	40	1	172	3	0	0	217
Vehicles Entered	16	608	7	656	23	9	17	1336
Vehicles Exited	16	608	7	662	24	9	17	1343
Hourly Exit Rate	16	608	7	662	24	9	17	1343
Input Volume	25	679	14	677	22	20	12	1449
% of Volume	64	90	50	98	109	45	142	93
Density (ft/veh)								811
Occupancy (veh)	0	1	0	5	0	0	0	7

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.0
Denied Del/Veh (s)	2.5	0.2	0.2	0.0	0.0	0.0	3.9	0.4	0.5	4.3	0.9	2.7
Total Delay (hr)	0.5	8.6	0.0	0.5	2.2	1.5	0.6	2.0	0.3	9.9	0.6	0.0
Total Del/Veh (s)	61.8	24.6	2.2	65.3	8.8	9.4	40.5	86.8	22.2	56.8	35.2	6.1
Stop Delay (hr)	0.5	5.8	0.0	0.5	1.2	0.0	0.5	1.9	0.2	9.0	0.6	0.0
Stop Del/Veh (s)	57.2	16.6	2.3	62.8	5.0	0.2	37.2	82.4	19.1	51.8	31.8	4.5
Total Stops	31	736	32	26	278	20	52	83	23	568	40	3
Stop/Veh	1.00	0.58	0.54	1.00	0.31	0.04	0.98	1.00	0.56	0.91	0.63	0.12
Travel Dist (mi)	4.8	202.1	9.6	7.7	231.5	158.5	4.0	6.2	2.7	39.2	3.8	1.6
Travel Time (hr)	0.7	13.8	0.3	0.7	8.9	6.3	0.8	2.3	0.4	12.1	0.7	0.1
Avg Speed (mph)	7	15	28	11	26	25	5	3	7	3	5	15
Fuel Used (gal)	0.3	7.6	0.2	0.3	6.9	4.5	0.3	0.7	0.1	3.6	0.2	0.0
Fuel Eff. (mpg)	18.1	26.4	41.2	26.4	33.4	35.1	13.0	9.1	18.2	10.8	18.0	45.2
HC Emissions (g)	1	68	3	1	55	37	3	2	2	22	1	1
CO Emissions (g)	82	3161	95	31	1606	1010	91	101	45	539	28	16
NOx Emissions (g)	4	223	10	4	202	141	9	8	5	54	3	2
Vehicles Entered	30	1254	58	26	904	567	52	81	41	603	61	26
Vehicles Exited	31	1247	59	25	904	567	52	82	41	606	60	25
Hourly Exit Rate	31	1247	59	25	904	567	52	82	41	606	60	25
Input Volume	32	1281	60	24	896	611	55	70	44	687	66	35
% of Volume	97	97	98	104	101	93	95	117	93	88	91	71
Density (ft/veh)												
Occupancy (veh)	1	14	0	1	9	6	1	2	0	11	1	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	0.9
Denied Del/Veh (s)	0.9
Total Delay (hr)	26.7
Total Del/Veh (s)	25.7
Stop Delay (hr)	20.3
Stop Del/Veh (s)	19.6
Total Stops	1892
Stop/Veh	0.51
Travel Dist (mi)	671.8
Travel Time (hr)	47.2
Avg Speed (mph)	15
Fuel Used (gal)	24.9
Fuel Eff. (mpg)	27.0
HC Emissions (g)	195
CO Emissions (g)	6804
NOx Emissions (g)	665
Vehicles Entered	3703
Vehicles Exited	3699
Hourly Exit Rate	3699
Input Volume	3861
% of Volume	96
Density (ft/veh)	293
Occupancy (veh)	46

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.1	4.5	0.6	0.0	0.0	0.0	0.4	1.0	0.7	0.1	0.1	0.3
Denied Del/Veh (s)	12.2	10.9	15.1	0.1	0.0	0.0	10.9	9.8	13.4	1.1	1.1	3.2
Total Delay (hr)	7.6	23.3	1.1	2.7	10.6	0.2	2.3	5.4	0.3	2.6	4.0	1.6
Total Del/Veh (s)	81.4	56.0	28.2	55.1	35.9	5.4	57.2	54.1	5.1	44.7	44.4	18.4
Stop Delay (hr)	7.0	19.8	1.0	2.4	8.2	0.2	2.1	4.9	0.1	2.4	3.6	1.5
Stop Del/Veh (s)	74.8	47.7	24.9	49.3	27.9	4.5	53.8	48.3	2.1	41.5	39.8	16.5
Total Stops	319	1097	103	164	726	87	143	285	27	207	267	253
Stop/Veh	0.95	0.73	0.72	0.93	0.68	0.57	1.01	0.79	0.15	1.00	0.82	0.79
Travel Dist (mi)	18.0	80.8	7.6	21.7	131.9	19.6	6.9	18.5	7.8	14.5	23.8	23.3
Travel Time (hr)	9.5	30.1	2.1	3.4	14.0	0.9	3.0	7.0	1.3	3.3	5.1	3.1
Avg Speed (mph)	2	3	5	6	9	22	3	3	13	5	5	8
Fuel Used (gal)	2.8	9.8	0.7	1.2	6.0	0.5	0.9	2.2	0.5	1.1	1.8	1.2
Fuel Eff. (mpg)	6.5	8.2	11.2	18.3	22.0	36.2	7.5	8.5	14.3	12.6	13.3	18.8
HC Emissions (g)	14	38	1	9	43	9	2	17	6	10	7	8
CO Emissions (g)	364	1353	71	278	1754	315	119	398	169	288	268	305
NOx Emissions (g)	37	146	8	27	148	25	11	43	18	29	28	32
Vehicles Entered	331	1481	140	165	1036	152	138	359	180	198	324	317
Vehicles Exited	331	1478	140	172	1041	151	137	360	181	201	321	319
Hourly Exit Rate	331	1478	140	172	1041	151	137	360	181	201	321	319
Input Volume	381	1632	153	178	1095	165	144	339	179	198	309	292
% of Volume	87	91	92	97	95	92	95	106	101	102	104	109
Density (ft/veh)												
Occupancy (veh)	8	26	1	3	14	1	3	6	1	3	5	3

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	8.7
Denied Del/Veh (s)	6.5
Total Delay (hr)	61.7
Total Del/Veh (s)	45.3
Stop Delay (hr)	53.2
Stop Del/Veh (s)	39.0
Total Stops	3678
Stop/Veh	0.75
Travel Dist (mi)	374.3
Travel Time (hr)	82.6
Avg Speed (mph)	5
Fuel Used (gal)	28.8
Fuel Eff. (mpg)	13.0
HC Emissions (g)	164
CO Emissions (g)	5683
NOx Emissions (g)	552
Vehicles Entered	4821
Vehicles Exited	4832
Hourly Exit Rate	4832
Input Volume	5065
% of Volume	95
Density (ft/veh)	99
Occupancy (veh)	74

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.1	0.3	3.9	0.1	0.2
Total Delay (hr)	0.2	5.0	0.1	0.3	1.0	0.0	0.6	0.0	0.3	0.6	0.0	0.2
Total Del/Veh (s)	25.3	10.2	3.9	29.9	2.9	1.4	59.1	45.3	11.3	65.2	38.0	18.0
Stop Delay (hr)	0.2	0.9	0.0	0.3	0.3	0.0	0.6	0.0	0.3	0.6	0.0	0.2
Stop Del/Veh (s)	18.5	1.9	1.7	27.8	0.9	1.0	57.4	43.2	10.7	63.1	36.2	17.3
Total Stops	36	294	9	34	90	7	32	2	74	34	3	29
Stop/Veh	1.16	0.17	0.11	0.97	0.07	0.26	0.89	1.00	0.87	1.00	0.75	0.91
Travel Dist (mi)	4.2	233.7	11.1	4.0	149.3	3.2	1.9	0.1	4.4	1.5	0.2	1.3
Travel Time (hr)	0.4	11.4	0.5	0.4	4.9	0.1	0.7	0.0	0.5	0.7	0.0	0.2
Avg Speed (mph)	12	20	23	9	30	26	3	3	9	2	3	6
Fuel Used (gal)	0.3	14.3	0.5	0.2	5.7	0.1	0.2	0.0	0.2	0.2	0.0	0.1
Fuel Eff. (mpg)	16.0	16.4	21.3	22.4	26.2	41.8	9.5	11.6	24.7	8.0	13.5	20.3
HC Emissions (g)	2	159	9	1	71	1	0	0	1	2	0	2
CO Emissions (g)	105	7398	442	54	2832	40	21	1	31	40	1	35
NOx Emissions (g)	8	647	26	3	268	2	2	0	3	3	0	4
Vehicles Entered	31	1748	81	33	1259	27	36	2	85	34	4	32
Vehicles Exited	31	1746	82	35	1262	27	36	2	84	34	4	31
Hourly Exit Rate	31	1746	82	35	1262	27	36	2	84	34	4	31
Input Volume	33	1900	76	46	1352	29	38	5	75	36	7	25
% of Volume	94	92	108	76	93	93	95	40	112	94	57	124
Density (ft/veh)												
Occupancy (veh)	0	11	0	0	5	0	1	0	0	1	0	0

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	8.3
Total Del/Veh (s)	8.8
Stop Delay (hr)	3.4
Stop Del/Veh (s)	3.5
Total Stops	644
Stop/Veh	0.19
Travel Dist (mi)	414.8
Travel Time (hr)	20.0
Avg Speed (mph)	21
Fuel Used (gal)	21.6
Fuel Eff. (mpg)	19.2
HC Emissions (g)	247
CO Emissions (g)	11000
NOx Emissions (g)	966
Vehicles Entered	3372
Vehicles Exited	3374
Hourly Exit Rate	3374
Input Volume	3622
% of Volume	93
Density (ft/veh)	312
Occupancy (veh)	20

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	144.8	19.9	50.9
Denied Del/Veh (s)	0.0	0.0	0.0	0.5	0.1	0.6	4.0	0.5	3.9	1274.5	1191.0	1255.2
Total Delay (hr)	0.4	5.0	0.0	1.1	3.2	0.5	0.4	0.5	0.4	10.3	1.0	0.2
Total Del/Veh (s)	25.9	10.5	1.9	35.0	9.3	5.1	50.0	53.2	14.5	189.8	142.7	11.3
Stop Delay (hr)	0.3	3.4	0.0	0.9	1.2	0.1	0.4	0.4	0.4	10.2	0.9	0.2
Stop Del/Veh (s)	22.8	7.1	1.6	30.5	3.5	0.8	48.2	50.1	14.0	188.1	140.7	11.0
Total Stops	51	445	12	102	224	68	26	28	93	138	26	49
Stop/Veh	0.93	0.26	0.29	0.91	0.18	0.19	0.96	0.88	0.91	0.70	1.08	0.67
Travel Dist (mi)	6.5	200.3	5.0	39.4	432.5	126.9	2.0	2.4	7.7	8.9	1.2	3.5
Travel Time (hr)	0.6	10.2	0.2	2.0	12.0	3.7	0.5	0.6	0.9	155.5	20.8	51.3
Avg Speed (mph)	11	20	26	19	36	35	4	4	10	1	1	8
Fuel Used (gal)	0.3	7.7	0.2	1.2	12.7	3.3	0.1	0.2	0.4	35.7	4.9	11.7
Fuel Eff. (mpg)	23.5	25.9	28.9	32.1	33.9	38.8	13.4	13.5	20.6	0.2	0.2	0.3
HC Emissions (g)	2	79	2	14	150	51	2	0	2	100	0	31
CO Emissions (g)	90	3302	117	469	6368	1802	35	20	83	2892	245	928
NOx Emissions (g)	8	298	5	55	632	188	3	2	8	80	2	23
Vehicles Entered	55	1713	42	111	1243	361	27	32	102	184	24	73
Vehicles Exited	54	1699	42	112	1223	359	27	32	100	184	24	69
Hourly Exit Rate	54	1699	42	112	1223	359	27	32	100	184	24	69
Input Volume	55	1844	58	108	1275	325	30	32	106	334	66	122
% of Volume	98	92	72	104	96	110	90	100	94	55	36	57
Density (ft/veh)												
Occupancy (veh)	1	10	0	2	12	4	0	1	1	11	1	0

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	215.8
Denied Del/Veh (s)	180.6
Total Delay (hr)	23.0
Total Del/Veh (s)	20.8
Stop Delay (hr)	18.6
Stop Del/Veh (s)	16.8
Total Stops	1262
Stop/Veh	0.32
Travel Dist (mi)	836.2
Travel Time (hr)	258.5
Avg Speed (mph)	20
Fuel Used (gal)	78.4
Fuel Eff. (mpg)	10.7
HC Emissions (g)	433
CO Emissions (g)	16350
NOx Emissions (g)	1303
Vehicles Entered	3967
Vehicles Exited	3925
Hourly Exit Rate	3925
Input Volume	4355
% of Volume	90
Density (ft/veh)	350
Occupancy (veh)	43

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.8	3.5
Total Delay (hr)	0.7	3.9	0.1	0.2	7.1	0.3	0.3	0.6	0.4	4.0	0.6	0.4
Total Del/Veh (s)	18.3	8.0	3.4	19.6	19.8	7.0	36.7	36.5	30.6	75.9	47.4	10.4
Stop Delay (hr)	0.5	1.8	0.1	0.1	3.6	0.1	0.3	0.6	0.4	3.8	0.6	0.4
Stop Del/Veh (s)	14.9	3.7	2.6	14.1	10.1	1.9	34.8	35.0	30.4	72.6	45.0	9.5
Total Stops	111	367	26	30	489	56	29	34	45	187	35	111
Stop/Veh	0.85	0.21	0.35	0.86	0.38	0.43	1.00	0.59	0.92	0.99	0.78	0.80
Travel Dist (mi)	14.5	179.6	8.3	8.7	321.1	32.2	1.3	2.1	2.2	9.8	2.3	7.4
Travel Time (hr)	1.1	7.5	0.4	0.4	14.3	1.1	0.4	0.7	0.6	4.4	0.7	0.9
Avg Speed (mph)	13	24	23	20	23	29	3	3	4	2	3	9
Fuel Used (gal)	0.4	5.4	0.2	0.4	17.4	1.7	0.1	0.3	0.2	1.3	0.2	0.4
Fuel Eff. (mpg)	34.8	33.2	36.9	19.8	18.4	19.5	9.1	8.3	10.3	7.5	10.8	19.1
HC Emissions (g)	4	54	2	4	254	37	0	3	1	4	3	5
CO Emissions (g)	126	2302	135	320	13705	1697	20	69	35	160	55	132
NOx Emissions (g)	13	214	6	16	857	108	3	7	4	15	6	15
Vehicles Entered	129	1745	73	34	1272	127	28	57	47	183	43	137
Vehicles Exited	130	1742	74	34	1269	128	29	57	49	183	44	138
Hourly Exit Rate	130	1742	74	34	1269	128	29	57	49	183	44	138
Input Volume	148	2012	83	42	1253	161	33	63	47	173	41	152
% of Volume	88	87	89	81	101	80	88	90	104	106	107	91
Density (ft/veh)												
Occupancy (veh)	1	8	0	0	14	1	0	1	1	4	1	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	18.4
Total Del/Veh (s)	16.9
Stop Delay (hr)	12.2
Stop Del/Veh (s)	11.2
Total Stops	1520
Stop/Veh	0.39
Travel Dist (mi)	589.4
Travel Time (hr)	32.5
Avg Speed (mph)	18
Fuel Used (gal)	28.1
Fuel Eff. (mpg)	21.0
HC Emissions (g)	370
CO Emissions (g)	18755
NOx Emissions (g)	1262
Vehicles Entered	3875
Vehicles Exited	3877
Hourly Exit Rate	3877
Input Volume	4208
% of Volume	92
Density (ft/veh)	327
Occupancy (veh)	32

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2
Total Del/Veh (s)	4.9	5.1	5.2	3.2	0.4	1.0	0.4	2.2
Stop Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	3.4	2.8	2.8	2.6	0.3	1.7	0.5	1.6
Total Stops	41	15	9	91	0	0	0	156
Stop/Veh	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.49
Travel Dist (mi)	2.3	0.8	0.3	3.1	6.6	0.1	1.1	14.3
Travel Time (hr)	0.2	0.1	0.0	0.3	0.7	0.0	0.1	1.3
Avg Speed (mph)	14	15	12	12	10	10	10	11
Fuel Used (gal)	0.1	0.0	0.0	0.1	0.3	0.0	0.1	0.6
Fuel Eff. (mpg)	35.2	35.9	32.0	32.1	19.9	13.5	19.5	24.3
HC Emissions (g)	0	0	0	0	0	2	0	3
CO Emissions (g)	11	3	1	12	33	24	7	91
NOx Emissions (g)	1	0	0	1	4	4	1	12
Vehicles Entered	41	15	9	91	138	2	22	318
Vehicles Exited	41	15	9	91	137	2	22	317
Hourly Exit Rate	41	15	9	91	137	2	22	317
Input Volume	40	14	9	103	155	1	21	343
% of Volume	102	107	100	88	88	200	105	92
Density (ft/veh)								699
Occupancy (veh)	0	0	0	0	1	0	0	1

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	2.7	4.5	0.7
Denied Del/Veh (s)	0.2	0.0	0.4	0.0	0.0	0.0	2.4	0.4	0.5	23.5	20.7	20.7
Total Delay (hr)	3.5	18.7	2.4	6.8	15.1	6.4	7.0	16.3	0.6	12.0	14.2	1.8
Total Del/Veh (s)	62.4	50.0	37.9	70.1	54.6	72.4	84.3	68.6	4.8	104.5	65.0	53.9
Stop Delay (hr)	3.1	12.1	1.4	6.1	11.0	5.2	6.3	13.3	0.0	10.9	11.6	1.6
Stop Del/Veh (s)	54.1	32.5	21.4	62.7	39.7	58.6	75.0	56.0	0.1	95.3	53.1	46.0
Total Stops	192	1271	306	372	957	336	387	854	3	590	730	113
Stop/Veh	0.94	0.95	1.35	1.07	0.96	1.05	1.29	1.00	0.01	1.43	0.93	0.93
Travel Dist (mi)	48.7	321.4	51.4	57.6	165.6	52.6	37.8	110.0	58.4	34.1	66.0	10.3
Travel Time (hr)	4.8	25.5	3.8	8.4	18.5	8.0	8.4	19.1	2.6	15.9	20.4	3.0
Avg Speed (mph)	10	13	14	7	9	7	5	6	24	3	4	5
Fuel Used (gal)	2.5	14.4	2.0	2.7	6.8	2.4	2.9	7.1	1.7	4.7	6.5	0.9
Fuel Eff. (mpg)	19.8	22.4	25.9	21.1	24.3	21.7	13.0	15.5	35.3	7.3	10.1	11.3
HC Emissions (g)	15	132	20	21	55	19	19	50	25	23	22	3
CO Emissions (g)	1101	6377	787	619	1775	439	756	1926	1150	670	944	142
NOx Emissions (g)	58	454	67	52	155	40	58	149	71	62	85	11
Vehicles Entered	198	1313	222	348	996	315	290	839	475	406	769	121
Vehicles Exited	198	1313	221	335	991	318	289	836	475	384	771	119
Hourly Exit Rate	198	1313	221	335	991	318	289	836	475	384	771	119
Input Volume	228	1444	269	384	1003	304	300	879	482	415	795	125
% of Volume	87	91	82	87	99	105	96	95	99	93	97	95
Density (ft/veh)												
Occupancy (veh)	5	25	4	8	18	8	8	19	2	13	16	2

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	8.4
Denied Del/Veh (s)	4.8
Total Delay (hr)	104.8
Total Del/Veh (s)	59.1
Stop Delay (hr)	82.4
Stop Del/Veh (s)	46.4
Total Stops	6111
Stop/Veh	0.96
Travel Dist (mi)	1014.0
Travel Time (hr)	138.3
Avg Speed (mph)	8
Fuel Used (gal)	54.6
Fuel Eff. (mpg)	18.6
HC Emissions (g)	405
CO Emissions (g)	16684
NOx Emissions (g)	1262
Vehicles Entered	6292
Vehicles Exited	6250
Hourly Exit Rate	6250
Input Volume	6628
% of Volume	94
Density (ft/veh)	133
Occupancy (veh)	130

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	12.4	2.0	5.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.9	3.6	127.7	127.4	119.0
Total Delay (hr)	2.7	13.0	0.2	6.1	5.5	0.4	1.6	0.8	0.7	12.6	1.3	2.1
Total Del/Veh (s)	49.8	24.9	7.0	136.5	13.6	6.5	46.8	46.6	11.6	134.6	88.1	55.1
Stop Delay (hr)	2.4	8.7	0.1	5.6	2.3	0.1	1.5	0.8	0.6	12.2	1.2	2.0
Stop Del/Veh (s)	44.1	16.8	4.1	123.5	5.7	1.4	44.4	43.0	10.4	130.7	83.0	51.9
Total Stops	190	959	63	180	321	71	108	59	172	387	56	170
Stop/Veh	0.96	0.51	0.57	1.11	0.22	0.29	0.86	0.91	0.85	1.15	1.04	1.22
Travel Dist (mi)	34.4	316.6	19.2	35.6	342.7	58.6	9.2	4.8	14.9	22.4	3.7	9.9
Travel Time (hr)	3.7	19.4	0.8	7.0	12.5	2.0	2.2	1.1	1.6	25.9	3.5	7.7
Avg Speed (mph)	9	16	25	5	27	29	5	5	11	2	3	4
Fuel Used (gal)	1.4	10.6	0.6	2.8	14.2	2.0	0.7	0.3	0.7	6.6	0.9	2.0
Fuel Eff. (mpg)	25.2	29.9	34.0	12.8	24.2	29.1	12.7	14.0	21.6	3.4	4.1	5.0
HC Emissions (g)	11	95	7	16	198	35	3	1	7	10	1	27
CO Emissions (g)	363	4061	371	919	9571	1479	129	41	215	519	75	477
NOx Emissions (g)	34	349	23	59	708	111	11	4	22	31	5	40
Vehicles Entered	196	1871	110	148	1453	245	123	64	199	315	52	139
Vehicles Exited	196	1872	109	150	1450	244	123	64	199	314	52	137
Hourly Exit Rate	196	1872	109	150	1450	244	123	64	199	314	52	137
Input Volume	212	2022	107	172	1478	241	107	63	166	364	67	146
% of Volume	92	93	102	87	98	101	115	102	120	86	78	94
Density (ft/veh)												
Occupancy (veh)	4	19	1	7	13	2	2	1	1	14	1	3

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	19.8
Denied Del/Veh (s)	14.3
Total Delay (hr)	47.2
Total Del/Veh (s)	34.1
Stop Delay (hr)	37.6
Stop Del/Veh (s)	27.2
Total Stops	2736
Stop/Veh	0.55
Travel Dist (mi)	872.0
Travel Time (hr)	87.2
Avg Speed (mph)	13
Fuel Used (gal)	42.7
Fuel Eff. (mpg)	20.4
HC Emissions (g)	411
CO Emissions (g)	18219
NOx Emissions (g)	1398
Vehicles Entered	4915
Vehicles Exited	4910
Hourly Exit Rate	4910
Input Volume	5145
% of Volume	95
Density (ft/veh)	211
Occupancy (veh)	67

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	16.8	0.0	0.0	3.7	0.1	0.4	3.9	0.6	0.2
Total Delay (hr)	0.1	9.8	0.1	25.0	24.1	0.1	0.6	0.1	1.3	0.7	0.0	0.1
Total Del/Veh (s)	76.1	15.9	4.7	584.4	47.5	11.8	55.5	47.7	26.8	57.5	52.7	19.3
Stop Delay (hr)	0.1	4.2	0.0	24.7	17.2	0.0	0.6	0.0	1.3	0.7	0.0	0.1
Stop Del/Veh (s)	68.6	6.9	2.0	576.5	33.8	3.5	52.8	43.6	26.3	55.2	49.0	19.1
Total Stops	3	636	12	158	915	16	34	4	156	42	2	15
Stop/Veh	1.00	0.29	0.26	1.03	0.50	0.44	0.89	1.00	0.90	0.91	1.00	0.94
Travel Dist (mi)	0.7	535.3	11.3	24.4	335.7	6.7	2.7	0.3	13.4	2.3	0.1	0.8
Travel Time (hr)	0.1	21.5	0.3	26.3	30.9	0.3	0.7	0.1	2.0	0.9	0.0	0.1
Avg Speed (mph)	9	25	33	1	11	22	4	5	7	3	3	7
Fuel Used (gal)	0.0	25.1	0.5	6.5	18.9	0.2	0.3	0.0	0.8	0.3	0.0	0.0
Fuel Eff. (mpg)	17.8	21.3	22.5	3.8	17.8	29.4	10.9	12.0	17.6	9.1	10.1	22.2
HC Emissions (g)	0	319	15	16	209	1	1	0	2	0	0	0
CO Emissions (g)	12	16613	589	564	9371	86	39	6	137	34	1	5
NOx Emissions (g)	1	1187	41	27	735	6	3	1	12	2	0	0
Vehicles Entered	3	2190	46	139	1811	36	35	4	173	45	2	16
Vehicles Exited	3	2190	46	126	1804	36	38	4	171	44	2	16
Hourly Exit Rate	3	2190	46	126	1804	36	38	4	171	44	2	16
Input Volume	7	2345	63	147	1842	42	49	5	171	50	8	12
% of Volume	43	93	73	86	98	86	78	80	100	88	25	133
Density (ft/veh)												
Occupancy (veh)	0	22	0	26	31	0	1	0	2	1	0	0

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.8
Denied Del/Veh (s)	0.6
Total Delay (hr)	62.0
Total Del/Veh (s)	48.8
Stop Delay (hr)	48.9
Stop Del/Veh (s)	38.5
Total Stops	1993
Stop/Veh	0.44
Travel Dist (mi)	933.8
Travel Time (hr)	83.3
Avg Speed (mph)	11
Fuel Used (gal)	52.6
Fuel Eff. (mpg)	17.8
HC Emissions (g)	563
CO Emissions (g)	27458
NOx Emissions (g)	2016
Vehicles Entered	4500
Vehicles Exited	4480
Hourly Exit Rate	4480
Input Volume	4741
% of Volume	94
Density (ft/veh)	141
Occupancy (veh)	83

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3
Denied Del/Veh (s)	0.2	0.0	0.4	0.0	0.0	0.0	4.0	0.5	3.9	0.6	0.7	3.2
Total Delay (hr)	7.1	10.6	0.0	1.6	8.5	0.4	0.1	0.6	0.1	6.1	0.7	0.7
Total Del/Veh (s)	67.7	18.1	5.1	60.9	18.0	3.7	37.0	65.2	1.9	71.8	42.0	7.0
Stop Delay (hr)	6.4	5.4	0.0	1.6	4.9	0.0	0.1	0.6	0.0	5.5	0.6	0.3
Stop Del/Veh (s)	60.2	9.2	0.0	57.7	10.4	0.4	34.8	62.4	0.0	65.2	36.4	2.7
Total Stops	360	847	0	93	762	34	11	29	0	342	43	58
Stop/Veh	0.95	0.40	0.00	0.96	0.45	0.10	0.85	0.91	0.00	1.12	0.73	0.17
Travel Dist (mi)	69.9	398.3	1.8	8.8	157.1	30.1	2.2	5.5	20.0	59.1	11.4	62.6
Travel Time (hr)	9.0	18.6	0.1	1.9	11.7	1.4	0.2	0.8	1.0	7.9	1.0	2.8
Avg Speed (mph)	8	21	28	5	13	22	10	7	23	8	12	25
Fuel Used (gal)	3.2	12.8	0.0	0.6	5.0	0.6	0.1	0.3	0.6	3.4	0.5	2.0
Fuel Eff. (mpg)	21.9	31.1	39.9	15.2	31.2	54.6	23.8	19.1	32.5	17.5	23.5	30.7
HC Emissions (g)	34	108	0	5	48	6	0	0	5	28	3	24
CO Emissions (g)	927	5131	12	183	1405	263	16	26	147	1422	171	1185
NOx Emissions (g)	88	433	1	10	150	15	1	2	18	84	10	75
Vehicles Entered	369	2094	11	94	1692	353	13	32	123	300	57	331
Vehicles Exited	359	2086	10	96	1682	352	13	32	122	295	57	332
Hourly Exit Rate	359	2086	10	96	1682	352	13	32	122	295	57	332
Input Volume	382	2228	14	97	1708	351	12	44	100	318	48	310
% of Volume	94	94	71	99	98	100	108	73	122	93	119	107
Density (ft/veh)												
Occupancy (veh)	9	19	0	2	12	1	0	1	1	8	1	3

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.3
Total Delay (hr)	36.4
Total Del/Veh (s)	23.8
Stop Delay (hr)	25.3
Stop Del/Veh (s)	16.5
Total Stops	2579
Stop/Veh	0.47
Travel Dist (mi)	826.9
Travel Time (hr)	56.5
Avg Speed (mph)	15
Fuel Used (gal)	29.1
Fuel Eff. (mpg)	28.4
HC Emissions (g)	260
CO Emissions (g)	10887
NOx Emissions (g)	889
Vehicles Entered	5469
Vehicles Exited	5436
Hourly Exit Rate	5436
Input Volume	5612
% of Volume	97
Density (ft/veh)	278
Occupancy (veh)	56

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.1	0.3
Total Del/Veh (s)	0.9	1.4	1.6	1.2
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.2	0.2	0.1
Total Stops	0	0	2	2
Stop/Veh	0.00	0.00	0.01	0.00
Travel Dist (mi)	37.5	12.7	9.6	59.8
Travel Time (hr)	1.2	0.6	0.6	2.4
Avg Speed (mph)	32	21	15	25
Fuel Used (gal)	0.8	1.0	0.4	2.2
Fuel Eff. (mpg)	44.2	13.1	25.9	27.3
HC Emissions (g)	9	16	6	31
CO Emissions (g)	170	670	151	991
NOx Emissions (g)	27	58	20	105
Vehicles Entered	419	311	232	962
Vehicles Exited	418	311	232	961
Hourly Exit Rate	418	311	232	961
Input Volume	513	304	231	1048
% of Volume	81	102	100	92
Density (ft/veh)				375
Occupancy (veh)	1	1	1	2

Total Network Performance

Denied Delay (hr)	1025.0
Denied Del/Veh (s)	184.1
Total Delay (hr)	713.9
Total Del/Veh (s)	133.4
Stop Delay (hr)	539.5
Stop Del/Veh (s)	100.8
Total Stops	33942
Stop/Veh	1.76
Travel Dist (mi)	15160.2
Travel Time (hr)	2136.5
Avg Speed (mph)	14
Fuel Used (gal)	964.4
Fuel Eff. (mpg)	15.7
HC Emissions (g)	9959
CO Emissions (g)	380622
NOx Emissions (g)	30847
Vehicles Entered	18298
Vehicles Exited	17951
Hourly Exit Rate	17951
Input Volume	104663
% of Volume	17
Density (ft/veh)	164
Occupancy (veh)	1111

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	6.3	30.3	0.2	18
Total		6.3	30.3	0.2	18

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	15.5	19.8	0.0	7
	573	2.9	18.7	0.2	29
Laurel St	5	0.2	5.2	0.0	34
	627	1.6	30.3	0.3	33
	641	5.5	13.6	0.1	21
SH 128	6	35.2	42.4	0.1	7
Total		60.8	130.1	0.7	19

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	2.2	12.2	0.1	23
	627	0.1	8.3	0.1	34
Laurel St	5	0.9	28.5	0.3	35
	573	0.2	5.3	0.0	34
Nickel St	3	11.1	25.9	0.2	21
US 287 WB	214	1.8	6.1	0.0	24
Total		16.4	86.4	0.7	28

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	17.8	23.5	0.1	8
3rd Ave	4	2.8	21.3	0.2	27
Total		20.6	44.8	0.2	17

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	1.0	10.0	0.1	28
US 287	3	13.5	31.2	0.2	18
Total		14.5	41.2	0.2	21

Arterial Level of Service: EB US 287 EB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287 WB	214	0.9	10.1	0.1	34
Total		0.9	10.1	0.1	34

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	L	L	T	T	R	L
Maximum Queue (ft)	149	370	235	230	494	446	272	370	436	472	506	220
Average Queue (ft)	92	351	163	203	446	333	133	193	290	311	281	212
95th Queue (ft)	181	371	340	258	472	561	222	361	602	615	604	225
Link Distance (ft)		331			431	431			418	418	418	
Upstream Blk Time (%)		79			87	12			14	18	7	
Queuing Penalty (veh)		0			0	0			118	151	55	
Storage Bay Dist (ft)	125		210	205			270	270				195
Storage Blk Time (%)	16	84	0	27	89		0	1	25			66
Queuing Penalty (veh)	77	330	1	41	136		0	10	41			659

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	888	888	888
Average Queue (ft)	863	860	856
95th Queue (ft)	883	880	876
Link Distance (ft)	836	836	836
Upstream Blk Time (%)	65	86	44
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)	19		
Queuing Penalty (veh)	41		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB	SB	SB
Directions Served	R	L	T	T	T	T
Maximum Queue (ft)	147	374	750	755	402	453
Average Queue (ft)	42	196	560	633	27	28
95th Queue (ft)	127	417	957	951	192	196
Link Distance (ft)	609		716	716	418	418
Upstream Blk Time (%)			14	29	0	0
Queuing Penalty (veh)			0	0	0	2
Storage Bay Dist (ft)		350				
Storage Blk Time (%)		4	23			
Queuing Penalty (veh)		44	29			

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	R	L
Maximum Queue (ft)	50	114	116	52	109	156	113	45	156	184	119	75
Average Queue (ft)	7	53	63	32	51	65	52	19	45	96	20	30
95th Queue (ft)	29	99	110	52	84	114	104	41	90	170	65	58
Link Distance (ft)	135	135	135	135		725	725		223	223	223	
Upstream Blk Time (%)			0									
Queuing Penalty (veh)			0									
Storage Bay Dist (ft)					290			140				50
Storage Blk Time (%)												4
Queuing Penalty (veh)												6

Intersection: 3: Nickel St & US 287

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	90	46
Average Queue (ft)	33	24
95th Queue (ft)	66	48
Link Distance (ft)	744	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		215
Storage Blk Time (%)	4	
Queuing Penalty (veh)	7	

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	56	47
Average Queue (ft)	34	15
95th Queue (ft)	52	39
Link Distance (ft)	424	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		45
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 5: Laurel St & US 287

Movement	EB	WB	SB
Directions Served	L	UL	LTR
Maximum Queue (ft)	29	28	52
Average Queue (ft)	9	2	20
95th Queue (ft)	30	13	45
Link Distance (ft)			214
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B670	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	T	L
Maximum Queue (ft)	289	365	367	237	18	59	126	155	155	198	31	140
Average Queue (ft)	35	227	194	101	2	20	48	57	62	13	1	50
95th Queue (ft)	151	356	347	206	11	48	105	117	121	92	10	115
Link Distance (ft)		828	828	828	828		1492	1492	1492		238	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240					115				315		90
Storage Blk Time (%)		8					0					
Queuing Penalty (veh)		3					0					

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	NB	SB	SB	SB	B641	B641
Directions Served	TR	L	L	TR	T	T
Maximum Queue (ft)	260	165	384	182	330	284
Average Queue (ft)	109	161	298	49	52	9
95th Queue (ft)	213	176	424	109	208	94
Link Distance (ft)	396		292	292	361	361
Upstream Blk Time (%)			18			
Queuing Penalty (veh)			64			
Storage Bay Dist (ft)		115				
Storage Blk Time (%)	27	31	46			
Queuing Penalty (veh)	15	106	156			

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	B670	B670	B670	WB	WB	WB	WB
Directions Served	L	T	T	T	R	T	T	T	L	T	T	T
Maximum Queue (ft)	237	345	327	308	95	1512	1515	1553	189	315	320	341
Average Queue (ft)	233	311	309	285	56	1081	1053	998	135	164	206	240
95th Queue (ft)	252	324	315	344	123	1574	1540	1521	200	268	293	328
Link Distance (ft)		238	238	238		1492	1492	1492		622	622	622
Upstream Blk Time (%)	21	60	69	41		2	1	1				
Queuing Penalty (veh)	0	401	462	274		15	4	7				
Storage Bay Dist (ft)	280				45				140			
Storage Blk Time (%)	21	60		39	6				11	8		
Queuing Penalty (veh)	116	228		60	31				40	13		

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	R	L	L	T	R	L	L	T	R
Maximum Queue (ft)	72	131	235	294	235	185	199	395	260
Average Queue (ft)	41	12	116	223	127	62	108	198	140
95th Queue (ft)	66	69	226	315	313	149	180	325	255
Link Distance (ft)	622			251			380	380	
Upstream Blk Time (%)			0	18	0			1	
Queuing Penalty (veh)			0	0	0			0	
Storage Bay Dist (ft)		185	185		185	150			210
Storage Blk Time (%)				29	0	0	3	8	1
Queuing Penalty (veh)				94	0	0	3	23	2

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	68	649	644	26	114	89	76	30	86	75	79	155
Average Queue (ft)	20	111	110	3	30	31	51	6	25	38	31	32
95th Queue (ft)	48	443	394	16	68	78	83	25	60	67	73	100
Link Distance (ft)		622	622	622		548	548	548		269		219
Upstream Blk Time (%)		0	0									
Queuing Penalty (veh)		0	1									
Storage Bay Dist (ft)	150				175				120		30	
Storage Blk Time (%)		1									39	9
Queuing Penalty (veh)		0									12	3

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (ft)	223	237	216	211	21	138	227	333	75	74	82	134
Average Queue (ft)	36	107	110	115	5	65	81	92	11	32	25	24
95th Queue (ft)	102	191	179	193	18	114	188	233	45	65	57	66
Link Distance (ft)		548	548	548	548		1958	1958	1958			388
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	255					315				440	130	
Storage Blk Time (%)		0										2
Queuing Penalty (veh)		0										3

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	NB	SB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (ft)	110	155	311	93
Average Queue (ft)	39	154	266	29
95th Queue (ft)	75	155	284	72
Link Distance (ft)			248	248
Upstream Blk Time (%)			95	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)	60	105		
Storage Blk Time (%)	2	94	0	
Queuing Penalty (veh)	1	62	0	

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	TR
Maximum Queue (ft)	134	170	221	241	56	49	206	197	249	68	63	127
Average Queue (ft)	52	81	78	107	11	17	101	125	147	28	25	60
95th Queue (ft)	99	157	171	215	35	38	182	196	226	56	57	102
Link Distance (ft)		532	532	532			1246	1246	1246			187
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	180				425	100				950	45	
Storage Blk Time (%)		0					9				6	28
Queuing Penalty (veh)		0					4				5	9

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (ft)	292	90	84
Average Queue (ft)	172	38	41
95th Queue (ft)	271	70	77
Link Distance (ft)	277	277	
Upstream Blk Time (%)	2		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			105
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB	SB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	70	78	31
Average Queue (ft)	28	35	2
95th Queue (ft)	50	63	14
Link Distance (ft)	289	179	187
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	L	T	T	TR	L
Maximum Queue (ft)	211	289	463	490	568	100	366	343	366	638	723	247
Average Queue (ft)	94	103	316	339	395	83	152	162	241	368	455	139
95th Queue (ft)	157	195	450	460	522	137	268	265	345	548	632	221
Link Distance (ft)			1246	1246	1246				828	828	828	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	460	460				50	395	395				315
Storage Blk Time (%)			0		56	0						
Queuing Penalty (veh)			1		151	0						

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	365	729	705	694	245	270	490	490
Average Queue (ft)	243	370	326	23	200	254	373	351
95th Queue (ft)	391	651	581	229	252	299	538	518
Link Distance (ft)		690	690	690			451	451
Upstream Blk Time (%)		3	0	0			23	9
Queuing Penalty (veh)		0	0	0			0	0
Storage Bay Dist (ft)	315				220	220		
Storage Blk Time (%)	0	18			3	19	27	
Queuing Penalty (veh)	0	55			13	77	112	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	B597	B597	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	T	T	L	T	T	T
Maximum Queue (ft)	162	176	300	332	352	64	793	837	449	226	192	241
Average Queue (ft)	66	80	221	246	254	24	26	82	204	85	84	110
95th Queue (ft)	129	137	301	326	329	50	261	487	387	200	158	182
Link Distance (ft)			864	864	864		828	828		1198	1198	1198
Upstream Blk Time (%)								0				
Queuing Penalty (veh)								1				
Storage Bay Dist (ft)	260	260				450			470			
Storage Blk Time (%)			4									
Queuing Penalty (veh)			9									

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	R	L	T	R	L	L	T	R
Maximum Queue (ft)	72	150	246	165	145	170	405	160
Average Queue (ft)	32	83	63	64	135	162	310	67
95th Queue (ft)	59	138	149	117	183	191	516	145
Link Distance (ft)			393				371	
Upstream Blk Time (%)							47	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	590	115		115	120	120		110
Storage Blk Time (%)		6	1	2	35	71	4	5
Queuing Penalty (veh)		14	2	4	74	152	21	21

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	B672	B672	B672
Directions Served	L	T	T	T	R	L	T	T	TR	T	T	T
Maximum Queue (ft)	31	266	261	267	32	355	1015	1000	966	982	981	1023
Average Queue (ft)	3	152	167	168	9	354	939	836	676	506	479	369
95th Queue (ft)	19	224	247	246	29	355	1179	1196	1263	1077	1073	1013
Link Distance (ft)		1198	1198	1198	1198		928	928	928	964	964	964
Upstream Blk Time (%)							74	19	2	1	1	3
Queuing Penalty (veh)							504	127	13	6	5	22
Storage Bay Dist (ft)	150					305						
Storage Blk Time (%)		7				99	0					
Queuing Penalty (veh)		0				601	0					

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	NB	NB	SB	SB
Directions Served	L	TR	L	TR
Maximum Queue (ft)	94	172	99	75
Average Queue (ft)	29	80	37	17
95th Queue (ft)	69	140	80	48
Link Distance (ft)		402		274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	85		85	
Storage Blk Time (%)	2	11	2	0
Queuing Penalty (veh)	3	6	0	0

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	L	L	T	T	T	R	L
Maximum Queue (ft)	280	240	288	302	311	107	183	308	276	222	140	31
Average Queue (ft)	145	147	183	216	228	25	60	203	189	153	30	13
95th Queue (ft)	234	230	272	291	296	74	114	267	260	221	93	35
Link Distance (ft)			964	964	964			433	433	433		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	400	400				400	400				415	100
Storage Blk Time (%)					0							
Queuing Penalty (veh)					0							

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	NB	SB	SB	SB	SB
Directions Served	T	L	L	T	R
Maximum Queue (ft)	94	238	240	63	189
Average Queue (ft)	31	123	166	29	66
95th Queue (ft)	65	195	223	60	166
Link Distance (ft)	901		1034	1034	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		335		435	
Storage Blk Time (%)	1				
Queuing Penalty (veh)	1				

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement	WB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	15
Link Distance (ft)	135
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 5964

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.2	10.9	4.3	3.0	0.2	1.3	0.2	25.6	404.4	9.7
Denied Del/Veh (s)	3.9	0.9	3.7	63.6	62.1	64.2	1.8	2.7	2.6	640.8	650.0	674.7
Total Delay (hr)	0.4	1.8	0.2	17.0	6.9	2.4	9.1	15.8	1.1	4.5	33.3	0.1
Total Del/Veh (s)	55.4	67.6	3.6	98.0	99.9	53.6	96.5	32.0	13.1	143.5	73.2	5.7
Stop Delay (hr)	0.4	1.6	0.0	15.6	6.1	2.1	8.3	10.4	0.4	4.0	25.5	0.0
Stop Del/Veh (s)	51.3	61.7	0.0	89.9	88.3	45.7	88.4	21.1	4.9	128.0	56.0	1.1
Total Stops	26	86	0	814	219	102	408	971	71	167	1520	5
Stop/Veh	1.04	0.90	0.00	1.30	0.88	0.63	1.20	0.55	0.23	1.48	0.93	0.15
Travel Dist (mi)	1.6	6.0	11.2	49.1	19.6	10.3	33.5	183.1	28.3	12.2	178.2	3.4
Travel Time (hr)	0.5	2.0	0.9	29.8	11.8	5.8	10.5	22.4	2.3	30.6	442.9	9.9
Avg Speed (mph)	4	3	17	3	3	4	3	9	13	2	5	20
Fuel Used (gal)	0.2	0.6	0.6	8.1	3.2	1.5	3.4	10.9	1.3	7.2	104.7	2.3
Fuel Eff. (mpg)	10.0	9.6	19.9	6.1	6.2	6.8	9.8	16.8	22.2	1.7	1.7	1.5
HC Emissions (g)	2	6	19	81	26	20	24	164	17	31	793	13
CO Emissions (g)	61	161	467	1547	555	380	662	3533	417	752	14851	319
NOx Emissions (g)	6	15	54	145	49	32	65	477	56	39	851	15
Vehicles Entered	25	95	225	599	241	163	330	1771	314	110	1596	33
Vehicles Exited	25	94	225	600	238	159	331	1761	313	107	1601	34
Hourly Exit Rate	25	94	225	600	238	159	331	1761	313	107	1601	34
Input Volume	25	73	228	586	244	165	341	1809	283	121	2073	54
% of Volume	100	129	99	102	98	96	97	97	111	88	77	63
Density (ft/veh)												
Occupancy (veh)	0	2	1	19	8	3	10	21	2	5	38	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	460.0
Denied Del/Veh (s)	265.7
Total Delay (hr)	92.7
Total Del/Veh (s)	59.6
Stop Delay (hr)	74.5
Stop Del/Veh (s)	47.8
Total Stops	4389
Stop/Veh	0.78
Travel Dist (mi)	536.4
Travel Time (hr)	569.4
Avg Speed (mph)	5
Fuel Used (gal)	143.9
Fuel Eff. (mpg)	3.7
HC Emissions (g)	1196
CO Emissions (g)	23705
NOx Emissions (g)	1804
Vehicles Entered	5502
Vehicles Exited	5488
Hourly Exit Rate	5488
Input Volume	6002
% of Volume	91
Density (ft/veh)	67
Occupancy (veh)	109

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.3	0.0	0.0	0.4
Denied Del/Veh (s)	0.1	0.0	1.4	0.6	0.0	0.0	0.3
Total Delay (hr)	0.4	0.1	6.0	18.2	3.5	0.5	28.6
Total Del/Veh (s)	2.7	2.3	173.8	34.3	5.7	7.0	19.8
Stop Delay (hr)	0.0	0.1	5.6	9.8	0.1	0.0	15.5
Stop Del/Veh (s)	0.0	0.9	161.7	18.4	0.1	0.2	10.7
Total Stops	10	22	168	1218	83	19	1520
Stop/Veh	0.02	0.10	1.34	0.64	0.04	0.08	0.29
Travel Dist (mi)	11.2	29.2	38.6	598.0	196.2	17.3	890.4
Travel Time (hr)	0.9	1.6	7.3	35.7	9.2	1.1	55.8
Avg Speed (mph)	13	18	5	17	21	16	16
Fuel Used (gal)	0.2	1.4	2.4	19.3	13.7	0.8	37.8
Fuel Eff. (mpg)	47.7	20.7	15.9	31.0	14.4	22.4	23.6
HC Emissions (g)	1	29	19	158	270	6	483
CO Emissions (g)	25	1059	506	4198	10101	216	16105
NOx Emissions (g)	1	85	49	516	898	26	1576
Vehicles Entered	516	219	119	1891	2195	231	5171
Vehicles Exited	515	219	125	1880	2193	233	5165
Hourly Exit Rate	515	219	125	1880	2193	233	5165
Input Volume	562	229	111	1889	2626	261	5678
% of Volume	92	96	113	100	84	89	91
Density (ft/veh)							134
Occupancy (veh)	1	2	7	35	9	1	55

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	1.1	0.1	0.7	2.3	0.1	0.2	0.1	0.1	0.1	0.2	0.1
Total Del/Veh (s)	9.1	16.6	3.2	15.5	12.7	3.4	11.7	9.6	3.7	12.2	12.0	5.6
Stop Delay (hr)	0.0	0.9	0.1	0.5	1.5	0.1	0.2	0.1	0.1	0.1	0.2	0.1
Stop Del/Veh (s)	7.6	13.4	2.9	11.9	8.3	2.7	9.7	7.0	3.4	9.8	9.8	5.4
Total Stops	1	153	86	130	333	45	39	17	42	23	38	33
Stop/Veh	1.00	0.65	0.67	0.79	0.50	0.54	0.57	0.49	0.56	0.58	0.52	0.75
Travel Dist (mi)	0.0	9.9	5.5	24.0	95.3	12.4	3.0	1.5	3.2	6.1	10.8	6.9
Travel Time (hr)	0.0	1.4	0.4	1.5	5.1	0.5	0.4	0.1	0.2	0.4	0.6	0.3
Avg Speed (mph)	10	7	14	16	19	24	8	11	13	17	18	20
Fuel Used (gal)	0.0	0.5	0.1	0.7	2.7	0.3	0.1	0.1	0.1	0.2	0.4	0.2
Fuel Eff. (mpg)	42.2	20.7	48.7	33.2	35.1	41.1	23.6	19.6	34.6	28.6	28.8	32.2
HC Emissions (g)	0	3	0	4	24	4	1	0	1	1	2	9
CO Emissions (g)	0	108	20	133	599	87	22	26	23	36	75	172
NOx Emissions (g)	0	8	2	14	77	13	2	2	2	4	6	22
Vehicles Entered	1	233	127	162	655	83	68	35	74	39	73	44
Vehicles Exited	1	232	126	162	654	83	69	35	75	40	73	44
Hourly Exit Rate	1	232	126	162	654	83	69	35	75	40	73	44
Input Volume	4	249	119	181	714	73	65	53	79	44	94	44
% of Volume	25	93	106	90	92	114	106	66	95	91	78	100
Density (ft/veh)												
Occupancy (veh)	0	1	0	2	5	1	0	0	0	0	1	0

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	5.1
Total Del/Veh (s)	11.5
Stop Delay (hr)	3.8
Stop Del/Veh (s)	8.5
Total Stops	940
Stop/Veh	0.58
Travel Dist (mi)	178.7
Travel Time (hr)	10.9
Avg Speed (mph)	16
Fuel Used (gal)	5.4
Fuel Eff. (mpg)	32.9
HC Emissions (g)	48
CO Emissions (g)	1301
NOx Emissions (g)	152
Vehicles Entered	1594
Vehicles Exited	1594
Hourly Exit Rate	1594
Input Volume	1719
% of Volume	93
Density (ft/veh)	636
Occupancy (veh)	11

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	3.4	0.3	0.5
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	5.9	3.2	1.0	0.8	2.3	0.5	1.6
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	4.2	2.6	0.4	0.4	0.4	0.0	0.8
Total Stops	28	39	0	0	4	0	71
Stop/Veh	1.00	1.00	0.00	0.00	0.11	0.00	0.20
Travel Dist (mi)	2.0	2.8	17.7	1.5	2.2	7.6	33.8
Travel Time (hr)	0.1	0.2	0.7	0.1	0.2	0.3	1.5
Avg Speed (mph)	15	17	25	23	20	28	23
Fuel Used (gal)	0.1	0.1	0.8	0.1	0.1	0.3	1.3
Fuel Eff. (mpg)	35.2	34.8	22.2	26.3	33.7	30.0	25.8
HC Emissions (g)	1	0	13	0	1	3	19
CO Emissions (g)	19	14	375	21	21	85	536
NOx Emissions (g)	2	1	40	2	2	10	57
Vehicles Entered	28	38	114	10	38	128	356
Vehicles Exited	28	39	114	10	38	128	357
Hourly Exit Rate	28	39	114	10	38	128	357
Input Volume	34	41	129	9	39	148	400
% of Volume	82	95	88	111	97	86	89
Density (ft/veh)	1279						
Occupancy (veh)	0	0	1	0	0	0	1

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.4
Total Del/Veh (s)	6.5	0.2	3.0	1.1	0.6	14.7	4.0	1.1
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Stop Del/Veh (s)	4.7	0.0	1.1	0.0	0.0	13.6	3.7	0.3
Total Stops	5	0	5	0	0	15	33	58
Stop/Veh	1.00	0.00	0.26	0.00	0.00	1.00	1.00	0.04
Travel Dist (mi)	0.3	17.7	5.3	258.2	4.2	0.6	1.3	287.4
Travel Time (hr)	0.0	0.5	0.2	7.8	0.1	0.1	0.1	8.8
Avg Speed (mph)	13	33	29	33	30	7	12	33
Fuel Used (gal)	0.0	0.5	0.1	7.2	0.1	0.0	0.0	8.0
Fuel Eff. (mpg)	46.5	33.8	40.6	35.9	40.1	25.0	42.6	35.9
HC Emissions (g)	0	5	1	75	0	0	0	81
CO Emissions (g)	1	143	11	1642	14	1	4	1816
NOx Emissions (g)	0	18	3	259	2	0	0	281
Vehicles Entered	5	350	19	982	15	15	33	1419
Vehicles Exited	5	350	19	979	15	15	33	1416
Hourly Exit Rate	5	350	19	979	15	15	33	1416
Input Volume	8	371	23	1043	17	15	35	1512
% of Volume	62	94	83	94	88	100	94	94
Density (ft/veh)								603
Occupancy (veh)	0	1	0	8	0	0	0	9

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.1	0.2	0.2	0.0	0.0	0.0	3.9	0.4	0.4	0.0	0.0	0.0
Total Delay (hr)	0.1	1.9	0.0	0.4	3.0	4.5	0.9	1.3	0.1	4.1	0.7	0.0
Total Del/Veh (s)	81.7	10.7	1.7	50.8	8.9	16.6	44.1	73.3	13.9	46.4	48.5	1.3
Stop Delay (hr)	0.1	1.3	0.0	0.4	1.3	0.2	0.9	1.2	0.0	3.8	0.6	0.0
Stop Del/Veh (s)	79.4	7.0	1.4	46.5	4.0	0.8	41.3	69.8	11.3	42.7	44.3	0.2
Total Stops	5	204	22	28	222	82	73	60	8	281	46	1
Stop/Veh	1.00	0.32	0.27	0.93	0.18	0.08	0.96	0.95	0.62	0.88	0.90	0.02
Travel Dist (mi)	0.9	119.2	14.9	8.6	325.0	265.7	5.9	4.9	0.9	21.9	3.3	2.5
Travel Time (hr)	0.1	4.9	0.5	0.7	12.4	12.5	1.3	1.5	0.1	5.0	0.8	0.1
Avg Speed (mph)	7	24	29	12	26	21	5	3	10	4	4	22
Fuel Used (gal)	0.1	3.7	0.4	0.4	11.6	8.3	0.5	0.5	0.0	1.4	0.2	0.0
Fuel Eff. (mpg)	18.1	32.5	41.8	23.5	27.9	32.1	12.3	10.4	19.5	15.4	16.4	74.3
HC Emissions (g)	0	34	2	2	136	72	1	7	0	4	0	0
CO Emissions (g)	9	1420	100	80	4200	1903	84	145	12	151	13	4
NOx Emissions (g)	1	125	9	7	487	279	8	15	1	14	1	0
Vehicles Entered	5	640	79	30	1196	957	76	62	13	312	48	40
Vehicles Exited	5	643	81	28	1198	955	75	60	13	312	48	39
Hourly Exit Rate	5	643	81	28	1198	955	75	60	13	312	48	39
Input Volume	16	635	71	35	1337	1012	60	55	17	342	49	36
% of Volume	31	101	114	80	90	94	125	109	76	91	98	108
Density (ft/veh)												
Occupancy (veh)	0	5	1	1	12	12	1	1	0	5	1	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	17.0
Total Del/Veh (s)	17.5
Stop Delay (hr)	9.9
Stop Del/Veh (s)	10.2
Total Stops	1032
Stop/Veh	0.29
Travel Dist (mi)	773.7
Travel Time (hr)	39.9
Avg Speed (mph)	19
Fuel Used (gal)	27.0
Fuel Eff. (mpg)	28.6
HC Emissions (g)	259
CO Emissions (g)	8121
NOx Emissions (g)	947
Vehicles Entered	3458
Vehicles Exited	3457
Hourly Exit Rate	3457
Input Volume	3665
% of Volume	94
Density (ft/veh)	297
Occupancy (veh)	40

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	12.9	48.7	6.6	0.0	10.1	0.8	0.2	0.1	0.1	0.0	0.0	0.3
Denied Del/Veh (s)	252.7	208.1	289.0	0.6	22.4	22.2	3.5	0.8	3.6	0.6	0.2	3.0
Total Delay (hr)	20.0	5.2	0.2	2.3	27.9	0.2	4.7	4.2	0.1	3.0	3.9	0.7
Total Del/Veh (s)	378.9	24.2	8.9	82.1	60.9	5.4	71.1	52.8	2.5	50.7	48.8	7.1
Stop Delay (hr)	20.0	4.2	0.1	1.8	18.8	0.1	4.4	3.8	0.0	2.7	3.6	0.5
Stop Del/Veh (s)	378.1	19.6	7.0	65.2	41.1	3.1	67.2	48.3	0.0	47.1	44.5	5.8
Total Stops	182	393	50	153	1689	52	289	239	0	206	272	266
Stop/Veh	0.96	0.51	0.71	1.53	1.03	0.41	1.21	0.84	0.00	0.98	0.94	0.78
Travel Dist (mi)	8.8	41.4	3.7	12.9	203.5	16.0	11.9	13.9	4.4	15.2	20.8	24.5
Travel Time (hr)	33.3	55.0	6.9	2.7	43.1	1.5	5.4	4.7	0.4	3.7	4.8	2.1
Avg Speed (mph)	0	7	10	5	6	22	2	3	17	4	4	13
Fuel Used (gal)	7.9	14.0	1.6	0.9	14.7	0.9	1.7	1.5	0.2	1.3	1.8	0.9
Fuel Eff. (mpg)	1.1	3.0	2.3	13.9	13.8	17.7	7.2	9.2	18.4	11.8	11.9	26.3
HC Emissions (g)	9	24	16	1	74	20	9	10	2	9	10	6
CO Emissions (g)	516	1289	276	101	2015	738	275	298	90	285	359	218
NOx Emissions (g)	18	70	16	10	238	44	28	30	8	28	36	22
Vehicles Entered	166	762	69	99	1618	128	236	274	106	209	284	338
Vehicles Exited	166	764	70	100	1606	125	237	275	106	207	287	339
Hourly Exit Rate	166	764	70	100	1606	125	237	275	106	207	287	339
Input Volume	199	813	85	102	1814	151	215	274	95	222	272	355
% of Volume	83	94	82	98	89	83	110	100	112	93	106	95
Density (ft/veh)												
Occupancy (veh)	20	6	0	3	33	1	5	5	0	4	5	2

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	79.8
Denied Del/Veh (s)	65.3
Total Delay (hr)	72.2
Total Del/Veh (s)	59.4
Stop Delay (hr)	60.1
Stop Del/Veh (s)	49.5
Total Stops	3791
Stop/Veh	0.87
Travel Dist (mi)	377.0
Travel Time (hr)	163.6
Avg Speed (mph)	4
Fuel Used (gal)	47.5
Fuel Eff. (mpg)	7.9
HC Emissions (g)	189
CO Emissions (g)	6458
NOx Emissions (g)	547
Vehicles Entered	4289
Vehicles Exited	4282
Hourly Exit Rate	4282
Input Volume	4597
% of Volume	93
Density (ft/veh)	92
Occupancy (veh)	84

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.3	4.2	0.1	0.0
Total Delay (hr)	0.1	1.0	0.0	0.0	5.1	0.0	0.1	0.0	0.0	0.1	6.5
Total Del/Veh (s)	40.8	3.4	2.7	14.6	10.5	1.2	71.8	6.3	53.8	24.8	8.0
Stop Delay (hr)	0.1	0.1	0.0	0.0	1.1	0.0	0.1	0.0	0.0	0.1	1.5
Stop Del/Veh (s)	36.0	0.3	0.1	9.6	2.2	0.1	70.8	6.0	52.2	24.6	1.8
Total Stops	6	24	0	4	331	2	4	12	2	11	396
Stop/Veh	1.00	0.02	0.00	0.67	0.19	0.09	1.00	1.00	0.67	0.92	0.14
Travel Dist (mi)	0.8	144.2	1.6	0.7	211.0	2.8	0.2	0.6	0.1	0.5	362.6
Travel Time (hr)	0.1	5.1	0.1	0.0	10.6	0.1	0.1	0.1	0.1	0.1	16.3
Avg Speed (mph)	9	28	24	15	20	26	2	12	3	5	22
Fuel Used (gal)	0.1	7.9	0.1	0.0	7.3	0.1	0.0	0.0	0.0	0.0	15.5
Fuel Eff. (mpg)	16.0	18.3	19.5	21.9	29.0	23.4	8.6	37.2	9.7	16.1	23.4
HC Emissions (g)	0	93	1	0	72	1	0	0	0	0	168
CO Emissions (g)	16	4859	55	9	2698	103	1	1	1	3	7746
NOx Emissions (g)	1	362	3	1	267	4	0	0	0	0	637
Vehicles Entered	6	1060	11	6	1760	23	4	12	3	12	2897
Vehicles Exited	6	1062	12	5	1754	23	4	12	3	12	2893
Hourly Exit Rate	6	1062	12	5	1754	23	4	12	3	12	2893
Input Volume	9	1105	16	10	1987	18	7	6	5	14	3177
% of Volume	67	96	75	50	88	128	57	200	60	86	91
Density (ft/veh)											382
Occupancy (veh)	0	5	0	0	11	0	0	0	0	0	16

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	20.9	4.5	6.8
Denied Del/Veh (s)	0.0	0.0	0.0	0.6	0.1	0.2	3.7	0.4	3.8	422.2	437.2	402.2
Total Delay (hr)	0.5	1.8	0.0	0.2	7.2	0.5	0.4	0.9	0.2	10.5	1.3	0.5
Total Del/Veh (s)	36.8	6.5	0.9	15.1	15.0	8.7	47.7	61.4	11.0	246.5	161.2	44.0
Stop Delay (hr)	0.5	1.1	0.0	0.1	2.2	0.0	0.4	0.8	0.2	10.5	1.3	0.5
Stop Del/Veh (s)	34.4	4.0	0.8	10.3	4.6	0.8	45.5	58.6	10.0	246.3	159.2	43.5
Total Stops	51	208	5	43	360	40	29	45	57	87	27	40
Stop/Veh	1.02	0.21	0.19	0.83	0.21	0.18	0.91	0.88	1.00	0.57	0.90	0.91
Travel Dist (mi)	5.9	114.7	3.2	18.3	621.4	81.3	2.4	3.9	4.4	7.0	1.4	2.2
Travel Time (hr)	0.7	4.7	0.1	0.7	19.8	2.5	0.6	1.0	0.4	31.7	5.9	7.5
Avg Speed (mph)	8	24	28	28	32	32	5	4	11	1	1	3
Fuel Used (gal)	0.2	3.5	0.1	0.5	17.4	2.2	0.2	0.3	0.2	7.4	1.4	1.7
Fuel Eff. (mpg)	24.2	33.0	41.8	37.4	35.7	37.0	12.8	12.3	21.8	0.9	1.0	1.3
HC Emissions (g)	1	29	1	8	209	18	1	2	1	17	5	10
CO Emissions (g)	42	1012	39	235	8039	891	45	59	50	580	142	198
NOx Emissions (g)	3	121	2	30	816	80	4	5	4	19	7	8
Vehicles Entered	50	979	27	51	1706	220	32	51	57	142	28	44
Vehicles Exited	50	981	27	52	1713	217	32	50	57	141	29	44
Hourly Exit Rate	50	981	27	52	1713	217	32	50	57	141	29	44
Input Volume	51	1019	25	55	1913	228	36	52	56	175	31	66
% of Volume	98	96	108	95	90	95	89	96	102	81	94	67
Density (ft/veh)												
Occupancy (veh)	1	5	0	1	20	3	1	1	0	11	1	1

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	32.3
Denied Del/Veh (s)	33.7
Total Delay (hr)	24.1
Total Del/Veh (s)	25.3
Stop Delay (hr)	17.7
Stop Del/Veh (s)	18.6
Total Stops	992
Stop/Veh	0.29
Travel Dist (mi)	866.2
Travel Time (hr)	75.5
Avg Speed (mph)	20
Fuel Used (gal)	35.2
Fuel Eff. (mpg)	24.6
HC Emissions (g)	302
CO Emissions (g)	11333
NOx Emissions (g)	1101
Vehicles Entered	3387
Vehicles Exited	3393
Hourly Exit Rate	3393
Input Volume	3707
% of Volume	92
Density (ft/veh)	286
Occupancy (veh)	43

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.2	3.7
Total Delay (hr)	0.4	1.4	0.0	0.1	7.4	0.3	0.4	0.4	0.0	2.8	0.1	0.3
Total Del/Veh (s)	22.4	4.7	0.5	16.8	15.6	8.1	49.2	63.4	12.7	78.1	47.8	6.8
Stop Delay (hr)	0.4	0.7	0.0	0.0	2.1	0.0	0.4	0.4	0.0	2.7	0.1	0.2
Stop Del/Veh (s)	20.7	2.2	0.2	8.1	4.4	0.9	47.5	61.2	12.9	74.7	45.8	6.1
Total Stops	59	160	1	16	415	33	25	22	13	137	8	131
Stop/Veh	0.86	0.15	0.05	0.76	0.24	0.22	0.93	1.00	1.00	1.05	0.73	0.92
Travel Dist (mi)	7.7	110.6	2.2	5.4	424.7	36.6	1.4	1.1	0.7	6.9	0.5	7.8
Travel Time (hr)	0.7	3.6	0.1	0.2	16.8	1.3	0.5	0.4	0.1	3.2	0.2	0.8
Avg Speed (mph)	12	30	29	22	25	28	3	3	7	2	3	12
Fuel Used (gal)	0.2	3.3	0.1	0.3	22.1	1.8	0.2	0.1	0.0	1.0	0.0	0.3
Fuel Eff. (mpg)	32.7	33.8	39.4	19.2	19.2	19.8	8.8	7.6	15.3	7.3	11.7	25.2
HC Emissions (g)	1	32	0	2	272	37	3	1	0	4	0	2
CO Emissions (g)	51	1427	33	150	14719	1739	58	38	11	143	5	62
NOx Emissions (g)	4	145	2	9	1033	111	6	4	1	13	0	7
Vehicles Entered	69	1073	19	21	1693	144	27	22	13	126	10	143
Vehicles Exited	67	1074	19	21	1696	143	27	21	13	129	11	143
Hourly Exit Rate	67	1074	19	21	1696	143	27	21	13	129	11	143
Input Volume	70	1140	19	22	1905	165	29	27	16	115	16	166
% of Volume	96	94	100	95	89	87	93	78	81	112	69	86
Density (ft/veh)												
Occupancy (veh)	1	4	0	0	17	1	0	0	0	3	0	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	13.8
Total Del/Veh (s)	14.6
Stop Delay (hr)	7.1
Stop Del/Veh (s)	7.5
Total Stops	1020
Stop/Veh	0.30
Travel Dist (mi)	605.5
Travel Time (hr)	27.8
Avg Speed (mph)	22
Fuel Used (gal)	29.5
Fuel Eff. (mpg)	20.5
HC Emissions (g)	355
CO Emissions (g)	18436
NOx Emissions (g)	1336
Vehicles Entered	3360
Vehicles Exited	3364
Hourly Exit Rate	3364
Input Volume	3690
% of Volume	91
Density (ft/veh)	317
Occupancy (veh)	28

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.1	4.4	2.5	0.1	0.3	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.4	2.3	2.4	0.2	0.4	1.4
Total Stops	1	3	56	0	0	60
Stop/Veh	1.00	1.00	1.00	0.00	0.00	0.51
Travel Dist (mi)	0.0	0.1	1.2	1.8	1.4	4.5
Travel Time (hr)	0.0	0.0	0.1	0.2	0.1	0.4
Avg Speed (mph)	12	10	10	10	11	10
Fuel Used (gal)	0.0	0.0	0.0	0.1	0.1	0.2
Fuel Eff. (mpg)	41.9	36.8	33.4	21.1	19.6	23.0
HC Emissions (g)	0	0	0	1	0	1
CO Emissions (g)	0	0	4	15	8	27
NOx Emissions (g)	0	0	0	2	1	4
Vehicles Entered	1	3	56	34	23	117
Vehicles Exited	1	3	56	33	23	116
Hourly Exit Rate	1	3	56	33	23	116
Input Volume	4	6	61	48	18	137
% of Volume	25	50	92	69	128	85
Density (ft/veh)						
Occupancy (veh)	0	0	0	0	0	0

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	25.5	45.7	17.7	0.1	0.1	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	241.8	252.7	248.8	2.6	0.3	0.4
Total Delay (hr)	1.5	5.7	0.2	9.0	50.1	2.7	40.3	8.7	0.4	3.4	10.8	2.5
Total Del/Veh (s)	67.1	25.5	6.6	110.0	125.8	70.2	389.9	53.7	5.9	66.7	52.9	51.2
Stop Delay (hr)	1.4	3.7	0.0	7.2	37.9	2.0	39.3	6.8	0.0	3.0	8.5	2.1
Stop Del/Veh (s)	62.8	16.7	0.1	87.6	95.1	53.1	380.6	41.9	0.2	59.9	42.0	43.6
Total Stops	80	359	0	467	2031	180	451	554	7	208	647	162
Stop/Veh	0.98	0.45	0.00	1.59	1.42	1.31	1.21	0.95	0.03	1.14	0.88	0.94
Travel Dist (mi)	20.5	193.4	31.3	47.9	231.7	22.4	43.2	75.8	27.1	15.2	62.7	14.8
Travel Time (hr)	2.1	9.8	1.1	10.3	54.7	3.3	67.2	56.4	18.9	4.0	12.4	3.1
Avg Speed (mph)	10	20	30	5	4	7	1	7	22	4	5	5
Fuel Used (gal)	1.0	7.4	1.0	3.8	18.7	1.5	16.4	15.3	5.0	1.4	4.5	1.0
Fuel Eff. (mpg)	21.3	26.0	32.8	12.5	12.4	15.2	2.6	5.0	5.4	11.0	13.8	14.1
HC Emissions (g)	10	78	18	36	67	6	37	67	21	14	26	7
CO Emissions (g)	491	4088	673	1034	2161	431	1339	2372	873	409	948	233
NOx Emissions (g)	32	286	56	100	246	27	60	164	47	40	90	21
Vehicles Entered	81	798	130	292	1405	137	334	570	221	175	715	169
Vehicles Exited	81	796	129	281	1398	133	325	575	221	176	717	169
Hourly Exit Rate	81	796	129	281	1398	133	325	575	221	176	717	169
Input Volume	95	814	155	336	1590	141	371	658	252	178	771	174
% of Volume	85	98	83	84	88	94	88	87	88	99	93	97
Density (ft/veh)												
Occupancy (veh)	2	10	1	10	55	3	42	11	1	4	12	3

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	89.1
Denied Del/Veh (s)	61.8
Total Delay (hr)	135.1
Total Del/Veh (s)	94.6
Stop Delay (hr)	112.0
Stop Del/Veh (s)	78.4
Total Stops	5146
Stop/Veh	1.00
Travel Dist (mi)	785.9
Travel Time (hr)	243.2
Avg Speed (mph)	5
Fuel Used (gal)	77.0
Fuel Eff. (mpg)	10.2
HC Emissions (g)	385
CO Emissions (g)	15053
NOx Emissions (g)	1170
Vehicles Entered	5027
Vehicles Exited	5001
Hourly Exit Rate	5001
Input Volume	5535
% of Volume	90
Density (ft/veh)	103
Occupancy (veh)	154

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Denied Del/Veh (s)	0.3	0.0	0.0	0.0	0.0	0.0	4.0	0.3	4.0	3.9	1.0	3.8
Total Delay (hr)	1.1	2.3	0.0	3.8	19.2	0.4	0.5	0.2	0.1	1.2	0.2	0.5
Total Del/Veh (s)	50.9	7.9	2.6	131.6	36.0	10.6	51.5	74.4	4.0	58.5	58.6	23.0
Stop Delay (hr)	1.1	1.5	0.0	3.4	8.4	0.0	0.5	0.2	0.0	1.1	0.2	0.5
Stop Del/Veh (s)	48.1	4.9	1.9	118.5	15.8	1.3	49.8	72.3	3.6	56.4	56.0	22.6
Total Stops	66	238	21	115	1106	30	30	11	40	70	13	74
Stop/Veh	0.81	0.22	0.34	1.12	0.58	0.22	0.91	1.00	0.87	0.96	0.87	0.92
Travel Dist (mi)	13.3	180.7	10.5	23.9	440.5	32.0	2.4	0.8	3.4	5.2	1.1	5.7
Travel Time (hr)	1.5	6.0	0.3	4.4	28.1	1.2	0.6	0.3	0.3	1.5	0.3	0.9
Avg Speed (mph)	9	30	30	5	16	26	4	3	16	4	4	7
Fuel Used (gal)	0.6	5.4	0.3	1.5	15.6	1.3	0.2	0.1	0.1	0.5	0.1	0.3
Fuel Eff. (mpg)	23.8	33.4	41.0	15.7	28.3	25.5	12.3	11.7	28.9	11.3	12.7	18.5
HC Emissions (g)	2	60	4	5	147	15	0	0	2	3	0	1
CO Emissions (g)	135	2432	157	369	5291	875	25	5	42	84	7	46
NOx Emissions (g)	10	264	13	21	508	49	2	0	5	7	1	4
Vehicles Entered	80	1059	61	100	1889	135	32	11	46	72	15	80
Vehicles Exited	74	1055	61	97	1876	133	33	11	46	69	14	75
Hourly Exit Rate	74	1055	61	97	1876	133	33	11	46	69	14	75
Input Volume	88	1118	48	113	2085	138	42	26	62	75	14	69
% of Volume	84	94	127	86	90	96	79	42	74	92	100	109
Density (ft/veh)												
Occupancy (veh)	2	6	0	4	28	1	1	0	0	1	0	1

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.3
Denied Del/Veh (s)	0.3
Total Delay (hr)	29.5
Total Del/Veh (s)	29.4
Stop Delay (hr)	17.0
Stop Del/Veh (s)	17.0
Total Stops	1814
Stop/Veh	0.50
Travel Dist (mi)	719.5
Travel Time (hr)	45.4
Avg Speed (mph)	16
Fuel Used (gal)	25.8
Fuel Eff. (mpg)	27.9
HC Emissions (g)	239
CO Emissions (g)	9468
NOx Emissions (g)	886
Vehicles Entered	3580
Vehicles Exited	3544
Hourly Exit Rate	3544
Input Volume	3878
% of Volume	91
Density (ft/veh)	288
Occupancy (veh)	45

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.1	3.9	0.2	4.2	0.1	0.1	0.1
Total Delay (hr)	0.2	2.8	0.0	1.5	5.6	0.1	0.7	0.2	0.3	0.0	0.0	11.4
Total Del/Veh (s)	70.5	8.7	1.8	66.3	9.6	9.4	75.2	5.8	47.4	53.2	28.3	11.4
Stop Delay (hr)	0.2	1.2	0.0	1.4	1.0	0.0	0.7	0.2	0.2	0.0	0.0	5.0
Stop Del/Veh (s)	66.8	3.8	0.5	59.8	1.8	2.3	73.2	4.9	45.4	49.8	28.2	5.0
Total Stops	11	234	6	85	231	5	32	131	19	2	3	759
Stop/Veh	1.10	0.21	0.15	1.02	0.11	0.15	0.94	0.97	1.00	1.00	1.00	0.21
Travel Dist (mi)	2.4	274.3	9.8	15.1	386.4	6.0	2.6	10.3	1.0	0.1	0.2	708.1
Travel Time (hr)	0.3	8.5	0.3	1.9	13.4	0.3	0.9	0.7	0.3	0.0	0.0	26.5
Avg Speed (mph)	10	32	37	8	29	23	3	15	3	3	5	27
Fuel Used (gal)	0.1	10.0	0.4	0.8	11.7	0.2	0.2	0.3	0.1	0.0	0.0	23.9
Fuel Eff. (mpg)	19.8	27.3	26.2	20.0	32.9	38.1	10.5	30.6	11.1	13.2	18.4	29.6
HC Emissions (g)	1	136	4	6	129	1	0	3	0	0	0	280
CO Emissions (g)	42	6242	269	242	5085	46	27	93	14	0	2	12060
NOx Emissions (g)	3	531	14	19	509	5	2	10	1	0	0	1093
Vehicles Entered	10	1130	41	83	2086	32	34	135	19	2	3	3575
Vehicles Exited	10	1130	40	82	2088	33	33	134	19	2	3	3574
Hourly Exit Rate	10	1130	40	82	2088	33	33	134	19	2	3	3574
Input Volume	11	1202	56	103	2293	29	34	124	19	2	9	3886
% of Volume	91	94	71	80	91	114	97	108	100	100	33	92
Density (ft/veh)												400
Occupancy (veh)	0	9	0	2	13	0	1	1	0	0	0	26

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.8	3.7	0.6	0.8	3.2
Total Delay (hr)	2.6	8.0	0.0	3.4	26.1	0.6	0.5	0.8	0.1	3.6	1.4	0.4
Total Del/Veh (s)	72.8	25.1	4.8	62.1	51.1	11.4	42.3	66.1	2.1	52.7	49.7	4.2
Stop Delay (hr)	2.5	5.3	0.0	3.0	16.7	0.2	0.5	0.8	0.0	3.3	1.2	0.0
Stop Del/Veh (s)	69.0	16.6	0.0	53.7	32.7	4.3	40.1	62.8	0.0	47.0	43.3	0.0
Total Stops	116	682	0	214	1357	37	40	42	0	242	79	0
Stop/Veh	0.90	0.60	0.00	1.08	0.74	0.19	0.89	0.95	0.00	0.97	0.77	0.00
Travel Dist (mi)	24.4	218.2	5.6	18.4	169.4	16.2	7.7	7.4	30.0	49.0	20.2	57.2
Travel Time (hr)	3.3	12.4	0.2	4.1	29.5	1.2	0.9	1.1	1.6	5.1	2.0	2.3
Avg Speed (mph)	7	18	29	5	6	14	9	7	22	10	10	28
Fuel Used (gal)	1.1	6.3	0.1	1.7	11.9	0.8	0.4	0.4	0.9	2.4	0.9	1.8
Fuel Eff. (mpg)	22.6	34.7	56.2	11.2	14.3	19.3	21.4	18.3	32.5	20.5	22.1	31.0
HC Emissions (g)	8	53	3	10	56	16	1	1	4	29	5	25
CO Emissions (g)	278	1778	63	467	1586	516	42	37	142	1141	312	1177
NOx Emissions (g)	21	207	8	39	221	52	4	3	16	83	19	80
Vehicles Entered	126	1138	30	198	1812	190	45	43	184	247	102	302
Vehicles Exited	126	1142	30	195	1820	187	45	44	183	247	103	304
Hourly Exit Rate	126	1142	30	195	1820	187	45	44	183	247	103	304
Input Volume	150	1164	32	219	2039	216	32	43	174	280	87	316
% of Volume	84	98	94	89	89	87	141	102	105	88	118	96
Density (ft/veh)												
Occupancy (veh)	3	12	0	4	29	1	1	1	1	5	2	2

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.5
Total Delay (hr)	47.6
Total Del/Veh (s)	38.4
Stop Delay (hr)	33.4
Stop Del/Veh (s)	26.9
Total Stops	2809
Stop/Veh	0.63
Travel Dist (mi)	623.7
Travel Time (hr)	63.5
Avg Speed (mph)	10
Fuel Used (gal)	28.6
Fuel Eff. (mpg)	21.8
HC Emissions (g)	210
CO Emissions (g)	7538
NOx Emissions (g)	754
Vehicles Entered	4417
Vehicles Exited	4426
Hourly Exit Rate	4426
Input Volume	4752
% of Volume	93
Density (ft/veh)	240
Occupancy (veh)	63

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.3	0.1	0.5
Total Del/Veh (s)	0.8	1.9	1.8	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.1	0.2	0.1
Total Stops	0	0	0	0
Stop/Veh	0.00	0.00	0.00	0.00
Travel Dist (mi)	32.6	21.1	9.0	62.7
Travel Time (hr)	1.0	1.0	0.6	2.6
Avg Speed (mph)	32	22	15	24
Fuel Used (gal)	0.7	1.5	0.3	2.6
Fuel Eff. (mpg)	43.9	13.6	26.7	23.9
HC Emissions (g)	7	18	5	30
CO Emissions (g)	138	767	137	1043
NOx Emissions (g)	22	77	18	116
Vehicles Entered	362	513	219	1094
Vehicles Exited	361	514	219	1094
Hourly Exit Rate	361	514	219	1094
Input Volume	372	554	229	1155
% of Volume	97	93	96	95
Density (ft/veh)				350
Occupancy (veh)	1	1	1	3

Total Network Performance

Denied Delay (hr)	819.6
Denied Del/Veh (s)	179.1
Total Delay (hr)	650.5
Total Del/Veh (s)	145.7
Stop Delay (hr)	448.8
Stop Del/Veh (s)	100.5
Total Stops	30780
Stop/Veh	1.91
Travel Dist (mi)	13831.1
Travel Time (hr)	1836.5
Avg Speed (mph)	14
Fuel Used (gal)	826.5
Fuel Eff. (mpg)	16.7
HC Emissions (g)	7651
CO Emissions (g)	281176
NOx Emissions (g)	24523
Vehicles Entered	15171
Vehicles Exited	15057
Hourly Exit Rate	15057
Input Volume	92182
% of Volume	16
Density (ft/veh)	167
Occupancy (veh)	1017

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	2.3	26.4	0.2	21
Total		2.3	26.4	0.2	21

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	16.6	21.0	0.0	7
	573	2.7	18.9	0.2	29
Laurel St	5	0.2	5.5	0.1	34
	627	0.8	29.6	0.3	34
	641	0.3	8.5	0.1	33
SH 128	6	48.5	55.3	0.1	5
Total		69.1	138.9	0.7	18

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	3.5	12.4	0.1	22
	627	0.2	8.4	0.1	34
Laurel St	5	1.1	28.3	0.3	35
	573	0.3	5.7	0.1	33
Nickel St	3	12.7	27.7	0.2	20
US 287 WB	214	2.2	6.4	0.0	23
Total		19.9	88.9	0.7	27

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	9.6	15.1	0.1	13
3rd Ave	4	1.8	20.9	0.2	28
Total		11.4	36.0	0.2	22

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	0.5	8.0	0.1	29
US 287	3	11.7	29.0	0.2	20
Total		12.2	37.0	0.2	22

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	L	L	TR	L	L	T	T	R	L	T
Maximum Queue (ft)	149	190	230	494	465	273	370	439	466	504	220	625
Average Queue (ft)	32	95	225	447	383	176	297	412	426	282	141	604
95th Queue (ft)	95	168	246	480	542	240	453	452	458	601	248	618
Link Distance (ft)		331		431	431			418	418	418		586
Upstream Blk Time (%)				45	24			9	14	4		48
Queuing Penalty (veh)				0	0			65	100	28		0
Storage Bay Dist (ft)	125		205			270	270				195	
Storage Blk Time (%)	0	7	12	65		1	2	29			9	48
Queuing Penalty (veh)	0	17	35	190		11	19	97			98	58

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	638	620
Average Queue (ft)	609	500
95th Queue (ft)	626	869
Link Distance (ft)	586	586
Upstream Blk Time (%)	70	29
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB
Directions Served	R	L	T	T
Maximum Queue (ft)	78	374	990	995
Average Queue (ft)	14	193	368	379
95th Queue (ft)	52	424	889	873
Link Distance (ft)	611		1656	1656
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		350		
Storage Blk Time (%)			13	
Queuing Penalty (veh)			15	

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	R	L
Maximum Queue (ft)	28	90	110	71	114	221	130	92	69	132	20	75
Average Queue (ft)	1	45	50	33	63	111	66	21	28	26	1	18
95th Queue (ft)	9	78	96	57	113	177	112	52	57	64	9	48
Link Distance (ft)	136	136	136	136		725	725		223	223	223	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					290		140					
Storage Blk Time (%)									0			
Queuing Penalty (veh)									0			

Intersection: 3: Nickel St & US 287

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	91	85
Average Queue (ft)	24	22
95th Queue (ft)	63	54
Link Distance (ft)	777	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	215	
Storage Blk Time (%)	3	
Queuing Penalty (veh)	4	

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	56	30
Average Queue (ft)	30	3
95th Queue (ft)	52	18
Link Distance (ft)	379	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	45	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 5: Laurel St & US 287

Movement	EB	WB	SB
Directions Served	L	UL	LTR
Maximum Queue (ft)	30	30	50
Average Queue (ft)	5	4	28
95th Queue (ft)	23	20	45
Link Distance (ft)			206
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B670	B670	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	20	198	178	31	81	130	164	278	200	350	107	170
Average Queue (ft)	4	87	50	4	21	68	87	60	7	108	55	60
95th Queue (ft)	15	162	121	19	56	114	134	216	66	327	100	126
Link Distance (ft)		964	964	964		1493	1493		225	225		407
Upstream Blk Time (%)										3		
Queuing Penalty (veh)										23		
Storage Bay Dist (ft)	240				115			315			90	
Storage Blk Time (%)						0					4	5
Queuing Penalty (veh)						0					3	3

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	SB	SB
Directions Served	L	L	TR
Maximum Queue (ft)	165	251	136
Average Queue (ft)	97	132	50
95th Queue (ft)	167	202	92
Link Distance (ft)		309	309
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	115		
Storage Blk Time (%)	4	10	
Queuing Penalty (veh)	6	16	

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	225	225	315	296	95	667	632	53	190	635	662	360
Average Queue (ft)	205	219	292	201	36	331	296	24	116	542	567	36
95th Queue (ft)	237	233	319	298	103	655	624	53	238	720	733	140
Link Distance (ft)			225	225		1493	1493			616	616	616
Upstream Blk Time (%)	1	36	74	5						4	6	
Queuing Penalty (veh)	0	0	367	25						24	38	
Storage Bay Dist (ft)	200	200			45			140	140			
Storage Blk Time (%)	31	84	29	37	1					47		
Queuing Penalty (veh)	124	340	58	32	5					48		

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	L	L	T	T	R
Maximum Queue (ft)	209	234	274	190	197	248	287	253	192
Average Queue (ft)	84	161	131	93	51	116	171	93	72
95th Queue (ft)	202	241	217	159	149	200	263	218	138
Link Distance (ft)			259	259		382	382	382	
Upstream Blk Time (%)			2						
Queuing Penalty (veh)			0						
Storage Bay Dist (ft)	185	185			150				210
Storage Blk Time (%)	0	7	0	0	0	8		0	0
Queuing Penalty (veh)	0	10	1	0	0	9		0	0

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	50	113	135	32	333	369	27	51	31	31	53
Average Queue (ft)	5	5	9	4	66	109	2	4	11	2	10
95th Queue (ft)	25	41	52	21	209	263	13	24	36	14	37
Link Distance (ft)		616	616		548	548	548		276		226
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150			175				120		30	
Storage Blk Time (%)					2					4	7
Queuing Penalty (veh)					0					1	0

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	150	215	258	18	98	307	327	77	70	91	76	154
Average Queue (ft)	35	80	95	2	29	151	175	27	25	36	20	153
95th Queue (ft)	98	153	181	11	70	258	281	61	62	75	47	158
Link Distance (ft)		548	548	548		1958	1958			399		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	255				315			440	130		60	105
Storage Blk Time (%)						0				8	1	96
Queuing Penalty (veh)						0				7	1	30

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	312	146
Average Queue (ft)	274	35
95th Queue (ft)	291	94
Link Distance (ft)	260	260
Upstream Blk Time (%)	96	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Queuing and Blocking Report
AM 2050

2050 AM Peak Hour
No Action

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	67	158	148	12	26	248	243	53	70	59	223	30
Average Queue (ft)	31	51	63	0	11	148	163	20	22	28	122	10
95th Queue (ft)	59	118	139	4	30	224	224	48	57	56	207	30
Link Distance (ft)		532	532			1246	1246			241	286	286
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	180			425	100			950	45			
Storage Blk Time (%)						11			11	11		
Queuing Penalty (veh)						2			5	3		

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB
Directions Served	R
Maximum Queue (ft)	100
Average Queue (ft)	44
95th Queue (ft)	75
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	105
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	29	57
Average Queue (ft)	1	27
95th Queue (ft)	10	52
Link Distance (ft)	146	112
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	B597	B597	B597
Directions Served	L	L	T	T	L	L	T	T	R	T	T	
Maximum Queue (ft)	70	75	228	228	253	445	923	923	500	882	882	551
Average Queue (ft)	26	44	132	144	106	399	899	902	338	726	742	18
95th Queue (ft)	58	72	199	215	184	571	924	914	690	1135	1118	182
Link Distance (ft)			1246	1246			828	828		864	864	864
Upstream Blk Time (%)							51	56		2	2	
Queuing Penalty (veh)							528	584		15	17	
Storage Bay Dist (ft)	460	460			395	395			450			
Storage Blk Time (%)						0	53	56				
Queuing Penalty (veh)						0	178	80				

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	340	365	745	708	706	244	270	469	469
Average Queue (ft)	339	364	712	593	70	63	169	309	289
95th Queue (ft)	341	366	726	856	416	157	314	449	398
Link Distance (ft)			693	693	693			454	454
Upstream Blk Time (%)			82	1	0			1	0
Queuing Penalty (veh)			0	0	0			0	0
Storage Bay Dist (ft)	315	315				220	220		
Storage Blk Time (%)	34	90	0				1	23	
Queuing Penalty (veh)	111	297	0				4	40	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	R	L	T	T	R	L	T
Maximum Queue (ft)	77	89	130	162	196	65	520	943	986	52	90	48
Average Queue (ft)	21	38	48	50	73	11	160	340	353	18	30	14
95th Queue (ft)	55	78	106	109	158	36	378	723	741	45	67	38
Link Distance (ft)			864	864	864			1198	1198			393
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	260	260				450	470			590	115	
Storage Blk Time (%)								6	2			
Queuing Penalty (veh)								7	3			

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	L	T	R
Maximum Queue (ft)	50	127	130	71	114
Average Queue (ft)	23	10	66	18	51
95th Queue (ft)	47	61	129	50	103
Link Distance (ft)				378	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	115	120	120		110
Storage Blk Time (%)		0	3		0
Queuing Penalty (veh)		0	2		0

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	B672	B672	NB	NB
Directions Served	L	T	T	T	R	L	T	TR	T	T	L	TR
Maximum Queue (ft)	198	277	298	256	25	354	514	535	962	997	76	105
Average Queue (ft)	16	58	79	90	5	84	84	101	156	129	32	43
95th Queue (ft)	77	159	195	198	21	191	284	316	733	670	68	75
Link Distance (ft)		1198	1198	1198	1198		928	928	964	964		403
Upstream Blk Time (%)									0	0		
Queuing Penalty (veh)									0	1		
Storage Bay Dist (ft)	150					305					85	
Storage Blk Time (%)		1					1				2	0
Queuing Penalty (veh)		0					1				3	0

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	49	31
Average Queue (ft)	19	5
95th Queue (ft)	49	23
Link Distance (ft)		266
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B636	B636
Directions Served	L	L	T	T	T	L	L	T	T	R	T	T
Maximum Queue (ft)	115	132	244	305	308	152	434	543	525	434	1403	1392
Average Queue (ft)	48	63	142	178	205	70	328	495	508	332	1338	1333
95th Queue (ft)	91	102	234	275	302	135	593	631	519	634	1529	1525
Link Distance (ft)			964	964	964			434	434		1340	1340
Upstream Blk Time (%)						0	35	37	1	46	40	
Queuing Penalty (veh)						0	0	0	0	0	0	
Storage Bay Dist (ft)	400	400				400	400			415		
Storage Blk Time (%)					0			38	38	1		
Queuing Penalty (veh)					0			83	82	10		

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB
Directions Served	L	T	L	L	T
Maximum Queue (ft)	72	119	192	244	159
Average Queue (ft)	39	44	96	146	70
95th Queue (ft)	65	90	196	220	129
Link Distance (ft)		901		1046	1046
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100		335		
Storage Blk Time (%)		2			
Queuing Penalty (veh)		4			

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 3968

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	11.3	27.5	56.2	106.6	42.0	66.3	0.1	1.3	0.4	52.1	501.0	6.0
Denied Del/Veh (s)	648.2	611.8	611.7	1051.9	1095.9	1079.7	1.5	2.3	2.3	823.2	820.2	716.3
Total Delay (hr)	3.9	9.0	2.7	21.2	6.1	5.5	6.9	11.9	2.4	23.5	27.5	0.1
Total Del/Veh (s)	268.8	275.1	44.2	339.3	257.3	156.9	167.8	20.7	12.8	500.2	70.0	12.4
Stop Delay (hr)	3.8	8.7	2.3	20.8	5.8	5.1	6.6	7.1	0.6	23.0	22.0	0.0
Stop Del/Veh (s)	262.4	266.7	36.6	332.9	244.9	146.9	161.0	12.4	3.3	489.8	56.2	6.3
Total Stops	70	121	67	300	54	61	166	563	113	176	1334	7
Stop/Veh	1.35	1.03	0.30	1.33	0.64	0.48	1.13	0.27	0.17	1.04	0.94	0.41
Travel Dist (mi)	2.9	6.8	11.0	16.2	6.1	7.5	14.6	213.1	60.2	22.2	220.5	2.5
Travel Time (hr)	15.3	36.7	59.4	128.5	48.3	72.0	7.5	19.1	5.0	76.3	534.8	6.1
Avg Speed (mph)	1	1	4	1	1	1	2	12	13	1	7	18
Fuel Used (gal)	3.6	8.5	13.4	29.3	10.8	16.3	2.2	14.3	2.8	17.7	128.0	1.5
Fuel Eff. (mpg)	0.8	0.8	0.8	0.6	0.6	0.5	6.7	14.9	21.8	1.3	1.7	1.7
HC Emissions (g)	14	50	155	271	105	121	18	210	45	133	1244	13
CO Emissions (g)	344	1017	2515	4654	1765	2214	433	7006	958	2475	22915	265
NOx Emissions (g)	14	50	138	225	85	93	37	713	136	118	1484	12
Vehicles Entered	47	111	223	196	74	118	142	2056	671	149	1378	17
Vehicles Exited	48	107	221	199	77	117	143	2057	667	136	1391	17
Hourly Exit Rate	48	107	221	199	77	117	143	2057	667	136	1391	17
Input Volume	59	151	332	307	116	185	162	2006	667	215	1986	23
% of Volume	81	71	67	65	66	63	88	103	100	63	70	74
Density (ft/veh)												
Occupancy (veh)	4	9	3	22	6	6	7	18	5	24	34	0

1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd Performance by movement

Movement	All
Denied Delay (hr)	871.0
Denied Del/Veh (s)	474.7
Total Delay (hr)	120.5
Total Del/Veh (s)	81.6
Stop Delay (hr)	105.9
Stop Del/Veh (s)	71.7
Total Stops	3032
Stop/Veh	0.57
Travel Dist (mi)	583.5
Travel Time (hr)	1009.1
Avg Speed (mph)	4
Fuel Used (gal)	248.2
Fuel Eff. (mpg)	2.4
HC Emissions (g)	2378
CO Emissions (g)	46562
NOx Emissions (g)	3106
Vehicles Entered	5182
Vehicles Exited	5180
Hourly Exit Rate	5180
Input Volume	6209
% of Volume	83
Density (ft/veh)	60
Occupancy (veh)	138

2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB Performance by movement

Movement	EBR	WBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.4	6.1	0.0	0.0	6.5
Denied Del/Veh (s)	0.0	0.0	12.9	9.7	0.0	0.0	5.0
Total Delay (hr)	0.2	0.3	3.2	24.1	1.6	0.4	29.7
Total Del/Veh (s)	2.0	4.1	92.5	38.1	3.7	6.0	22.6
Stop Delay (hr)	0.0	0.2	2.8	11.9	0.1	0.0	15.1
Stop Del/Veh (s)	0.0	2.7	81.5	18.8	0.3	0.5	11.4
Total Stops	4	37	141	1391	88	36	1697
Stop/Veh	0.01	0.15	1.13	0.61	0.06	0.14	0.36
Travel Dist (mi)	6.3	31.9	17.4	312.4	137.6	19.4	525.1
Travel Time (hr)	0.4	1.9	4.3	39.2	5.4	1.1	52.3
Avg Speed (mph)	14	17	5	9	25	17	11
Fuel Used (gal)	0.1	1.6	1.4	15.6	8.2	0.7	27.7
Fuel Eff. (mpg)	58.4	19.6	12.4	20.0	16.7	26.7	18.9
HC Emissions (g)	0	23	12	100	218	10	363
CO Emissions (g)	9	1009	366	2781	7780	278	12223
NOx Emissions (g)	0	75	32	326	662	33	1127
Vehicles Entered	286	240	122	2252	1548	263	4711
Vehicles Exited	285	241	120	2242	1552	265	4705
Hourly Exit Rate	285	241	120	2242	1552	265	4705
Input Volume	301	231	127	2226	2239	386	5510
% of Volume	95	104	94	101	69	69	85
Density (ft/veh)							100
Occupancy (veh)	0	2	4	33	5	1	46

3: Nickel St & US 287 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.2	0.3	0.0	0.0
Total Delay (hr)	0.0	1.1	0.1	0.6	1.2	0.1	0.5	0.8	0.5	0.4	0.4	0.1
Total Del/Veh (s)	10.1	15.1	3.4	17.5	10.7	4.1	13.0	16.6	7.9	18.8	13.8	6.6
Stop Delay (hr)	0.0	0.9	0.1	0.5	0.9	0.1	0.4	0.6	0.4	0.4	0.3	0.1
Stop Del/Veh (s)	8.5	11.9	3.2	14.5	7.5	3.2	10.8	12.3	6.8	16.2	11.1	6.1
Total Stops	9	166	78	100	170	34	82	111	149	80	60	31
Stop/Veh	0.69	0.63	0.75	0.81	0.41	0.53	0.66	0.63	0.63	0.93	0.55	0.70
Travel Dist (mi)	0.6	11.1	4.4	18.4	58.5	9.6	5.4	7.7	10.4	12.4	16.2	6.7
Travel Time (hr)	0.1	1.4	0.3	1.2	2.9	0.4	0.7	1.1	1.1	0.9	1.0	0.3
Avg Speed (mph)	9	8	13	15	20	23	8	7	10	14	16	19
Fuel Used (gal)	0.0	0.5	0.1	0.6	1.7	0.2	0.2	0.5	0.4	0.5	0.6	0.2
Fuel Eff. (mpg)	29.6	21.5	46.5	32.5	35.4	42.0	21.8	16.7	24.0	26.9	28.8	31.3
HC Emissions (g)	0	5	0	4	16	1	1	4	4	2	8	3
CO Emissions (g)	3	147	19	107	374	28	49	115	122	90	199	71
NOx Emissions (g)	0	14	1	12	53	4	5	14	14	8	24	9
Vehicles Entered	13	262	104	123	410	64	125	175	238	84	108	44
Vehicles Exited	13	258	103	123	410	64	125	175	237	86	107	44
Hourly Exit Rate	13	258	103	123	410	64	125	175	237	86	107	44
Input Volume	13	367	124	154	416	72	123	162	238	74	97	39
% of Volume	100	70	83	80	99	89	102	108	100	116	110	113
Density (ft/veh)												
Occupancy (veh)	0	1	0	1	3	0	1	1	1	1	1	0

3: Nickel St & US 287 Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	5.9
Total Del/Veh (s)	12.0
Stop Delay (hr)	4.6
Stop Del/Veh (s)	9.5
Total Stops	1070
Stop/Veh	0.61
Travel Dist (mi)	161.3
Travel Time (hr)	11.4
Avg Speed (mph)	14
Fuel Used (gal)	5.5
Fuel Eff. (mpg)	29.6
HC Emissions (g)	48
CO Emissions (g)	1325
NOx Emissions (g)	158
Vehicles Entered	1750
Vehicles Exited	1745
Hourly Exit Rate	1745
Input Volume	1879
% of Volume	93
Density (ft/veh)	602
Occupancy (veh)	11

4: Nickel St & 3rd Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	3.7	0.4	0.6
Total Delay (hr)	0.1	0.1	0.2	0.0	0.1	0.0	0.4
Total Del/Veh (s)	8.2	4.4	2.4	1.5	3.4	0.7	2.6
Stop Delay (hr)	0.1	0.1	0.0	0.0	0.0	0.0	0.2
Stop Del/Veh (s)	6.6	3.8	0.2	0.2	1.4	0.0	1.1
Total Stops	42	61	0	0	21	0	124
Stop/Veh	1.00	1.00	0.00	0.00	0.28	0.00	0.20
Travel Dist (mi)	3.4	4.9	37.0	3.5	5.3	13.3	67.4
Travel Time (hr)	0.2	0.3	1.5	0.2	0.4	0.5	3.0
Avg Speed (mph)	14	16	25	22	19	27	23
Fuel Used (gal)	0.1	0.2	1.6	0.1	0.2	0.4	2.6
Fuel Eff. (mpg)	32.8	32.3	22.7	25.9	30.5	29.6	25.5
HC Emissions (g)	1	0	20	1	1	6	29
CO Emissions (g)	24	24	659	41	37	170	956
NOx Emissions (g)	2	2	70	4	3	19	100
Vehicles Entered	42	61	235	23	75	187	623
Vehicles Exited	42	61	236	23	75	187	624
Hourly Exit Rate	42	61	236	23	75	187	624
Input Volume	31	48	242	17	101	170	609
% of Volume	135	127	98	135	74	110	102
Density (ft/veh)							683
Occupancy (veh)	0	0	1	0	0	0	3

5: Laurel St & US 287 Performance by movement

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.4
Total Del/Veh (s)	4.9	0.2	3.2	0.9	0.3	18.2	3.4	1.0
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Stop Del/Veh (s)	3.2	0.0	1.3	0.0	0.0	16.6	3.0	0.4
Total Stops	14	0	7	0	1	22	11	55
Stop/Veh	0.64	0.00	0.50	0.00	0.04	1.00	1.00	0.04
Travel Dist (mi)	1.1	28.1	3.9	168.7	7.8	0.9	0.4	210.9
Travel Time (hr)	0.1	0.8	0.1	5.0	0.3	0.2	0.0	6.5
Avg Speed (mph)	15	33	28	34	30	6	13	32
Fuel Used (gal)	0.0	0.8	0.1	4.6	0.2	0.0	0.0	5.8
Fuel Eff. (mpg)	45.8	33.3	43.1	36.4	41.3	22.9	43.1	36.1
HC Emissions (g)	1	10	0	44	1	0	0	56
CO Emissions (g)	16	279	6	907	21	3	1	1233
NOx Emissions (g)	2	35	1	159	4	0	0	201
Vehicles Entered	22	577	13	619	27	22	11	1291
Vehicles Exited	22	580	14	623	28	22	11	1300
Hourly Exit Rate	22	580	14	623	28	22	11	1300
Input Volume	25	679	14	677	22	20	12	1449
% of Volume	88	85	100	92	127	110	92	90
Density (ft/veh)								822
Occupancy (veh)	0	1	0	5	0	0	0	7

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0
Denied Del/Veh (s)	2.1	0.3	0.2	0.0	0.0	0.0	3.9	0.2	0.4	1.0	0.0	0.0
Total Delay (hr)	0.6	10.9	0.0	0.4	2.3	1.4	0.5	1.9	0.3	7.8	0.7	0.0
Total Del/Veh (s)	72.7	30.8	1.9	54.7	9.8	8.9	31.1	91.7	21.8	43.9	41.0	5.2
Stop Delay (hr)	0.5	7.2	0.0	0.4	1.6	0.0	0.4	1.8	0.3	6.9	0.6	0.0
Stop Del/Veh (s)	65.9	20.3	1.9	52.8	6.9	0.0	27.6	87.4	19.2	38.9	37.0	3.6
Total Stops	35	809	22	26	178	2	53	72	31	548	48	2
Stop/Veh	1.17	0.63	0.42	0.96	0.21	0.00	0.91	0.96	0.60	0.86	0.81	0.11
Travel Dist (mi)	4.8	204.4	8.6	7.7	216.6	155.2	4.6	5.8	3.6	42.3	3.9	1.1
Travel Time (hr)	0.8	16.2	0.3	0.7	8.6	6.1	0.8	2.1	0.5	9.6	0.8	0.1
Avg Speed (mph)	6	13	29	12	25	26	7	3	8	4	5	16
Fuel Used (gal)	0.3	8.1	0.2	0.3	7.0	4.5	0.3	0.7	0.2	3.0	0.2	0.0
Fuel Eff. (mpg)	17.4	25.3	41.8	25.5	31.0	34.4	14.8	8.8	18.8	14.0	17.9	55.5
HC Emissions (g)	1	64	2	1	75	39	1	4	6	14	1	0
CO Emissions (g)	78	2869	77	48	2097	1096	70	132	118	410	39	2
NOx Emissions (g)	4	215	9	5	255	149	6	14	11	44	4	0
Vehicles Entered	30	1261	53	27	838	563	58	74	52	630	59	18
Vehicles Exited	30	1255	52	23	835	557	58	72	52	630	59	18
Hourly Exit Rate	30	1255	52	23	835	557	58	72	52	630	59	18
Input Volume	32	1281	60	24	896	611	55	70	44	687	66	35
% of Volume	94	98	87	96	93	91	105	103	118	92	89	51
Density (ft/veh)												
Occupancy (veh)	1	16	0	1	9	6	1	2	0	9	1	0

6: Upham St/US 287 & SH 128/120th Ave (US 287) Performance by movement

Movement	All
Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.4
Total Delay (hr)	26.9
Total Del/Veh (s)	26.2
Stop Delay (hr)	19.8
Stop Del/Veh (s)	19.3
Total Stops	1826
Stop/Veh	0.49
Travel Dist (mi)	658.5
Travel Time (hr)	46.4
Avg Speed (mph)	14
Fuel Used (gal)	24.7
Fuel Eff. (mpg)	26.6
HC Emissions (g)	209
CO Emissions (g)	7037
NOx Emissions (g)	716
Vehicles Entered	3663
Vehicles Exited	3641
Hourly Exit Rate	3641
Input Volume	3861
% of Volume	94
Density (ft/veh)	245
Occupancy (veh)	46

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.4	1.4	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.2
Denied Del/Veh (s)	3.6	3.2	2.2	0.3	0.0	0.0	3.1	0.3	3.1	0.6	0.2	3.0
Total Delay (hr)	8.6	14.6	0.8	2.3	7.3	0.2	2.8	4.3	0.1	2.1	3.8	0.4
Total Del/Veh (s)	86.8	32.5	21.7	54.8	26.1	4.6	67.4	45.8	2.5	42.8	41.3	5.0
Stop Delay (hr)	8.1	11.0	0.6	2.1	5.2	0.2	2.7	3.8	0.0	2.0	3.4	0.3
Stop Del/Veh (s)	81.2	24.4	16.2	49.5	18.5	3.8	64.2	41.0	0.0	39.6	37.3	3.9
Total Stops	411	793	69	142	475	65	165	295	0	175	280	207
Stop/Veh	1.15	0.49	0.52	0.95	0.47	0.43	1.09	0.87	0.00	0.97	0.85	0.73
Travel Dist (mi)	18.0	85.5	7.1	18.2	124.4	19.0	7.5	16.9	8.1	12.8	23.6	20.6
Travel Time (hr)	9.7	18.5	1.2	2.9	10.5	0.9	3.3	4.9	0.7	2.7	4.7	1.6
Avg Speed (mph)	2	5	6	6	12	22	2	3	17	5	5	15
Fuel Used (gal)	2.9	7.4	0.5	1.0	5.0	0.6	1.0	1.7	0.4	1.0	1.8	0.8
Fuel Eff. (mpg)	6.3	11.5	14.2	17.8	24.7	33.7	7.4	10.0	20.4	13.1	13.4	27.0
HC Emissions (g)	8	44	2	3	41	8	5	7	8	6	13	5
CO Emissions (g)	296	1182	61	171	1520	357	167	263	234	223	422	201
NOx Emissions (g)	29	168	9	15	143	24	17	29	25	21	45	20
Vehicles Entered	350	1612	131	146	991	151	150	333	194	175	323	283
Vehicles Exited	351	1610	133	145	993	151	149	334	195	177	325	284
Hourly Exit Rate	351	1610	133	145	993	151	149	334	195	177	325	284
Input Volume	381	1632	153	178	1095	165	144	339	179	198	309	292
% of Volume	92	99	87	81	91	92	103	99	109	89	105	97
Density (ft/veh)												
Occupancy (veh)	9	17	1	3	11	1	3	5	0	3	5	1

7: Main St & 120th Ave (US 287)/120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	2.5
Denied Del/Veh (s)	1.8
Total Delay (hr)	47.4
Total Del/Veh (s)	34.9
Stop Delay (hr)	39.3
Stop Del/Veh (s)	28.9
Total Stops	3077
Stop/Veh	0.63
Travel Dist (mi)	361.8
Travel Time (hr)	61.6
Avg Speed (mph)	6
Fuel Used (gal)	24.0
Fuel Eff. (mpg)	15.1
HC Emissions (g)	150
CO Emissions (g)	5097
NOx Emissions (g)	544
Vehicles Entered	4839
Vehicles Exited	4847
Hourly Exit Rate	4847
Input Volume	5065
% of Volume	96
Density (ft/veh)	131
Occupancy (veh)	59

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.1	0.3	3.9	0.6	0.3
Total Delay (hr)	0.2	4.2	0.1	0.5	1.0	0.0	0.7	0.1	0.4	0.5	0.1	0.1
Total Del/Veh (s)	23.5	7.9	5.3	41.5	3.0	0.9	54.4	74.6	23.5	51.1	43.0	14.4
Stop Delay (hr)	0.1	0.4	0.0	0.5	0.1	0.0	0.6	0.1	0.4	0.5	0.1	0.1
Stop Del/Veh (s)	16.9	0.7	0.2	38.9	0.3	0.2	52.3	72.0	22.9	48.9	40.7	13.5
Total Stops	29	173	6	41	35	1	43	6	59	35	6	31
Stop/Veh	0.97	0.09	0.08	0.89	0.03	0.05	0.98	1.00	0.94	0.95	1.20	0.94
Travel Dist (mi)	4.0	253.6	10.5	5.4	137.5	2.6	2.3	0.3	3.3	1.6	0.2	1.4
Travel Time (hr)	0.3	11.1	0.5	0.7	4.5	0.1	0.8	0.1	0.6	0.6	0.1	0.2
Avg Speed (mph)	12	23	21	8	31	27	3	2	6	3	3	7
Fuel Used (gal)	0.2	13.6	0.5	0.3	5.3	0.1	0.2	0.0	0.2	0.2	0.0	0.1
Fuel Eff. (mpg)	17.8	18.7	19.9	18.5	25.7	31.4	9.5	8.4	17.3	9.0	12.4	19.5
HC Emissions (g)	1	163	13	1	72	3	0	0	2	1	0	0
CO Emissions (g)	86	6862	496	88	2786	106	28	4	50	30	1	10
NOx Emissions (g)	6	656	37	6	267	8	2	0	5	3	0	1
Vehicles Entered	29	1876	77	45	1147	22	43	6	63	36	5	33
Vehicles Exited	30	1874	77	46	1150	22	44	6	63	37	5	33
Hourly Exit Rate	30	1874	77	46	1150	22	44	6	63	37	5	33
Input Volume	33	1900	76	46	1352	29	38	5	75	36	7	25
% of Volume	91	99	101	100	85	76	116	120	84	103	71	132
Density (ft/veh)												
Occupancy (veh)	0	11	0	1	4	0	1	0	1	1	0	0

8: Shopping Ent/Safeway Ent & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	7.9
Total Del/Veh (s)	8.3
Stop Delay (hr)	3.0
Stop Del/Veh (s)	3.1
Total Stops	465
Stop/Veh	0.14
Travel Dist (mi)	422.7
Travel Time (hr)	19.7
Avg Speed (mph)	22
Fuel Used (gal)	20.8
Fuel Eff. (mpg)	20.3
HC Emissions (g)	258
CO Emissions (g)	10547
NOx Emissions (g)	993
Vehicles Entered	3382
Vehicles Exited	3387
Hourly Exit Rate	3387
Input Volume	3622
% of Volume	94
Density (ft/veh)	317
Occupancy (veh)	20

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	167.6	28.0	54.4
Denied Del/Veh (s)	0.0	0.0	0.0	0.7	0.1	0.6	4.0	0.3	4.1	1460.6	1483.8	1494.8
Total Delay (hr)	0.3	5.6	0.0	1.3	3.4	0.6	0.3	0.5	1.1	10.4	0.8	0.2
Total Del/Veh (s)	14.8	11.1	1.2	46.3	10.4	6.0	52.7	59.5	38.5	230.0	132.2	16.2
Stop Delay (hr)	0.2	2.8	0.0	1.2	1.1	0.1	0.3	0.5	1.1	10.3	0.8	0.2
Stop Del/Veh (s)	11.3	5.5	0.8	41.3	3.4	0.5	50.7	56.3	38.5	229.1	129.4	15.8
Total Stops	52	361	9	100	214	51	16	27	101	85	19	36
Stop/Veh	0.84	0.20	0.18	0.97	0.18	0.15	0.80	0.82	0.96	0.52	0.90	0.77
Travel Dist (mi)	7.3	212.4	5.7	35.8	402.6	116.1	1.5	2.5	8.1	7.4	1.0	2.2
Travel Time (hr)	0.5	11.1	0.2	2.2	11.5	3.5	0.4	0.6	1.6	178.2	28.8	54.7
Avg Speed (mph)	15	19	27	17	35	34	4	4	5	1	1	7
Fuel Used (gal)	0.2	8.2	0.2	1.2	11.6	3.0	0.1	0.2	0.6	40.5	6.7	12.5
Fuel Eff. (mpg)	30.1	26.1	29.5	29.9	34.8	39.0	12.0	11.7	14.4	0.2	0.1	0.2
HC Emissions (g)	1	89	5	6	142	36	0	0	5	199	0	26
CO Emissions (g)	60	2978	192	361	5825	1388	17	29	134	4292	327	899
NOx Emissions (g)	5	331	12	34	569	142	1	2	14	149	2	20
Vehicles Entered	62	1812	48	103	1146	329	19	32	105	150	20	45
Vehicles Exited	61	1812	49	100	1148	328	19	33	102	151	21	47
Hourly Exit Rate	61	1812	49	100	1148	328	19	33	102	151	21	47
Input Volume	55	1844	58	108	1275	325	30	32	106	334	66	122
% of Volume	111	98	84	93	90	101	63	103	96	45	32	39
Density (ft/veh)												
Occupancy (veh)	0	11	0	2	11	3	0	1	2	11	1	0

9: Greenway Dr/Lamar St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	250.2
Denied Del/Veh (s)	211.1
Total Delay (hr)	24.4
Total Del/Veh (s)	22.5
Stop Delay (hr)	18.5
Stop Del/Veh (s)	17.0
Total Stops	1071
Stop/Veh	0.27
Travel Dist (mi)	802.6
Travel Time (hr)	293.5
Avg Speed (mph)	19
Fuel Used (gal)	84.9
Fuel Eff. (mpg)	9.5
HC Emissions (g)	510
CO Emissions (g)	16502
NOx Emissions (g)	1281
Vehicles Entered	3871
Vehicles Exited	3871
Hourly Exit Rate	3871
Input Volume	4355
% of Volume	89
Density (ft/veh)	285
Occupancy (veh)	43

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.4	3.6
Total Delay (hr)	1.0	4.0	0.1	0.6	3.6	0.3	0.3	0.7	0.5	3.6	0.6	0.3
Total Del/Veh (s)	25.6	7.9	2.2	40.5	11.3	6.0	45.1	35.6	31.6	74.6	55.0	6.5
Stop Delay (hr)	0.9	1.6	0.0	0.5	1.1	0.0	0.3	0.7	0.5	3.4	0.6	0.2
Stop Del/Veh (s)	22.0	3.1	1.1	35.2	3.4	0.9	42.9	34.0	31.7	71.1	51.6	5.3
Total Stops	123	276	21	48	231	37	27	40	49	172	40	139
Stop/Veh	0.84	0.15	0.24	0.98	0.20	0.23	1.17	0.56	0.91	0.99	0.95	0.84
Travel Dist (mi)	16.4	184.4	9.6	11.9	288.7	40.1	1.1	2.8	2.5	9.3	2.3	9.0
Travel Time (hr)	1.6	7.7	0.4	0.9	10.1	1.4	0.4	0.9	0.6	4.0	0.7	0.9
Avg Speed (mph)	11	24	25	13	29	29	3	3	4	2	3	12
Fuel Used (gal)	0.6	5.5	0.3	0.6	13.9	1.8	0.1	0.3	0.2	1.2	0.2	0.4
Fuel Eff. (mpg)	26.9	33.4	34.3	20.0	20.7	22.5	8.8	8.3	10.4	7.7	10.3	22.9
HC Emissions (g)	5	64	10	4	198	25	0	1	2	3	3	2
CO Emissions (g)	170	2700	307	329	10420	1494	17	60	52	147	71	87
NOx Emissions (g)	16	222	24	18	706	84	2	6	6	14	7	9
Vehicles Entered	146	1796	85	49	1150	160	23	72	52	173	41	165
Vehicles Exited	145	1787	85	46	1148	162	23	72	53	167	42	165
Hourly Exit Rate	145	1787	85	46	1148	162	23	72	53	167	42	165
Input Volume	148	2012	83	42	1253	161	33	63	47	173	41	152
% of Volume	98	89	102	110	92	101	70	114	113	97	102	109
Density (ft/veh)												
Occupancy (veh)	2	8	0	1	10	1	0	1	1	4	1	1

10: Chase St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	15.5
Total Del/Veh (s)	14.2
Stop Delay (hr)	9.8
Stop Del/Veh (s)	9.0
Total Stops	1203
Stop/Veh	0.31
Travel Dist (mi)	577.9
Travel Time (hr)	29.5
Avg Speed (mph)	20
Fuel Used (gal)	25.2
Fuel Eff. (mpg)	22.9
HC Emissions (g)	317
CO Emissions (g)	15853
NOx Emissions (g)	1115
Vehicles Entered	3912
Vehicles Exited	3895
Hourly Exit Rate	3895
Input Volume	4208
% of Volume	93
Density (ft/veh)	297
Occupancy (veh)	29

11: Frontage Rd & Chase St Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.6	0.2	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
Total Del/Veh (s)	5.0	5.2	5.7	3.2	0.4	0.5	0.4	2.1
Stop Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
Stop Del/Veh (s)	3.3	2.8	3.6	2.7	0.4	0.8	0.2	1.6
Total Stops	32	22	9	114	3	0	0	180
Stop/Veh	0.97	0.96	1.00	1.00	0.02	0.00	0.00	0.49
Travel Dist (mi)	1.8	1.2	0.3	3.9	7.6	0.1	1.4	16.2
Travel Time (hr)	0.1	0.1	0.0	0.3	0.8	0.0	0.1	1.5
Avg Speed (mph)	14	15	11	12	10	9	10	11
Fuel Used (gal)	0.0	0.0	0.0	0.1	0.4	0.0	0.1	0.7
Fuel Eff. (mpg)	36.9	33.9	31.4	33.3	20.1	14.9	19.7	24.4
HC Emissions (g)	0	0	0	0	5	2	0	8
CO Emissions (g)	9	5	1	14	109	26	6	171
NOx Emissions (g)	1	1	0	2	15	4	1	24
Vehicles Entered	32	22	9	114	154	4	29	364
Vehicles Exited	33	23	9	114	154	4	29	366
Hourly Exit Rate	33	23	9	114	154	4	29	366
Input Volume	40	14	9	103	155	1	21	343
% of Volume	82	164	100	111	99	400	138	107
Density (ft/veh)								608
Occupancy (veh)	0	0	0	0	1	0	0	1

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.4	1.1	0.2	0.0	0.0	0.0	16.1	45.1	23.5	76.6	151.2	22.3
Denied Del/Veh (s)	6.1	2.9	2.5	0.0	0.0	0.0	175.4	179.7	171.0	601.0	618.5	611.5
Total Delay (hr)	6.9	32.1	3.1	25.8	9.1	1.5	36.9	34.5	1.3	24.3	16.9	2.5
Total Del/Veh (s)	118.1	86.5	46.0	259.6	34.8	19.3	410.3	146.0	10.9	258.0	91.5	90.4
Stop Delay (hr)	5.9	22.0	1.7	24.7	5.7	0.9	36.3	30.1	0.3	23.4	14.5	2.3
Stop Del/Veh (s)	99.9	59.3	24.9	248.1	21.6	11.3	402.8	127.4	2.4	248.3	78.5	81.4
Total Stops	285	1601	157	517	566	175	404	1446	92	543	733	99
Stop/Veh	1.35	1.20	0.64	1.44	0.60	0.61	1.25	1.70	0.21	1.60	1.10	0.99
Travel Dist (mi)	49.6	320.0	56.4	55.3	154.9	47.2	39.0	105.3	53.6	27.8	56.0	8.2
Travel Time (hr)	8.6	39.9	4.8	27.3	12.3	3.0	54.2	82.3	26.5	101.9	169.5	25.1
Avg Speed (mph)	6	8	12	2	13	16	1	3	18	1	3	3
Fuel Used (gal)	3.4	16.8	2.3	7.2	6.8	1.7	13.3	21.7	7.6	24.1	40.2	5.9
Fuel Eff. (mpg)	14.7	19.1	24.4	7.7	22.8	28.6	2.9	4.9	7.1	1.2	1.4	1.4
HC Emissions (g)	26	105	25	28	65	15	41	96	43	63	113	6
CO Emissions (g)	1106	4300	837	858	2795	642	1235	2498	1570	1964	3451	368
NOx Emissions (g)	83	378	81	60	227	50	64	194	110	76	147	10
Vehicles Entered	205	1303	238	347	938	287	291	804	438	319	641	94
Vehicles Exited	209	1306	243	310	924	284	298	796	437	323	638	94
Hourly Exit Rate	209	1306	243	310	924	284	298	796	437	323	638	94
Input Volume	228	1444	269	384	1003	304	300	879	482	415	795	125
% of Volume	92	90	90	81	92	93	99	91	91	78	80	75
Density (ft/veh)												
Occupancy (veh)	8	39	5	27	12	3	38	37	3	25	18	3

12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	336.3
Denied Del/Veh (s)	185.8
Total Delay (hr)	195.1
Total Del/Veh (s)	115.1
Stop Delay (hr)	167.6
Stop Del/Veh (s)	98.9
Total Stops	6618
Stop/Veh	1.08
Travel Dist (mi)	973.2
Travel Time (hr)	555.3
Avg Speed (mph)	4
Fuel Used (gal)	151.0
Fuel Eff. (mpg)	6.4
HC Emissions (g)	626
CO Emissions (g)	21623
NOx Emissions (g)	1478
Vehicles Entered	5905
Vehicles Exited	5862
Hourly Exit Rate	5862
Input Volume	6628
% of Volume	88
Density (ft/veh)	73
Occupancy (veh)	219

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	26.0	4.8	9.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.6	1.0	3.8	244.5	255.9	240.9
Total Delay (hr)	5.6	5.1	0.1	25.8	30.1	2.6	2.3	1.3	0.5	15.3	2.6	2.3
Total Del/Veh (s)	109.3	10.1	4.0	574.2	75.8	43.4	73.5	74.2	11.9	151.7	139.6	65.7
Stop Delay (hr)	5.4	2.1	0.1	25.1	19.1	1.4	2.2	1.2	0.5	14.6	2.5	2.2
Stop Del/Veh (s)	103.7	4.2	2.0	556.9	48.1	22.7	70.5	71.1	10.5	144.6	133.0	60.5
Total Stops	180	343	24	284	1937	236	106	55	148	540	74	135
Stop/Veh	0.97	0.19	0.26	1.75	1.35	1.08	0.93	0.90	0.93	1.49	1.10	1.05
Travel Dist (mi)	31.3	305.5	16.0	35.4	330.1	51.7	8.2	4.4	11.9	25.0	4.6	9.1
Travel Time (hr)	6.5	11.3	0.6	26.7	36.9	4.0	2.8	1.5	1.3	42.4	7.6	11.8
Avg Speed (mph)	5	27	28	1	9	13	3	3	11	2	2	3
Fuel Used (gal)	2.0	8.9	0.4	6.9	18.3	2.5	0.9	0.4	0.6	10.4	1.9	2.9
Fuel Eff. (mpg)	15.7	34.5	39.5	5.2	18.1	20.4	9.3	10.1	20.6	2.4	2.4	3.1
HC Emissions (g)	10	103	10	6	149	41	3	2	8	28	1	15
CO Emissions (g)	392	4145	333	517	5864	1499	144	64	227	894	124	358
NOx Emissions (g)	29	391	28	27	530	119	12	5	25	50	6	24
Vehicles Entered	178	1799	90	150	1424	217	111	59	158	345	64	126
Vehicles Exited	183	1778	91	138	1358	213	111	60	159	349	66	126
Hourly Exit Rate	183	1778	91	138	1358	213	111	60	159	349	66	126
Input Volume	212	2022	107	172	1478	241	107	63	166	364	67	146
% of Volume	86	88	85	80	92	88	104	95	96	96	99	86
Density (ft/veh)												
Occupancy (veh)	7	11	1	27	37	4	3	1	1	16	3	3

13: Vrain St & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	40.2
Denied Del/Veh (s)	30.3
Total Delay (hr)	93.8
Total Del/Veh (s)	70.4
Stop Delay (hr)	76.1
Stop Del/Veh (s)	57.2
Total Stops	4062
Stop/Veh	0.85
Travel Dist (mi)	833.2
Travel Time (hr)	153.3
Avg Speed (mph)	7
Fuel Used (gal)	56.1
Fuel Eff. (mpg)	14.8
HC Emissions (g)	374
CO Emissions (g)	14562
NOx Emissions (g)	1246
Vehicles Entered	4721
Vehicles Exited	4632
Hourly Exit Rate	4632
Input Volume	5145
% of Volume	90
Density (ft/veh)	115
Occupancy (veh)	113

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.1	0.5	3.9	0.1	0.3
Total Delay (hr)	0.1	7.6	0.1	4.3	21.6	0.5	1.1	0.1	0.7	0.8	0.1	0.1
Total Del/Veh (s)	43.4	12.8	4.2	99.0	43.5	45.6	75.1	66.2	13.7	61.5	51.1	31.6
Stop Delay (hr)	0.1	3.3	0.0	3.6	12.6	0.4	1.1	0.1	0.6	0.8	0.1	0.1
Stop Del/Veh (s)	35.1	5.6	2.5	83.2	25.4	32.0	72.5	64.0	12.5	59.3	48.3	31.3
Total Stops	6	467	15	231	1197	26	52	6	172	43	5	15
Stop/Veh	1.00	0.22	0.24	1.47	0.67	0.63	0.98	1.00	0.98	0.88	0.83	1.07
Travel Dist (mi)	1.5	512.8	15.2	28.6	326.4	7.5	4.0	0.4	13.3	2.6	0.3	0.7
Travel Time (hr)	0.1	18.8	0.5	5.1	28.2	0.7	1.3	0.1	1.3	1.0	0.1	0.2
Avg Speed (mph)	14	27	33	6	12	10	3	3	10	3	3	5
Fuel Used (gal)	0.1	21.9	0.7	1.7	12.3	0.3	0.4	0.0	0.5	0.3	0.0	0.0
Fuel Eff. (mpg)	19.5	23.4	23.2	16.9	26.6	26.3	9.7	11.7	24.7	9.2	12.7	16.2
HC Emissions (g)	1	319	7	16	84	0	2	0	3	0	0	0
CO Emissions (g)	37	15026	515	429	2792	30	73	3	131	33	3	5
NOx Emissions (g)	2	1139	24	42	292	3	6	0	13	2	0	0
Vehicles Entered	6	2101	62	155	1778	41	53	5	174	48	6	13
Vehicles Exited	6	2106	62	153	1741	40	53	6	175	48	6	14
Hourly Exit Rate	6	2106	62	153	1741	40	53	6	175	48	6	14
Input Volume	7	2345	63	147	1842	42	49	5	171	50	8	12
% of Volume	86	90	98	104	95	95	108	120	102	96	75	117
Density (ft/veh)												
Occupancy (veh)	0	19	0	5	28	1	1	0	1	1	0	0

14: Bradburn Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	37.1
Total Del/Veh (s)	29.8
Stop Delay (hr)	22.8
Stop Del/Veh (s)	18.3
Total Stops	2235
Stop/Veh	0.50
Travel Dist (mi)	913.5
Travel Time (hr)	57.5
Avg Speed (mph)	16
Fuel Used (gal)	38.2
Fuel Eff. (mpg)	23.9
HC Emissions (g)	432
CO Emissions (g)	19076
NOx Emissions (g)	1525
Vehicles Entered	4442
Vehicles Exited	4410
Hourly Exit Rate	4410
Input Volume	4741
% of Volume	93
Density (ft/veh)	185
Occupancy (veh)	57

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0	0.0	3.8	0.5	3.8	0.6	0.6	3.2
Total Delay (hr)	6.8	10.8	0.0	1.6	14.8	0.6	0.0	0.8	0.1	32.3	0.6	0.3
Total Del/Veh (s)	70.5	19.0	7.4	56.8	31.6	6.1	11.1	69.8	1.9	324.3	41.0	4.1
Stop Delay (hr)	6.1	5.8	0.0	1.5	8.6	0.1	0.0	0.8	0.0	31.4	0.5	0.0
Stop Del/Veh (s)	63.6	10.2	0.0	51.7	18.3	1.0	8.9	66.3	0.0	314.5	35.9	0.0
Total Stops	326	856	0	96	999	42	7	41	0	501	37	0
Stop/Veh	0.94	0.42	0.00	0.92	0.59	0.13	0.88	0.98	0.00	1.40	0.73	0.00
Travel Dist (mi)	64.7	389.5	1.9	9.7	155.4	28.1	1.4	7.0	17.9	64.0	9.4	57.2
Travel Time (hr)	8.6	18.6	0.1	2.0	17.9	1.5	0.1	1.1	0.9	34.2	0.8	2.3
Avg Speed (mph)	8	21	26	5	9	18	17	6	22	2	12	28
Fuel Used (gal)	3.0	12.5	0.0	0.7	7.3	0.9	0.1	0.4	0.6	9.4	0.4	1.9
Fuel Eff. (mpg)	21.7	31.1	40.0	13.9	21.4	31.1	26.6	18.6	31.0	6.8	26.3	30.7
HC Emissions (g)	17	137	0	3	44	9	0	3	6	48	2	27
CO Emissions (g)	676	5348	12	194	1214	423	8	68	140	1702	116	1214
NOx Emissions (g)	55	504	1	11	153	32	1	7	18	106	8	83
Vehicles Entered	340	2035	10	104	1671	329	8	41	110	340	48	301
Vehicles Exited	335	2035	10	104	1670	326	8	42	110	301	50	302
Hourly Exit Rate	335	2035	10	104	1670	326	8	42	110	301	50	302
Input Volume	382	2228	14	97	1708	351	12	44	100	318	48	310
% of Volume	88	91	71	107	98	93	67	95	110	95	104	97
Density (ft/veh)												
Occupancy (veh)	9	19	0	2	18	2	0	1	1	34	1	2

15: Lowell Blvd & 120th Ave (SH 287) Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.3
Total Delay (hr)	68.7
Total Del/Veh (s)	45.9
Stop Delay (hr)	54.8
Stop Del/Veh (s)	36.6
Total Stops	2905
Stop/Veh	0.54
Travel Dist (mi)	806.3
Travel Time (hr)	88.1
Avg Speed (mph)	9
Fuel Used (gal)	37.0
Fuel Eff. (mpg)	21.8
HC Emissions (g)	296
CO Emissions (g)	11114
NOx Emissions (g)	980
Vehicles Entered	5337
Vehicles Exited	5293
Hourly Exit Rate	5293
Input Volume	5612
% of Volume	94
Density (ft/veh)	173
Occupancy (veh)	88

214: US 287 EB/US 287 & US 287 WB Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.1	0.3
Total Del/Veh (s)	0.8	1.4	1.4	1.2
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.2	0.2	0.1
Total Stops	0	0	1	1
Stop/Veh	0.00	0.00	0.00	0.00
Travel Dist (mi)	34.5	12.1	9.9	56.5
Travel Time (hr)	1.1	0.6	0.6	2.3
Avg Speed (mph)	32	22	15	25
Fuel Used (gal)	0.8	0.9	0.4	2.1
Fuel Eff. (mpg)	43.9	13.0	25.7	26.9
HC Emissions (g)	11	12	3	26
CO Emissions (g)	197	563	107	867
NOx Emissions (g)	32	47	13	92
Vehicles Entered	385	299	241	925
Vehicles Exited	384	298	240	922
Hourly Exit Rate	384	298	240	922
Input Volume	513	304	231	1048
% of Volume	75	98	104	88
Density (ft/veh)				396
Occupancy (veh)	1	1	1	2

Total Network Performance

Denied Delay (hr)	1508.6
Denied Del/Veh (s)	270.1
Total Delay (hr)	779.1
Total Del/Veh (s)	150.1
Stop Delay (hr)	578.4
Stop Del/Veh (s)	111.4
Total Stops	33246
Stop/Veh	1.78
Travel Dist (mi)	14819.0
Travel Time (hr)	2676.2
Avg Speed (mph)	13
Fuel Used (gal)	1060.9
Fuel Eff. (mpg)	14.0
HC Emissions (g)	10253
CO Emissions (g)	362318
NOx Emissions (g)	29918
Vehicles Entered	17618
Vehicles Exited	17433
Hourly Exit Rate	17433
Input Volume	104663
% of Volume	17
Density (ft/veh)	144
Occupancy (veh)	1168

Arterial Level of Service: WB US 287 WB

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Wadsworth Blvd (SH 1	2	4.1	28.4	0.2	20
Total		4.1	28.4	0.2	20

Arterial Level of Service: EB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Nickel St	3	15.1	19.5	0.0	8
	573	3.1	19.1	0.2	28
Laurel St	5	0.2	5.3	0.0	34
	627	1.4	30.3	0.3	33
	641	1.6	9.8	0.1	29
SH 128	6	41.0	48.1	0.1	6
Total		62.5	132.0	0.7	19

Arterial Level of Service: WB US 287

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	641	2.7	12.0	0.1	23
	627	0.1	8.3	0.1	34
Laurel St	5	0.9	28.8	0.3	35
	573	0.2	5.3	0.0	34
Nickel St	3	10.7	25.4	0.2	21
US 287 WB	214	1.7	5.9	0.0	25
Total		16.4	85.7	0.7	29

Arterial Level of Service: NB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
US 287	3	16.6	22.3	0.1	9
3rd Ave	4	3.0	22.1	0.2	26
Total		19.7	44.3	0.2	17

Arterial Level of Service: SB Nickel St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
3rd Ave	4	0.7	9.7	0.1	29
US 287	3	14.5	32.5	0.2	18
Total		15.2	42.2	0.2	20

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	L	L	T	T	R	L
Maximum Queue (ft)	150	370	235	230	470	483	185	369	449	477	479	220
Average Queue (ft)	89	346	109	202	401	358	112	138	303	328	238	214
95th Queue (ft)	167	363	301	253	532	622	183	256	570	588	570	225
Link Distance (ft)		331			431	431			418	418	418	
Upstream Blk Time (%)		78			60	52			11	15	6	
Queuing Penalty (veh)		0			0	0			88	124	53	
Storage Bay Dist (ft)	125		210	205			270	270				195
Storage Blk Time (%)	13	80	0	32	83				19			84
Queuing Penalty (veh)	64	312	1	49	126				32			832

Intersection: 1: Wadsworth Blvd (SH 121)/SH 287 & Midway Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	899	899	875
Average Queue (ft)	864	866	824
95th Queue (ft)	888	891	1077
Link Distance (ft)	836	836	836
Upstream Blk Time (%)	81	71	32
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)	7		
Queuing Penalty (veh)	15		

Intersection: 2: Wadsworth Blvd (SH 121) & SH287 S on Ramp/US 287 WB

Movement	WB	NB	NB	NB	SB
Directions Served	R	L	T	T	T
Maximum Queue (ft)	160	375	779	745	399
Average Queue (ft)	33	154	445	510	13
95th Queue (ft)	110	350	842	884	132
Link Distance (ft)	609		716	716	418
Upstream Blk Time (%)			6	12	0
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (ft)		350			
Storage Blk Time (%)			15		
Queuing Penalty (veh)			20		

Intersection: 3: Nickel St & US 287

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	R	L
Maximum Queue (ft)	29	94	94	63	111	130	132	154	111	194	114	75
Average Queue (ft)	8	50	58	34	51	56	48	20	51	95	21	41
95th Queue (ft)	29	86	95	56	88	113	93	66	93	161	58	74
Link Distance (ft)	135	135	135	135		725	725		223	223	223	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					290				140			
Storage Blk Time (%)							0		0			
Queuing Penalty (veh)							0		0			

Intersection: 3: Nickel St & US 287

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	130	72
Average Queue (ft)	40	25
95th Queue (ft)	97	55
Link Distance (ft)	744	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	215	
Storage Blk Time (%)	7	
Queuing Penalty (veh)	11	

Intersection: 4: Nickel St & 3rd Ave

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	92	47
Average Queue (ft)	39	16
95th Queue (ft)	72	42
Link Distance (ft)	424	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	45	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	1	

Intersection: 5: Laurel St & US 287

Movement	EB	WB	WB	SB
Directions Served	L	UL	TR	LTR
Maximum Queue (ft)	48	28	19	52
Average Queue (ft)	12	6	1	21
95th Queue (ft)	36	25	6	48
Link Distance (ft)			1423	214
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	EB	EB	EB	EB	WB	WB	WB	B670	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	T	L	TR	L	L
Maximum Queue (ft)	289	481	500	5	65	132	147	322	139	236	165	380
Average Queue (ft)	59	300	255	1	20	58	81	20	41	91	151	232
95th Queue (ft)	211	446	412	3	48	118	131	145	106	198	186	364
Link Distance (ft)		836	836	836		1493	1493	225		408		307
Upstream Blk Time (%)								0				5
Queuing Penalty (veh)								1				18
Storage Bay Dist (ft)	240				115				90		115	
Storage Blk Time (%)		16				1			1	19	26	31
Queuing Penalty (veh)		5				0			1	10	87	108

Intersection: 6: Upham St/US 287 & SH 128/120th Ave (US 287)

Movement	SB	B641
Directions Served	TR	T
Maximum Queue (ft)	148	114
Average Queue (ft)	45	10
95th Queue (ft)	104	59
Link Distance (ft)	307	361
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	B670	B670	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	221	225	320	333	95	1516	1492	92	190	417	409	92
Average Queue (ft)	139	203	300	299	51	1014	1011	49	98	169	188	30
95th Queue (ft)	214	275	313	313	121	1500	1495	82	179	324	327	63
Link Distance (ft)			225	225		1493	1493			616	616	616
Upstream Blk Time (%)	0	3	42	46		0	2					
Queuing Penalty (veh)	0	0	419	465		2	18					
Storage Bay Dist (ft)	200	200			45			140	140			
Storage Blk Time (%)	1	8	42	47	1					17		
Queuing Penalty (veh)	6	67	158	73	5					29		

Intersection: 7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	L	L	T	T	R
Maximum Queue (ft)	183	234	240	174	169	184	274	216	108
Average Queue (ft)	34	110	152	88	43	103	153	91	62
95th Queue (ft)	130	197	217	173	123	174	225	197	93
Link Distance (ft)			259	259		382	382	382	
Upstream Blk Time (%)			0						
Queuing Penalty (veh)			0						
Storage Bay Dist (ft)	185	185			150			210	
Storage Blk Time (%)	0	2	4	0	0	2		0	
Queuing Penalty (veh)	0	3	5	0	0	2		0	

Intersection: 8: Shopping Ent/Safeway Ent & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	66	115	579	567	73	53	73	28	115	94	74	93
Average Queue (ft)	19	35	77	21	39	13	18	1	41	50	34	31
95th Queue (ft)	48	82	241	189	75	42	57	9	81	84	71	71
Link Distance (ft)		616	616	616		548	548	548		276		226
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150				175				120		30	
Storage Blk Time (%)									0		32	13
Queuing Penalty (veh)									0		10	5

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	68	489	472	16	162	206	310	55	112	147	110	155
Average Queue (ft)	25	169	177	4	70	74	104	21	20	39	56	153
95th Queue (ft)	47	371	372	15	134	184	253	53	57	98	111	158
Link Distance (ft)		548	548	548		1958	1958			399		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	255				315			440	130		60	105
Storage Blk Time (%)		3							0	4	16	95
Queuing Penalty (veh)		2							0	6	10	63

Intersection: 9: Greenway Dr/Lamar St & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	323	120
Average Queue (ft)	278	34
95th Queue (ft)	303	81
Link Distance (ft)	260	260
Upstream Blk Time (%)	97	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	T
Maximum Queue (ft)	149	255	290	53	87	181	170	54	95	125	290	158
Average Queue (ft)	65	101	117	11	32	84	106	18	20	63	145	42
95th Queue (ft)	114	201	221	32	73	153	174	43	62	107	266	109
Link Distance (ft)		532	532			1246	1246			199	286	286
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	180			425	100			950	45			
Storage Blk Time (%)		2			0	4			3	35		1
Queuing Penalty (veh)		3			0	2			3	12		2

Intersection: 10: Chase St & 120th Ave (SH 287)

Movement	SB
Directions Served	R
Maximum Queue (ft)	155
Average Queue (ft)	48
95th Queue (ft)	89
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	105
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 11: Frontage Rd & Chase St

Movement	EB	WB	SB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	78	79	31
Average Queue (ft)	30	40	1
95th Queue (ft)	56	61	10
Link Distance (ft)	289	179	199
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	B597	B597
Directions Served	L	L	T	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	245	510	1179	1145	300	420	445	936	899	237	382	364
Average Queue (ft)	89	305	613	629	199	304	337	456	426	94	41	37
95th Queue (ft)	187	622	1133	1140	431	506	545	939	863	186	203	201
Link Distance (ft)			1246	1246				828	828		864	864
Upstream Blk Time (%)								10	3			
Queuing Penalty (veh)								86	24			
Storage Bay Dist (ft)	460	460			250	395	395			450		
Storage Blk Time (%)			24	46		18	42	1	0			
Queuing Penalty (veh)			55	124		89	209	4	0			

Intersection: 12: Sheridan Blvd/Sheridan Blvd & 120th Ave (SH 287)

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	340	365	732	732	727	245	270	506	517
Average Queue (ft)	338	364	713	675	515	240	269	473	444
95th Queue (ft)	343	365	726	821	1028	257	270	488	505
Link Distance (ft)			693	693	693			454	454
Upstream Blk Time (%)			85	18	10			79	13
Queuing Penalty (veh)			0	0	0			0	0
Storage Bay Dist (ft)	315	315				220	220		
Storage Blk Time (%)	38	81	38			36	79	26	
Queuing Penalty (veh)	168	355	113			142	315	106	

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	EB	B597	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	T	L	T	T	R	L
Maximum Queue (ft)	192	309	311	278	319	42	778	520	1214	1252	640	161
Average Queue (ft)	85	112	100	100	123	8	26	495	993	982	83	94
95th Queue (ft)	153	206	263	255	276	29	256	594	1527	1549	330	153
Link Distance (ft)			864	864	864		828		1198	1198		
Upstream Blk Time (%)									7	9		
Queuing Penalty (veh)									68	81		
Storage Bay Dist (ft)	260	260				450		470			590	115
Storage Blk Time (%)			1					82	1	4		13
Queuing Penalty (veh)			1					584	2	9		30

Intersection: 13: Vrain St & 120th Ave (SH 287)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	R
Maximum Queue (ft)	342	160	145	170	413	160
Average Queue (ft)	74	57	137	168	396	52
95th Queue (ft)	186	107	169	171	407	110
Link Distance (ft)	393				378	
Upstream Blk Time (%)					76	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)		115	120	120		110
Storage Blk Time (%)	2	1	45	80	0	3
Queuing Penalty (veh)	6	1	96	170	0	14

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	B672	B672	NB	NB
Directions Served	L	T	T	T	R	L	T	TR	T	T	L	TR
Maximum Queue (ft)	50	249	264	326	31	355	1000	1000	254	226	134	251
Average Queue (ft)	5	109	129	147	11	200	394	415	12	9	53	74
95th Queue (ft)	26	232	237	272	33	372	928	947	93	78	99	149
Link Distance (ft)		1198	1198	1198	1198		928	928	964	964		403
Upstream Blk Time (%)							2	2				
Queuing Penalty (veh)							18	21				
Storage Bay Dist (ft)	150					305					85	
Storage Blk Time (%)		5					21				6	6
Queuing Penalty (veh)		0					31				11	3

Intersection: 14: Bradburn Blvd & 120th Ave (SH 287)

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	104	152
Average Queue (ft)	44	22
95th Queue (ft)	85	69
Link Distance (ft)		286
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)	4	
Queuing Penalty (veh)	1	

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	EB	EB	EB	EB	EB	B672	WB	WB	WB	WB	WB	B636
Directions Served	L	L	T	T	T	T	L	L	T	T	R	T
Maximum Queue (ft)	318	332	331	360	373	735	91	433	543	506	434	267
Average Queue (ft)	136	151	194	219	234	25	24	131	355	339	117	32
95th Queue (ft)	246	260	311	336	354	242	64	382	557	545	408	141
Link Distance (ft)			964	964	964	928			434	434		1340
Upstream Blk Time (%)								0	8	5	1	
Queuing Penalty (veh)								0	0	0	0	
Storage Bay Dist (ft)	400	400					400	400			415	
Storage Blk Time (%)					2				10	7	0	
Queuing Penalty (veh)					0				9	24	4	

Intersection: 15: Lowell Blvd & 120th Ave (SH 287)

Movement	B636	NB	NB	SB	SB	SB
Directions Served	T	L	T	L	L	T
Maximum Queue (ft)	287	31	114	385	953	114
Average Queue (ft)	30	7	44	338	559	39
95th Queue (ft)	155	28	90	430	941	84
Link Distance (ft)	1340		901		1046	1046
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		335		
Storage Blk Time (%)			3	44	56	
Queuing Penalty (veh)			3	70	90	

Intersection: 214: US 287 EB/US 287 & US 287 WB

Movement	WB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	135
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 6478

Network Totals

Number of Intersections	16
Queue Delay / Veh (s/v)	0
Total Delay (hr)	278
Stops (#)	20642
Average Speed (mph)	20
Total Travel Time (hr)	528
Distance Traveled (mi)	10637
Fuel Consumed (gal)	818
Fuel Economy (mpg)	13.0
Unserved Vehicles (#)	112
Vehicles in dilemma zone (#)	1074
Performance Index	334.9

HCM 6th Signalized Intersection Summary
7: Main St & 120th Ave (US 287)/120th Ave (SH 287)

2050 PM Peak Hour

No Action

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	381	1632	153	178	1095	165	144	339	179	198	309	292
Future Volume (veh/h)	381	1632	153	178	1095	165	144	339	179	198	309	292
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	401	1718	161	193	1190	179	169	399	0	254	396	374
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	407	1675	746	388	1662	741	249	421		279	447	378
Arrive On Green	0.23	0.47	0.47	0.22	0.47	0.47	0.03	0.22	0.00	0.04	0.24	0.24
Sat Flow, veh/h	1781	3554	1583	1781	3554	1584	3456	1870	1585	3456	1870	1579
Grp Volume(v), veh/h	401	1718	161	193	1190	179	169	399	0	254	396	374
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1584	1728	1870	1585	1728	1870	1579
Q Serve(g_s), s	31.4	66.0	8.5	13.3	37.5	9.5	4.0	29.4	0.0	6.0	28.6	33.1
Cycle Q Clear(g_c), s	31.4	66.0	8.5	13.3	37.5	9.5	4.0	29.4	0.0	6.0	28.6	33.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	407	1675	746	388	1662	741	249	421		279	447	378
V/C Ratio(X)	0.98	1.03	0.22	0.50	0.72	0.24	0.68	0.95		0.91	0.89	0.99
Avail Cap(c_a), veh/h	407	1675	746	388	1662	741	249	428		279	454	383
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.8	37.0	22.3	48.0	29.8	22.4	49.8	53.5	0.0	49.8	51.4	53.1
Incr Delay (d2), s/veh	40.4	28.7	0.7	0.3	2.3	0.7	6.1	30.2	0.0	31.0	17.7	43.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.5	34.3	3.4	5.9	16.1	3.7	1.3	17.4	0.0	2.9	15.7	17.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.1	65.7	23.0	48.4	32.1	23.0	55.8	83.6	0.0	80.8	69.1	96.1
LnGrp LOS	F	F	C	D	C	C	E	F		F	E	F
Approach Vol, veh/h	2280			1562			568			1024		
Approach Delay, s/veh	67.7			33.1			75.4			81.9		
Approach LOS	E			C			E			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.0	72.0	9.0	38.5	37.0	72.0	11.0	36.5				
Change Period (Y+Rc), s	6.0	* 6	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	* 66	4.0	34.0	32.0	49.0	6.0	32.0				
Max Q Clear Time (g_c+I1), s	15.3	0.0	6.0	30.6	33.4	0.0	8.0	31.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 61.2

HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Appendix D

Cost Estimation

Project Name: US 287/120th Multimodal Study

Location of Project: US 287/Lowell Blvd

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 2 - South Pork Chop Islands
	Prepared By:	ANM
	Date Prepared:	6/15/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	70	\$840.00
2	202-Rem of Median Cover	SY	\$10.00	50	\$500.00
3	202-Rem of Sidewalk	SY	\$38.00	25	\$950.00
4	202- Rem of Curb and Gutter	LF	\$12.00	220	\$2,640.00
5	203-Excavation	CY	\$50.00	40	\$2,000.00
6	203-Embankment Material	CY	\$30.00	15	\$450.00
7	304-Aggregate Base Course	CY	\$70.00	15	\$1,050.00
8	403-Hot Mix Asphalt	TON	\$120.00	20	\$2,400.00
9	608-Concrete Sidewalk	SY	\$100.00	30	\$3,000.00
10	609-Curb and Gutter	LF	\$45.00	220	\$9,900.00
11	610-Median Cover Material	SF	\$16.00	550	\$8,800.00
12	614-Traffic Signal Equipment	LS	\$350,000.00	1	\$350,000.00
13	614-Intersection Detection Equipment	EA	\$15,000.00	4	\$60,000.00
Sub Total					\$442,530.00

PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)

\$442,530.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 2 - South Pork Chop Islands
	Prepared By:	ANM
	Date Prepared:	6/15/2023

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT	
FROM PAGE 1, BID ITEM TABULATION				\$442,530.00		
				\$442,530.00		
		% Range	% Used	Cost		
Project Construction Bid Items		Project Dependent	N / A	\$442,530.00	(A)	
Contingencies		(15 - 30%) of (A)	15.0%	\$66,379.50	(B)	
ITS		(6 - 10%) of (A)		\$0.00	(C)	
Drainage / Utilities		(3 - 10%) of (A)	8.0%	\$35,402.40	(D)	
Signing and Striping		(1 - 5%) of (A)	5.0%	\$22,126.50	(E)	
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$4,425.30	(F)	
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$22,126.50	(G)	
Mobilization		(4 - 7%) of (A)	5.0%	\$22,126.50	(H)	
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$615,116.70	(I)	
Force Account - Utilities		(1 - 2%) of I	2.0%	\$12,302.33	(J)	
Force Account - Misc.		(5 - 15%) of I	10.0%	\$61,511.67	(K)	
Subtotal of Construction Cost		(I+J+K)		\$688,930.70	(L)	
Total Construction Engineering		(17%) of L	17.0%	\$117,118.22	(M)	
Total Preliminary Engineering		(8%) of L	8.0%	\$55,114.46	(N)	
Utilities		Project Dependent	N / A	\$0.00	(O)	
Total Project Cost				\$861,000.00	(P)	

Project Name: US 287/120th Multimodal Study

Location of Project: US 287/Lowell Blvd

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 3 - Bus Stop Islands
	Prepared By:	ANM
	Date Prepared:	6/15/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	1,060	\$12,720.00
3	202-Rem of Median Cover	SY	\$10.00	140	\$1,400.00
4	202-Rem of Sidewalk	SY	\$38.00	330	\$12,540.00
5	202- Rem of Curb and Gutter	LF	\$12.00	1,300	\$15,600.00
6	203-Excavation	CY	\$50.00	275	\$13,750.00
7	203-Embankment Material	CY	\$30.00	90	\$2,700.00
8	304-Aggregate Base Course	CY	\$70.00	140	\$9,800.00
9	403-Hot Mix Asphalt	TON	\$120.00	140	\$16,800.00
11	608-Concrete Sidewalk	SY	\$100.00	360	\$36,000.00
12	609-Curb and Gutter	LF	\$45.00	1,400	\$63,000.00
13	610-Median Cover Material	SF	\$16.00	4,080	\$65,280.00
14	614-Traffic Signal Equipment	LS	\$700,000.00	1	\$700,000.00
15	614-Intersection Detection Equipment	EA	\$15,000.00	4	\$60,000.00
Sub Total					\$1,009,590.00

PROJECT CONSTRUCTION BID ITEMS **\$1,009,590.00**
ROW (Sq. Ft.)

- NOTES:
- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
 - * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
 - * Assumed 6" depth Concrete Sidewalk over 4" ABC
 - * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
 - * Quantity of excavation assumed to be 24" for R material excavation
 - * Assumed concrete section of 9" over 6" ABC
 - * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Project Name: US 287/120th Multimodal Study

Location of Project: US 287/Lowell Blvd

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 3 - Bus Stop Islands
	Prepared By:	ANM
	Date Prepared:	6/15/2023

Item	Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT	
FROM PAGE 1, BID ITEM TABULATION			\$1,009,590.00		
			\$1,009,590.00		
	% Range	% Used	Cost		
Project Construction Bid Items	Project Dependent	N / A	\$1,009,590.00	(A)	
Contingencies	(15 - 30%) of (A)	15.0%	\$151,438.50	(B)	
ITS	(6 - 10%) of (A)	7.5%	\$75,719.25	(C)	
Drainage / Utilities	(3 - 10%) of (A)	10.0%	\$100,959.00	(D)	
Signing and Striping	(1 - 5%) of (A)	5.0%	\$50,479.50	(E)	
Clearing & Grubbing	(1 - 5%) of (A)	1.0%	\$10,095.90	(F)	
Construction Signing & Traffic Control	(5 - 25%) of (A)	5.0%	\$50,479.50	(G)	
Mobilization	(4 - 7%) of (A)	5.0%	\$50,479.50	(H)	
Total of Construction Bid Items	(A+B+C+D+E+F+G+H)		\$1,499,241.15	(I)	
Force Account - Utilities	(1 - 2%) of I	2.0%	\$29,984.82	(J)	
Force Account - Misc.	(5 - 15%) of I	10.0%	\$149,924.12	(K)	
Subtotal of Construction Cost	(I+J+K)		\$1,679,150.09	(L)	
Total Construction Engineering	(17%) of L	17.0%	\$285,455.52	(M)	
Total Preliminary Engineering	(8%) of L	8.0%	\$134,332.01	(N)	
Utilities	Project Dependent	N / A	\$0.00	(O)	
Total Project Cost			\$2,099,000.00	(P)	

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Project Name: US 287/120th Multimodal Study

Location of Project: US 287/St Vrain

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 2 - Bike Boxes
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	2,200	\$26,400.00
2	403-Hot Mix Asphalt	TON	\$120.00	200	\$24,000.00
3	614-Intersection Detection Equipment	EA	\$12,000.00	4	\$48,000.00
4	627-Pavement Marking Paint	GAL	\$60.00	20	\$1,200.00
5	627-Thermoplastic Pavement Marking	SF	\$60.00	440	\$26,400.00
6					
7					
8					
9					
10					
11					
12					
13					
Sub Total					\$126,000.00

PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)

\$126,000.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Location of Project: US 287/ Vrain St

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT
FROM PAGE 1, BID ITEM TABULATION				\$126,000.00	
				\$126,000.00	
		% Range	% Used	Cost	
Project Construction Bid Items		Project Dependent	N / A	\$126,000.00	(A)
Contingencies		(15 - 30%) of (A)	15.0%	\$18,900.00	(B)
ITS		(6 - 10%) of (A)		\$0.00	(C)
Drainage / Utilities		(3 - 10%) of (A)	8.0%	\$10,080.00	(D)
Signing and Striping		(1 - 5%) of (A)	5.0%	\$6,300.00	(E)
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$1,260.00	(F)
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$6,300.00	(G)
Mobilization		(4 - 7%) of (A)	5.0%	\$6,300.00	(H)
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$175,140.00	(I)
Force Account - Utilities		(1 - 2%) of I	2.0%	\$3,502.80	(J)
Force Account - Misc.		(5 - 15%) of I	10.0%	\$17,514.00	(K)
Subtotal of Construction Cost		(I+J+K)		\$196,156.80	(L)
Total Construction Engineering		(17%) of L	17.0%	\$33,346.66	(M)
Total Preliminary Engineering		(8%) of L	8.0%	\$15,692.54	(N)
Utilities		Project Dependent	N / A	\$0.00	(O)
Total Project Cost				\$245,000.00	(P)

Project Name: US 287/120th Multimodal Study

Location of Project: Sheridan Blvd/US 287

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 2 - Detached Left
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	1,600	\$19,200.00
2	202-Rem of Conc Pavement	SY	\$16.00	560	\$8,960.00
3	202-Rem of Median Cover	SY	\$10.00	910	\$9,100.00
4	202-Rem of Sidewalk	SY	\$38.00	640	\$24,320.00
5	202- Rem of Curb and Gutter	LF	\$12.00	2,700	\$32,400.00
6	203-Excavation	CY	\$50.00	600	\$30,000.00
7	203-Embankment Material	CY	\$30.00	370	\$11,100.00
8	304-Aggregate Base Course	CY	\$70.00	3,500	\$245,000.00
9	403-Hot Mix Asphalt	TON	\$120.00	3,650	\$438,000.00
10	412-Concrete Pavement	SY	\$60.00	3,700	\$222,000.00
11	608-Concrete Sidewalk	SY	\$100.00	4,000	\$400,000.00
12	609-Curb and Gutter	LF	\$45.00	7,800	\$351,000.00
13	610-Median Cover Material	SF	\$16.00	16,800	\$268,800.00
14	614-Traffic Signal Equipment	LS	\$2,300,000.00	1	\$2,300,000.00
15	614-Intersection Detection Equipment	EA	\$12,000.00	6	\$72,000.00
Sub Total					\$4,431,880.00

PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)

\$4,431,880.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Location of Project: Sheridan Blvd/US 287

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT
FROM PAGE 1, BID ITEM TABULATION				\$4,431,880.00	
				\$4,431,880.00	
		% Range	% Used	Cost	
Project Construction Bid Items		Project Dependent	N / A	\$4,431,880.00	(A)
Contingencies		(15 - 30%) of (A)	15.0%	\$664,782.00	(B)
ITS		(6 - 10%) of (A)	7.5%	\$332,391.00	(C)
Drainage / Utilities		(3 - 10%) of (A)	8.0%	\$354,550.40	(D)
Signing and Striping		(1 - 5%) of (A)	5.0%	\$221,594.00	(E)
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$44,318.80	(F)
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$221,594.00	(G)
Mobilization		(4 - 7%) of (A)	5.0%	\$221,594.00	(H)
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$6,492,704.20	(I)
Force Account - Utilities		(1 - 2%) of I	2.0%	\$129,854.08	(J)
Force Account - Misc.		(5 - 15%) of I	10.0%	\$649,270.42	(K)
Subtotal of Construction Cost		(I+J+K)		\$7,271,828.70	(L)
Total Construction Engineering		(17%) of L	17.0%	\$1,236,210.88	(M)
Total Preliminary Engineering		(8%) of L	8.0%	\$581,746.30	(N)
Utilities		Project Dependent	N / A	\$0.00	(O)
Total Project Cost				\$9,090,000.00	(P)

Project Name: US 287/120th Multimodal Study

Location of Project: Sheridan Blvd/US 287

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 3 - Standard Lane Restriping
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	6,300	\$75,600.00
2	403-Hot Mix Asphalt	TON	\$120.00	530	\$63,600.00
3	614-Traffic Signal Equipment	LS	\$2,000.00	1	\$2,000.00
4	614-Intersection Detection Equipment	EA	\$12,000.00	4	\$48,000.00
5	627-Pavement Marking Paint	GAL	\$60.00	40	\$2,400.00
Sub Total					\$191,600.00

PROJECT CONSTRUCTION BID ITEMS

ROW (Sq. Ft.)

\$191,600.00

- NOTES:
- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
 - * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
 - * Assumed 6" depth Concrete Sidewalk over 4" ABC
 - * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
 - * Quantity of excavation assumed to be 24" for R material excavation
 - * Assumed concrete section of 9" over 6" ABC
 - * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Project Name: US 287/120th Multimodal Study

Location of Project: Sheridan Blvd/US 287

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 3 - Standard Lane Restriping
	Prepared By:	ANM
	Date Prepared:	6/6/2023

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT	
FROM PAGE 1, BID ITEM TABULATION				\$191,600.00		
				\$191,600.00		
		% Range	% Used	Cost		
Project Construction Bid Items		Project Dependent	N / A	\$191,600.00	(A)	
Contingencies		(15 - 30%) of (A)	15.0%	\$28,740.00	(B)	
ITS		(6 - 10%) of (A)	7.5%	\$14,370.00	(C)	
Drainage / Utilities		(3 - 10%) of (A)	0.0%	\$0.00	(D)	
Signing and Striping		(1 - 5%) of (A)	5.0%	\$9,580.00	(E)	
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$1,916.00	(F)	
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$9,580.00	(G)	
Mobilization		(4 - 7%) of (A)	5.0%	\$9,580.00	(H)	
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$265,366.00	(I)	
Force Account - Utilities		(1 - 2%) of I	2.0%	\$5,307.32	(J)	
Force Account - Misc.		(5 - 15%) of I	15.0%	\$39,804.90	(K)	
Subtotal of Construction Cost		(I+J+K)		\$310,478.22	(L)	
Total Construction Engineering		(17%) of L	17.0%	\$52,781.30	(M)	
Total Preliminary Engineering		(8%) of L	8.0%	\$24,838.26	(N)	
Utilities		Project Dependent	N / A	\$0.00	(O)	
Total Project Cost				\$388,000.00	(P)	

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Project Name: US 287/120th Multimodal Study

Location of Project: Main St/US 287

Engineers (Semi) Detailed Estimate (FY 21 Cost Index)	Alternative:	Alternative 2 - Extend East Left Turn Lane
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	627-Pavement Marking Paint	GAL	\$60.00	10	\$600.00
2	627-Thermoplastic Pavement Marking	SF	\$60.00	48	\$2,880.00
3	614-Intersection Detection Equipment	EA	\$12,000.00	4	\$48,000.00
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14					
Sub Total					\$51,480.00

**PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)**

\$51,480.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Location of Project: Main St/US 287

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT
FROM PAGE 1, BID ITEM TABULATION				\$51,480.00	
				\$51,480.00	
		% Range	% Used	Cost	
Project Construction Bid Items		Project Dependent	N / A	\$51,480.00	(A)
Contingencies		(15 - 30%) of (A)	15.0%	\$7,722.00	(B)
ITS		(6 - 10%) of (A)	0.0%	\$0.00	(C)
Drainage / Utilities		(3 - 10%) of (A)	8.0%	\$4,118.40	(D)
Signing and Striping		(1 - 5%) of (A)	2.0%	\$1,029.60	(E)
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$514.80	(F)
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$2,574.00	(G)
Mobilization		(4 - 7%) of (A)	5.0%	\$2,574.00	(H)
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$70,012.80	(I)
Force Account - Utilities		(1 - 2%) of I	2.0%	\$1,400.26	(J)
Force Account - Misc.		(5 - 15%) of I	5.0%	\$3,500.64	(K)
Subtotal of Construction Cost		(I+J+K)		\$74,913.70	(L)
Total Construction Engineering		(17%) of L	17.0%	\$12,735.33	(M)
Total Preliminary Engineering		(8%) of L	8.0%	\$5,993.10	(N)
Utilities		Project Dependent	N / A	\$0.00	(O)
Total Project Cost				\$94,000.00	(P)

Project Name: US 287/120th Multimodal Study

Location of Project: Main St/US 287

Engineers (Semi) Detailed Estimate (FY 21 Cost Index)	Alternative:	Alternative 3 - Ultimate
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	12,400	\$148,800.00
2	202-Rem of Conc Pavement	SY	\$16.00	180	\$2,880.00
3	202-Rem of Median Cover	SY	\$10.00	280	\$2,800.00
4	202-Rem of Sidewalk	SY	\$38.00	550	\$20,900.00
5	202- Rem of Curb and Gutter	LF	\$12.00	1,700	\$20,400.00
6	203-Excavation	CY	\$50.00	1,000	\$50,000.00
7	203-Embankment Material	CY	\$30.00	14	\$420.00
8	304-Aggregate Base Course	CY	\$70.00	320	\$22,400.00
9	403-Hot Mix Asphalt	TON	\$120.00	5,000	\$600,000.00
10	412-Concrete Pavement	SY	\$60.00	50	\$3,000.00
11	608-Concrete Sidewalk	SY	\$100.00	660	\$66,000.00
12	609-Curb and Gutter	LF	\$45.00	2,000	\$90,000.00
13	610-Median Cover Material	SF	\$16.00	650	\$10,400.00
14	614-Traffic Signal Equipment	LS	\$1,150,000.00	1	\$1,150,000.00
15	614-Intersection Detection Equipment	EA	\$12,000.00	4	\$48,000.00
Sub Total					\$2,236,000.00

PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)

\$2,236,000.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Location of Project: Main St/US 287

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT
FROM PAGE 1, BID ITEM TABULATION				\$2,236,000.00	
				\$2,236,000.00	
		% Range	% Used	Cost	
Project Construction Bid Items		Project Dependent	N / A	\$2,236,000.00	(A)
Contingencies		(15 - 30%) of (A)	15.0%	\$335,400.00	(B)
ITS		(6 - 10%) of (A)	7.5%	\$167,700.00	(C)
Drainage / Utilities		(3 - 10%) of (A)	10.0%	\$223,600.00	(D)
Signing and Striping		(1 - 5%) of (A)	5.0%	\$111,800.00	(E)
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$22,360.00	(F)
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$111,800.00	(G)
Mobilization		(4 - 7%) of (A)	5.0%	\$111,800.00	(H)
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$3,320,460.00	(I)
Force Account - Utilities		(1 - 2%) of I	2.0%	\$66,409.20	(J)
Force Account - Misc.		(5 - 15%) of I	15.0%	\$498,069.00	(K)
Subtotal of Construction Cost		(I+J+K)		\$3,884,938.20	(L)
Total Construction Engineering		(17%) of L	17.0%	\$660,439.49	(M)
Total Preliminary Engineering		(8%) of L	8.0%	\$310,795.06	(N)
Utilities		Project Dependent	N / A	\$0.00	(O)
Total Project Cost				\$4,856,000.00	(P)

Project Name: US 287/120th Multimodal Study

Location of Project: US 287CO 128 - Nickel Street to Upham Street

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 1 - Road Reconfig w/ Asphalt
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	27,200	\$326,400.00
2	202-Rem of Concrete Pavement	SY	\$16.00	40	\$640.00
3	202-Rem of Median Cover	SY	\$10.00	2,300	\$23,000.00
4	202-Rem of Sidewalk	SY	\$38.00	270	\$10,260.00
5	202- Rem of Curb and Gutter	LF	\$12.00	5,900	\$70,800.00
6	203-Excavation	CY	\$50.00	2,500	\$125,000.00
7	203-Embankment Material	CY	\$30.00	420	\$12,600.00
8	304-Aggregate Base Course	CY	\$70.00	3,400	\$238,000.00
9	403-Hot Mix Asphalt	TON	\$120.00	4,000	\$480,000.00
10	412-Concrete Pavement	SY	\$60.00	1,060	\$63,600.00
11	608-Concrete Sidewalk	SY	\$100.00	4,850	\$485,000.00
12	609-Curb and Gutter	LF	\$45.00	6,400	\$288,000.00
13	610-Median Cover Material	SF	\$16.00	19,100	\$305,600.00
14	614-Traffic Signal Equipment	LS	\$650,000.00	1	\$650,000.00
Sub Total					\$3,078,900.00

**PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)**

\$3,078,900.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Project Name: US 287/120th Multimodal Study

Location of Project: US 287CO 128 - Upham

Engineers (Semi) Detailed Estimate (FY 21 Cost Index)	Alternative:	Alternative 1 - Road Diet: With Asphalt
	Prepared By:	ANM
	Date Prepared:	6/6/2023

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT
FROM PAGE 1, BID ITEM TABULATION				\$3,078,900.00	
				\$3,078,900.00	
		% Range	% Used	Cost	
Project Construction Bid Items		Project Dependent	N / A	\$3,078,900.00	(A)
Contingencies		(15 - 30%) of (A)	15.0%	\$461,835.00	(B)
ITS		(6 - 10%) of (A)		\$0.00	(C)
Drainage / Utilities		(3 - 10%) of (A)	8.0%	\$246,312.00	(D)
Signing and Striping		(1 - 5%) of (A)	5.0%	\$153,945.00	(E)
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$30,789.00	(F)
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$153,945.00	(G)
Mobilization		(4 - 7%) of (A)	5.0%	\$153,945.00	(H)
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$4,279,671.00	(I)
Force Account - Utilities		(1 - 2%) of I	2.0%	\$85,593.42	(J)
Force Account - Misc.		(5 - 15%) of I	10.0%	\$427,967.10	(K)
Subtotal of Construction Cost		(I+J+K)		\$4,793,231.52	(L)
Total Construction Engineering		(17%) of L	17.0%	\$814,849.36	(M)
Total Preliminary Engineering		(8%) of L	8.0%	\$383,458.52	(N)
Utilities		Project Dependent	N / A	\$0.00	(O)
Total Project Cost				\$5,992,000.00	(P)

Project Name: US 287/120th Multimodal Study

Location of Project: US 287CO 128 - Nickel Street to Upham Street

Engineers (Semi) Detailed Estimate (FY 22 Cost Index)	Alternative:	Alternative 2- Upham Improvements
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	920	\$11,040.00
3	202-Rem of Median Cover	SY	\$10.00	60	\$600.00
4	202-Rem of Sidewalk	SY	\$38.00	290	\$11,020.00
5	202- Rem of Curb and Gutter	LF	\$12.00	220	\$2,640.00
6	203-Excavation	CY	\$50.00	100	\$5,000.00
7	203-Embankment Material	CY	\$30.00	15	\$450.00
8	304-Aggregate Base Course	CY	\$70.00	40	\$2,800.00
9	403-Hot Mix Asphalt	TON	\$120.00	80	\$9,600.00
11	608-Concrete Sidewalk	SY	\$100.00	320	\$32,000.00
12	609-Curb and Gutter	LF	\$45.00	230	\$10,350.00
13	610-Median Cover Material	SF	\$16.00	540	\$8,640.00
14					
Sub Total					\$94,140.00

PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)

\$94,140.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Location of Project: US 287CO 128 - Upham

Engineers (Semi) Detailed Estimate (FY 21 Cost Index)

Shaded Fields are for INPUT

Project Name: US 287/120th Multimodal Study

Location of Project: US 287CO 128 - Slip Ramp to Wadsworth Blvd

Engineers (Semi) Detailed Estimate (FY 21 Cost Index)	Alternative:	Alternative 1 - Signing & Striping
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem Ground Sign	EACH	\$160.00	1	\$160.00
2	614-Sign Panel	SF	\$30.00	32	\$960.00
3	614-Steel Sign Support (2-Inch Round) (Post)	EACH	\$400.00	2	\$800.00
4	627-Thermoplastic Pavement Marking	SF	\$60.00	15	\$900.00
5					
6					
7					
8					
9					
10					
11					
12					
13					
Sub Total					\$2,820.00

**PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)**

\$2,820.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Project Name: US 287/120th Multimodal Study

Location of Project: US 287CO 128 - Slip Ramp to Wadsworth Blvd

Engineers (Semi) Detailed Estimate (FY 21 Cost Index)	Alternative:	Alternative 2 - Conflicting Weave Mvmt
	Prepared By:	ANM
	Date Prepared:	6/6/2023

	Item		Unit Cost	Quantity	Cost
1	202-Rem of Asphalt Mat	SY	\$12.00	2,800	\$33,600.00
2	202-Rem of Conc Pavement	SY	\$16.00	300	\$4,800.00
3	202-Rem of Sidewalk	SY	\$38.00	220	\$8,360.00
4	202- Rem of Curb and Gutter	LF	\$12.00	900	\$10,800.00
5	203-Excavation	CY	\$50.00	320	\$16,000.00
6	304-Aggregate Base Course	CY	\$70.00	60	\$4,200.00
7	403-Hot Mix Asphalt	TON	\$120.00	250	\$30,000.00
8	608-Concrete Sidewalk	SY	\$100.00	140	\$14,000.00
9	609-Curb and Gutter	LF	\$45.00	790	\$35,550.00
Sub Total					\$157,310.00

PROJECT CONSTRUCTION BID ITEMS
ROW (Sq. Ft.)

\$157,310.00

NOTES:

- * Assumed 6" depth over 6" ABC for existing and new asphalt pavement and asphalt patching.
- * Assumed an application rate of 110 lbs/sy/in for asphalt quantities.
- * Assumed 6" depth Concrete Sidewalk over 4" ABC
- * Assumed 6" Concrete Median Cover Material over 7" Embankment Material for median construction.
- * Quantity of excavation assumed to be 24" for R material excavation
- * Assumed concrete section of 9" over 6" ABC
- * 614 Traffic Signal Equipment unit cost includes signal faces, pole and equipment necessary to make signal operational.

Location of Project: Slip Ramp at Wadsworth

Item		Unit Cost	Quantity	Extended Cost	Shaded Fields are for INPUT
FROM PAGE 1, BID ITEM TABULATION				\$157,310.00	
				\$157,310.00	
		% Range	% Used	Cost	
Project Construction Bid Items		Project Dependent	N / A	\$157,310.00	(A)
Contingencies		(15 - 30%) of (A)	15.0%	\$23,596.50	(B)
ITS		(6 - 10%) of (A)		\$0.00	(C)
Drainage / Utilities		(3 - 10%) of (A)	8.0%	\$12,584.80	(D)
Signing and Striping		(1 - 5%) of (A)	5.0%	\$7,865.50	(E)
Clearing & Grubbing		(1 - 5%) of (A)	1.0%	\$1,573.10	(F)
Construction Signing & Traffic Control		(5 - 25%) of (A)	5.0%	\$7,865.50	(G)
Mobilization		(4 - 7%) of (A)	5.0%	\$7,865.50	(H)
Total of Construction Bid Items		(A+B+C+D+E+F+G+H)		\$218,660.90	(I)
Force Account - Utilities		(1 - 2%) of I	2.0%	\$4,373.22	(J)
Force Account - Misc.		(5 - 15%) of I	10.0%	\$21,866.09	(K)
Subtotal of Construction Cost		(I+J+K)		\$244,900.21	(L)
Total Construction Engineering		(17%) of L	17.0%	\$41,633.04	(M)
Total Preliminary Engineering		(8%) of L	8.0%	\$19,592.02	(N)
Utilities		Project Dependent	N / A	\$0.00	(O)
Total Project Cost				\$306,000.00	(P)

Appendix E

Simulation Calibration

Traffic Volume Served

The microsimulation model was calibrated for volumes. The following model adjustments were made to ensure proper volume assignment:

- Review and refinement of merge areas on US 287/ 120th Ave to match field observations.
- Review and refinement of lane usage to match field observations.

The following guidelines must be met per CDOT's Microsimulation Model Calibration targets on Table 10 of the Traffic Analysis Forecasting Guidelines for 85% of traffic volumes:

- For <700 vph, within ± 100 vph of observed traffic volumes
- For 700 to 2,700 vph, within $\pm 15\%$ of observed traffic volumes
- For >2,700 vph, within ± 400 vph of observed traffic volumes

The tables below show the total volumes for the intersections along US 287 / 120th Ave for AM peak and PM peak periods.

AM Peak Period Traffic Volume Served						
ID	Location	Count	Model	Diff	% Diff	Test
1	US 287 and Midway Blvd	4794	4882	-88	-1.84%	Pass
2	US 287 and Ramps	4870	4962	-92	-1.89%	Pass
3	US 287 and Nickle St	1584	1607	-23	-1.45%	Pass
4	Nickle St and 3rd Ave	381	381	0	0.00%	Pass
5	US 287 and Laurel st	1292	1348	-56	-4.33%	Pass
6	120th Ave and Upham St	2996	3027	-31	-1.03%	Pass
7	120th Ave and Main St	3613	3636	-23	-0.64%	Pass
8	120th Ave and Shopping	2731	2753	-22	-0.81%	Pass
9	120th Ave and Lamar St/Greenway Dr	2983	3002	-19	-0.64%	Pass
10	120th Ave and Chase St	3066	3113	-47	-1.53%	Pass
11	Chase St and Frontage Rd	123	123	0	0.00%	Pass
12	120th Ave and Sheridan Blvd	4764	4841	-77	-1.62%	Pass
13	120th Ave and Vrain St	3209	3319	-110	-3.43%	Pass
14	120th Ave and Bradburn Blvd	3326	3326	0	0.00%	Pass
15	120th Ave and Lowell Blvd	4001	4032	-31	-0.77%	Pass

PM Peak Period Traffic Volume Served						
ID	Location	Count	Model	Diff	% Diff	Test
1	US 287 and Midway Blvd	4959	5052	-93	-1.88%	Pass
2	US 287 and Ramps	4759	4843	-84	-1.77%	Pass
3	US 287 and Nickle St	1750	1772	-22	-1.26%	Pass
4	Nickle St and 3rd Ave	581	581	0	0.00%	Pass
5	US 287 and Laurel st	1292	1303	-11	-0.85%	Pass
6	120th Ave and Upham St	3178	3196	-18	-0.57%	Pass
7	120th Ave and Main St	3882	3962	-80	-2.06%	Pass
8	120th Ave and Shopping	3082	3102	-20	-0.65%	Pass
9	120th Ave and Lamar St/Greenway Dr	3366	3407	-41	-1.22%	Pass
10	120th Ave and Chase St	3419	3563	-144	-4.21%	Pass
11	Chase St and Frontage Rd	308	309	-1	-0.32%	Pass
12	120th Ave and Sheridan Blvd	5815	5815	0	0.00%	Pass
13	120th Ave and Vrain St	4344	4474	-130	-2.99%	Pass
14	120th Ave and Bradburn Blvd	4049	4097	-48	-1.19%	Pass
15	120th Ave and Lowell Blvd	4748	4748	0	0.00%	Pass

The below table shows the movement volumes for AM peak period.

Intersection	Approach	Count Volumes			Model Volumes			Difference			% Difference		
		L	T	R	L	T	R	L	T	R	L	T	R
US 287 / Midway Blvd (Signal)	NB	272	1445	226	239	1524	221	-33	79	-5	-12%	5%	-2%
	SB	97	1656	43	78	1642	38	-19	-14	-5	-20%	-1%	-12%
	EB	20	58	182	22	60	181	2	2	-1	10%	3%	-1%
	WB	468	195	132	504	202	129	36	7	-3	8%	4%	-2%
US 287 / Wadsworth Blvd Ramps	NB	102	1954	0	100	1911	0	-2	-43	0	-2%	-2%	0%
	SB	0	2055	241	0	2069	242	0	14	1	0%	1%	0%
	EB	0	0	518	0	0	497	0	0	-21	0%	0%	-4%
	WB	0	0	0	0	0	0	0	0	0	0%	0%	0%
US 287 / Nickel St (Signal)	NB	62	51	75	57	59	81	-5	8	6	-8%	16%	8%
	SB	42	73	42	38	80	37	-4	7	-5	-10%	10%	-12%
	EB	4	235	114	5	214	125	1	-21	11	25%	-9%	10%
	WB	173	643	70	187	632	64	14	-11	-6	8%	-2%	-9%
Nickel St / 3rd Ave	NB	0	123	9	0	123	16	0	0	7	0%	0%	78%
	SB	37	141	0	33	121	0	-4	-20	0	-11%	-14%	0%
	EB	0	0	0	0	0	0	0	0	0	0%	0%	0%
	WB	32	0	39	34	0	50	2	0	11	6%	0%	28%
US 287 / Laurel St	NB	0	0	0	0	0	0	0	0	0	0%	0%	0%
	SB	14	0	32	11	0	41	-3	0	9	-21%	0%	28%
	EB	7	341	0	6	324	0	-1	-17	0	-14%	-5%	0%
	WB	0	861	16	0	899	14	0	38	-2	0%	4%	-13%
US 287 / Upham St (Signal)	NB	53	48	15	52	42	11	-1	-6	-4	-2%	-13%	-27%
	SB	300	43	32	283	37	29	-17	-6	-3	-6%	-14%	-9%
	EB	14	557	62	18	587	80	4	30	18	29%	5%	29%
	WB	31	953	888	28	1005	870	-3	52	-18	-10%	5%	-2%
	NB	182	193	84	175	180	87	-7	-13	3	-4%	-7%	4%
	SB	188	188	196	209	182	175	21	-6	-21	11%	-3%	-11%

Intersection	Approach	Count Volumes			Model Volumes			Difference			% Difference		
		L	T	R	L	T	R	L	T	R	L	T	R
120th Ave / Main St (Signal)	EB	72	705	72	63	752	71	-9	47	-1	-13%	7%	-1%
	WB	82	1523	128	104	1562	133	22	39	5	27%	3%	4%
120th Ave / Shopping Entrance (Signal)	NB	6	0	5	3	0	7	-3	0	2	-50%	0%	40%
	SB	4	0	12	3	0	17	-1	0	5	-25%	0%	42%
	EB	8	951	14	5	997	19	-3	46	5	-38%	5%	36%
	WB	9	1706	16	13	1790	17	4	84	1	44%	5%	6%
120th Ave / Lamar St / Greenway Dr (Signal)	NB	32	46	49	38	41	69	6	-5	20	19%	-11%	41%
	SB	24	27	39	21	19	51	-3	-8	12	-13%	-30%	31%
	EB	64	875	22	70	913	18	6	38	-4	9%	4%	-18%
	WB	48	1678	79	58	1744	67	10	66	-12	21%	4%	-15%
120th Ave / Chase St (Signal)	NB	26	24	14	30	26	15	4	2	1	15%	8%	7%
	SB	103	14	149	101	15	135	-2	1	-14	-2%	7%	-9%
	EB	63	839	17	75	922	17	12	83	0	19%	10%	0%
	WB	20	1649	148	25	1719	138	5	70	-10	25%	4%	-7%
Chase St / Frontage Rd	NB	0	0	0	0	0	0	0	0	0	0%	0%	0%
	SB	43	0	16	37	0	21	-6	0	5	-14%	0%	31%
	EB	4	0	0	3	0	0	-1	0	0	-25%	0%	0%
	WB	0	5	55	0	3	66	0	-2	11	0%	-40%	20%
120th Ave / Sheridan Blvd (Signal)	NB	325	577	221	314	571	232	-11	-6	11	-3%	-1%	5%
	SB	156	676	153	168	662	154	12	-14	1	8%	-2%	1%
	EB	83	661	136	89	776	138	6	115	2	7%	17%	1%
	WB	295	1357	124	298	1411	111	3	54	-13	1%	4%	-10%
120th Ave / Vrain St (Signal)	NB	36	22	53	44	18	66	8	-4	13	22%	-18%	25%
	SB	64	12	59	49	8	50	-15	-4	-9	-23%	-33%	-15%
	EB	75	957	41	77	996	51	2	39	10	3%	4%	24%
	WB	97	1675	118	86	1824	116	-11	149	-2	-11%	9%	-2%
	NB	29	3	106	39	10	122	10	7	16	34%	233%	15%

Intersection	Approach	Count Volumes			Model Volumes			Difference			% Difference		
		L	T	R	L	T	R	L	T	R	L	T	R
120th Ave / Bradburn Blvd (Signal)	SB	16	2	8	19	4	8	3	2	0	19%	100%	0%
	EB	9	1029	48	15	1062	44	6	33	-4	67%	3%	-8%
	WB	88	1963	25	86	1985	24	-2	22	-1	-2%	1%	-4%
120th Ave / Lowell Blvd (Signal)	NB	27	36	147	30	31	172	3	-5	25	11%	-14%	17%
	SB	237	74	267	233	81	283	-4	7	16	-2%	9%	6%
	EB	127	966	27	133	1036	21	6	70	-6	5%	7%	-22%
	WB	185	1725	183	166	1727	185	-19	2	2	-10%	0%	1%

The below table shows the movement volumes for PM peak period.

Intersection	Approach	Count Volumes			Model Volumes			Difference			% Difference		
		L	T	R	L	T	R	L	T	R	L	T	R
US 287 / Midway Blvd (Signal)	NB	129	1602	533	119	1743	517	-10	141	-16	-8%	9%	-3%
	SB	172	1586	18	160	1452	16	-12	-134	-2	-7%	-8%	-11%
	EB	47	121	265	38	100	172	-9	-21	-93	-19%	-17%	-35%
	WB	245	93	148	246	79	168	1	-14	20	0%	-15%	14%
US 287 / Wadsworth Blvd Ramps	NB	117	2267	0	118	2294	0	1	27	0	1%	1%	0%
	SB	0	1741	356	0	1613	323	0	-128	-33	0%	-7%	-9%
	EB	0	0	278	0	0	243	0	0	-35	0%	0%	-13%
	WB	0	0	0	0	0	0	0	0	0	0%	0%	0%
US 287 / Nickel St (Signal)	NB	117	155	227	102	149	252	-15	-6	25	-13%	-4%	11%
	SB	71	93	37	61	95	40	-10	2	3	-14%	2%	8%
	EB	12	349	118	10	319	115	-2	-30	-3	-17%	-9%	-3%
	WB	147	355	69	125	368	58	-22	13	-11	-15%	4%	-16%
Nickel St / 3rd Ave	NB	0	231	16	0	214	12	0	-17	-4	0%	-7%	-25%
	SB	96	162	0	91	159	0	-5	-3	0	-5%	-2%	0%
	EB	0	0	0	0	0	0	0	0	0	0%	0%	0%
	WB	30	0	46	28	0	59	-2	0	13	-7%	0%	28%

Intersection	Approach	Count Volumes			Model Volumes			Difference			% Difference		
		L	T	R	L	T	R	L	T	R	L	T	R
US 287 / Laurel St	NB	0	0	0	0	0	0	0	0	0	0%	0%	0%
	SB	18	0	11	21	0	12	3	0	1	17%	0%	9%
	EB	23	626	0	20	622	0	-3	-4	0	-13%	-1%	0%
	WB	0	581	20	0	548	18	0	-33	-2	0%	-6%	-10%
US 287 / Upham St (Signal)	NB	48	61	39	38	65	40	-10	4	1	-21%	7%	3%
	SB	603	58	31	601	64	27	-2	6	-4	0%	10%	-13%
	EB	28	1124	53	26	1076	50	-2	-48	-3	-7%	-4%	-6%
	WB	21	576	536	25	574	501	4	-2	-35	19%	0%	-7%
120th Ave / Main St (Signal)	NB	122	222	156	112	218	164	-10	-4	8	-8%	-2%	5%
	SB	168	212	122	152	231	124	-16	19	2	-10%	9%	2%
	EB	161	1398	130	144	1444	140	-17	46	10	-11%	3%	8%
	WB	145	906	140	121	876	148	-24	-30	8	-17%	-3%	6%
120th Ave / Shopping Entrance (Signal)	NB	33	4	66	39	4	73	6	0	7	18%	0%	11%
	SB	32	6	22	27	4	31	-5	-2	9	-16%	-33%	41%
	EB	29	1619	67	38	1572	67	9	-47	0	31%	-3%	0%
	WB	40	1139	25	38	1084	17	-2	-55	-8	-5%	-5%	-32%
120th Ave / Lamar St / Greenway Dr (Signal)	NB	26	28	93	35	30	96	9	2	3	35%	7%	3%
	SB	119	58	72	120	54	93	1	-4	21	1%	-7%	29%
	EB	54	1582	51	56	1554	62	2	-28	11	4%	-2%	22%
	WB	95	1118	70	79	1011	54	-16	-107	-16	-17%	-10%	-23%
120th Ave / Chase St (Signal)	NB	30	33	42	27	52	56	-3	19	14	-10%	58%	33%
	SB	156	37	137	147	38	125	-9	1	-12	-6%	3%	-9%
	EB	133	1466	75	136	1551	66	3	85	-9	2%	6%	-12%
	WB	38	1127	145	32	994	118	-6	-133	-27	-16%	-12%	-19%
Chase St / Frontage Rd	NB	0	0	0	0	0	0	0	0	0	0%	0%	0%
	SB	139	0	19	125	0	17	-14	0	-2	-10%	0%	-11%
	EB	36	13	0	34	11	0	-2	-2	0	-6%	-15%	0%
	WB	0	8	93	0	8	101	0	0	8	0%	0%	9%

Intersection	Approach	Count Volumes			Model Volumes			Difference			% Difference		
		L	T	R	L	T	R	L	T	R	L	T	R
120th Ave / Sheridan Blvd (Signal)	NB	263	771	423	262	683	388	-1	-88	-35	0%	-11%	-8%
	SB	364	697	110	260	482	52	-104	-215	-58	-29%	-31%	-53%
	EB	200	1267	236	196	1237	242	-4	-30	6	-2%	-2%	3%
	WB	337	880	267	294	813	251	-43	-67	-16	-13%	-8%	-6%
120th Ave / Vrain St (Signal)	NB	94	55	146	105	65	159	11	10	13	12%	18%	9%
	SB	319	59	128	323	71	123	4	12	-5	1%	20%	-4%
	EB	186	1651	94	173	1631	89	-13	-20	-5	-7%	-1%	-5%
	WB	151	1250	211	161	1252	202	10	2	-9	7%	0%	-4%
120th Ave / Bradburn Blvd (Signal)	NB	42	4	146	31	3	135	-11	-1	-11	-26%	-25%	-8%
	SB	43	7	10	49	5	10	6	-2	0	14%	-29%	0%
	EB	6	2008	54	6	1928	56	0	-80	2	0%	-4%	4%
	WB	126	1567	36	122	1583	47	-4	16	11	-3%	1%	31%
120th Ave / Lowell Blvd (Signal)	NB	10	37	85	5	34	76	-5	-3	-9	-50%	-8%	-11%
	SB	269	41	262	259	45	248	-10	4	-14	-4%	10%	-5%
	EB	323	1885	12	330	1773	7	7	-112	-5	2%	-6%	-42%
	WB	82	1445	297	95	1474	302	13	29	5	16%	2%	2%

Travel Time

The microsimulation model was calibrated for travel time. Overall travel time along the corridor varied from AM to PM peaks.

The following guidelines must be met per CDOT's Microsimulation Model Calibration targets on Table 10 of the Traffic Analysis Forecasting Guidelines for 85% of the travel times:

- Within ± 1 minute of observed travel times for routes less than 7 minutes
- Within 15% of observed travel times for routes more than 7 minutes

The tables below show the travel time for the intersections along US 287 / 120th Ave for AM peak and PM peak periods.

AM Peak Period Travel Time															
ID	Location	Direction	INRIX Travel Time				Model Travel Time				Difference in Travel Time				
			7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	
1	US 287 and Midway Blvd	Southbound	1.1	0.7	1.1	0.9	1.7	1.8	1.9	1.9	0.6	1.1	0.8	1	
		Northbound	4.1	5.4	6.1	3.8	3.8	4.1	2.5	4	-0.3	-1.3	-3.6	0.2	
3	US 287 and Nickle St to Upham St	Eastbound	0.04	0.04	0.04	0.04	0.1	0.1	0.1	0.1	0.06	0.06	0.06	0.06	
		Westbound	0.04	0.03	0.05	0.03	0.1	0.1	0.1	0.1	0.06	0.07	0.05	0.07	
7	120th Ave and Main St	Eastbound	1	1	1.6	0.9	0.5	0.7	0.6	0.6	-0.5	-0.3	-1	-0.3	
		Westbound	1.9	1.9	1.6	2.5	1.5	1.7	2	2	-0.4	-0.2	0.4	-0.5	
12	120th Ave and Sheridan Blvd	Eastbound	3	1.4	2	1.4	4	4.1	5.6	1.4	1	2.7	3.6	0	
		Westbound	1.9	1.6	2	2.4	1.2	1.4	1.1	2	-0.7	-0.2	-0.9	-0.4	
15	120th Ave and Lowell Blvd	Eastbound	0.4	0.4	0.3	0.3	0.6	0.7	0.6	0.6	0.2	0.3	0.3	0.3	
		Westbound	0.6	0.7	0.8	0.8	0.6	0.5	0.9	0.9	0	-0.2	0.1	0.1	
			Total Travel Time				55.91								
							Total Travel Time				58.3				
											Total Travel Time				2.39
											88% Meet Calibration				

PM Peak Period Travel Time																		
ID	Location	Direction	INRIX Travel Time				Model Travel Time				Difference in Travel Time							
			7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM				
1	US 287 and Midway Blvd	Southbound	0.5	0.1	0.3	0.1	0.6	0.1	0.2	0.2	0.1	0	-0.1	0.1				
		Northbound	2.8	3.1	4.5	2.9	1.3	4.3	4.2	4	-1.5	1.2	-0.3	1.1				
3	US 287 and Nickle St to Upham St	Eastbound	0.03	0.03	0.03	0.03	0.2	0.2	0.2	0.2	0.17	0.17	0.17	0.17				
		Westbound	0.03	0.03	0.03	0.03	0.1	0.1	0.1	0.1	0.07	0.07	0.07	0.07				
7	120th Ave and Main St	Eastbound	1	2.4	1.4	0.8	3.3	3.3	2.9	3.3	2.3	0.9	1.5	2.5				
		Westbound	1.9	1.5	1.4	1.9	2.1	2.1	1.9	2	0.2	0.6	0.5	0.1				
12	120th Ave and Sheridan Blvd	Eastbound	1.5	1.5	1.7	2.1	1.4	1.2	1.2	1.4	-0.1	-0.3	-0.5	-0.7				
		Westbound	1.7	1.8	2	1.6	2.5	2.2	2.6	2.6	0.8	0.4	0.6	1				
15	120th Ave and Lowell Blvd	Eastbound	0.3	0.3	0.3	0.3	0.4	0.3	0.5	0.5	0.1	0	0.2	0.2				
		Westbound	0.6	0.7	0.8	0.6	0.3	0.3	0.3	0.3	-0.3	-0.4	-0.5	-0.3				
			Total Travel Time				44.64											
							Total Travel Time				55							
											Total Travel Time				10.36			
											85% Meet Calibration							

Travel Speed

The microsimulation model was calibrated for volumes.

The following guidelines must be met per CDOT's Microsimulation Model Calibration targets on Table 10 of the Traffic Analysis Forecasting Guidelines for 85% of the travel speeds:

- Within ± 10 miles per hour (mph) of average observed speeds

The tables below show the travel speed for the intersections along US 287 / 120th Ave for AM peak and PM peak periods.

AM Peak Period Speed														
ID	Location	Direction	INRIX Speed				Model Speed				Difference in Speed			
			7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM
1	US 287 and Midway Blvd	Southbound	17	17	17	17	10	9	7	7	-7	-8	-10	-10
		Northbound	21	21	21	21	13	13	13	12	-8	-8	-8	-9
3	US 287 and Nickle St to Upham St	Eastbound	29	29	29	29	33	33	33	33	4	4	4	4
		Westbound	35	35	35	35	33	33	33	33	-2	-2	-2	-2
7	120th Ave and Main St	Eastbound	17	17	17	17	10	10	10	10	-7	-7	-7	-7
		Westbound	23	23	23	23	16	15	16	16	-7	-8	-7	-7
12	120th Ave and Sheridan Blvd	Eastbound	27	27	27	27	25	24	26	24	-2	-3	-1	-3
		Westbound	16	16	16	16	8	8	6	6	-8	-8	-10	-10
15	120th Ave and Lowell Blvd	Eastbound	26	26	26	26	23	20	21	21	-3	-6	-5	-5
		Westbound	29	29	29	29	20	20	20	21	-9	-9	-9	-8
												90% Meet Calibration		

PM Peak Period Speed														
ID	Location	Direction	INRIX Speed				Model Speed				Difference in Speed			
			7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM
1	US 287 and Midway Blvd	Southbound	24	24	24	24	24	24	20	26	0	0	-4	2
		Northbound	20	20	20	20	15	15	14	15	-5	-5	-6	-5
3	US 287 and Nickle St to Upham St	Eastbound	32	32	32	32	33	33	33	33	1	1	1	1
		Westbound	37	37	37	37	34	33	33	33	-3	-4	-4	-4
7	120th Ave and Main St	Eastbound	19	19	19	19	7	7	7	8	-12	-12	-12	-11
		Westbound	32	32	32	32	25	25	25	25	-7	-7	-7	-7
12	120th Ave and Sheridan Blvd	Eastbound	30	30	30	30	22	23	23	19	-8	-7	-7	-11
		Westbound	23	23	23	23	17	16	16	14	-6	-7	-7	-9
15	120th Ave and Lowell Blvd	Eastbound	27	27	27	27	27	26	33	29	0	-1	6	2
		Westbound	22	22	22	22	21	21	22	20	-1	-1	0	-2
												88% Meet Calibration		

Queue Length

The microsimulation model was calibrated for volumes.

The following guidelines must be met per CDOT's Microsimulation Model Calibration targets on Table 10 of the Traffic Analysis Forecasting Guidelines for 85% of observed maximum queue lengths:

- $\pm 20\%$ on arterials
- $\pm 30\%$ for movements ≤ 10 vph
- $\pm 35\%$ on freeways

The tables below show the queue lengths for the intersections along US 287 / 120th Ave for AM peak and PM peak periods.

AM Peak Queuing Information (feet)									
Intersection	Through			Left Turn			Right Turn		
	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
US 287 / Midway Blvd (Signal)	418	326	445	270	167	369	0	114	392
	586	576	638	195	126	220	0	373	620
	331	56	138	125	20	58	0	0	0
	431	267	447	0	322	464	0	0	0
US 287 / Wadsworth Blvd Ramps	1656	39	304	350	109	298	0	0	0
	418	9	252	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	10	69
US 287 / Nickel St (Signal)	223	33	104	0	25	63	0	2	21
	777	24	54	50	21	54	0	0	0
	136	47	99	0	4	29	0	31	58
	725	118	231	290	62	121	140	18	88
Nickel St / 3rd Ave	0	0	0	0	0	0	0	0	0
	0	0	0	45	4	31	0	0	0
	0	0	0	0	0	0	0	0	0
	0	34	63	0	0	0	0	0	0
US 287 / Laurel St	0	0	0	0	0	0	0	0	0
	206	29	72	0	0	0	0	0	0
	0	0	0	100	3	30	0	0	0
	0	0	0	100	0	0	0	0	0
US 287 / Upham St (Signal)	407	44	121	90	39	112	0	0	0
	309	44	148	0	116	226	0	0	0
	964	69	136	240	12	61	0	4	39
	1493	63	243	115	24	84	315	11	176
120th Ave / Main St (Signal)	265	170	286	185	121	234	185	23	235
	389	153	341	0	96	226	210	61	259

AM Peak Queuing Information (feet)									
Intersection	Through			Left Turn			Right Turn		
	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
	238	131	224	280	66	136	45	44	95
	621	246	449	140	81	190	0	24	64
120th Ave / Shopping Entrance (Signal)	282	5	31	120	7	38	0	0	0
	232	11	46	30	2	21	0	0	0
	621	3	42	150	5	42	0	0	0
	548	14	224	175	5	30	0	0	0
120th Ave / Lamar St / Greenway Dr (Signal)	400	30	107	130	26	98	60	23	91
	260	20	61	105	21	66	0	27	60
	548	52	128	255	38	121	0	2	16
	1958	101	240	315	27	71	440	12	46
120th Ave / Chase St (Signal)	241	29	71	45	24	55	0	0	0
	286	14	53	0	98	220	105	43	86
	532	44	140	180	34	105	425	1	14
	1246	153	237	100	8	33	950	19	51
Chase St / Frontage Rd	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	146	3	29	0	0	0	0	0	0
	112	29	55	0	0	0	0	0	0
120th Ave / Sheridan Blvd (Signal)	693	311	478	315	291	360	0	0	0
	454	265	448	220	150	270	0	0	0
	1246	119	202	460	48	91	0	0	0
	828	569	876	395	296	445	450	208	500
120th Ave / Vrain St (Signal)	393	21	72	115	36	93	115	27	56
	378	9	47	120	52	100	110	32	69
	864	68	172	260	41	85	450	6	46
	1198	201	422	470	96	166	590	23	249
120th Ave / Bradburn Blvd (Signal)	403	60	154	85	30	92	0	0	0
	266	12	60	85	17	71	0	0	0
	1198	86	220	150	9	43	0	10	49
	928	74	287	305	76	194	0	0	0
120th Ave / Lowell Blvd (Signal)	901	35	88	100	23	65	0	0	0
	1046	57	151	0	131	255	0	0	0
	964	161	247	400	66	126	0	0	0
	434	329	514	400	130	433	415	46	434

PM Peak Queuing Information (feet)									
Intersection	Through			Left Turn			Right Turn		
	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
US 287 / Midway Blvd (Signal)	418	295	456	270	141	370	0	199	478
	836	759	899	195	203	220	0	578	888
	331	328	368	125	84	150	210	156	235
	431	252	463	0	311	459	0	0	0
US 287 / Wadsworth Blvd Ramps	716	197	650	350	161	374	0	0	0
	418	21	293	0	0	0	0	15	132
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	11	67
US 287 / Nickel St (Signal)	223	95	199	0	43	119	0	17	104
	744	29	77	50	32	66	0	0	0
	135	62	142	0	7	36	0	31	59
	725	49	124	290	56	130	140	17	64
Nickel St / 3rd Ave	0	0	0	0	0	0	0	0	0
	372	1	28	45	17	50	0	0	0
	0	0	0	0	0	0	0	0	0
	0	34	68	0	0	0	0	0	0
US 287 / Laurel St	0	0	0	0	0	0	0	0	0
	214	22	53	0	0	0	0	0	0
	0	0	0	100	8	42	0	0	0
	0	0	0	100	0	0	0	0	0
US 287 / Upham St (Signal)	408	57	188	90	33	115	0	0	0
	307	47	170	0	250	380	0	0	0
	836	298	535	240	38	213	0	30	294
	1493	76	146	115	18	66	0	0	0
120th Ave / Main St (Signal)	265	190	296	185	110	234	185	50	235
	389	219	406	0	107	253	210	89	260
	238	290	333	280	202	237	45	45	95
	621	139	315	140	130	189	0	24	68
120th Ave / Shopping Entrance (Signal)	282	44	116	120	38	101	0	0	0
	232	25	84	30	28	71	0	0	0
	621	78	624	150	21	107	0	5	25
	548	24	123	175	36	101	0	1	26
120th Ave / Lamar St / Greenway Dr (Signal)	400	39	198	130	28	141	60	46	109
	260	92	272	105	106	154	0	39	110
	548	111	285	255	24	70	0	4	34
	1958	106	285	315	52	111	440	6	38
	199	80	212	45	27	94	0	0	0

PM Peak Queuing Information (feet)									
Intersection	Through			Left Turn			Right Turn		
	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
120th Ave / Chase St (Signal)	286	32	97	0	152	298	105	41	73
	532	96	360	180	67	216	425	5	33
	1246	91	235	100	22	69	950	22	68
Chase St / Frontage Rd	0	0	0	0	0	0	0	0	0
	199	4	56	0	0	0	0	0	0
	289	27	66	0	0	0	0	0	0
	179	42	106	0	0	0	0	0	0
120th Ave / Sheridan Blvd (Signal)	693	611	720	315	308	365	0	305	708
	454	473	505	220	269	270	0	0	0
	1246	294	738	460	149	453	250	139	300
	828	478	736	395	351	439	450	68	278
120th Ave / Vrain St (Signal)	393	65	221	115	83	162	115	55	161
	378	258	412	120	162	170	110	66	160
	864	86	276	260	93	237	450	6	40
	1198	424	933	470	325	493	590	106	453
120th Ave / Bradburn Blvd (Signal)	403	78	305	85	48	134	0	0	0
	286	18	88	85	53	104	0	0	0
	1198	131	318	150	5	43	0	8	42
	928	97	475	305	132	315	0	0	0
120th Ave / Lowell Blvd (Signal)	901	36	88	100	10	39	0	0	0
	1046	36	93	0	166	240	0	0	0
	964	207	355	400	126	209	310	4	119
	434	238	412	400	56	118	415	17	122



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