Pre-Concept Report

Happy Valley/Stamm/Garrity/Flamingo Traffic Improvements

Prepared for:

City of Nampa

and

Community Planning Association of Southwest Idaho

Prepared by:

Nampa, Idaho
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Introduction

The Community Planning Association of Southwest Idaho (COMPASS) retained HDR Engineering, Inc. (HDR) to conduct the pre-concept study for improvements to specific portions of Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard. **Figure 1** provides a vicinity map of the Project Area. Improvements must be made to accommodate growth planned for the area. St. Alphonsus is actively growing its Garrity campus into a complete regional medical center. All the while, development at the Nampa Gateway Center is anticipated to continue with additional residential and commercial development south of Stamm Lane. Collectively, growth from these and other area businesses threaten to overwhelm the functionality of Garrity Boulevard.

The City of Nampa is the sponsor for this potential federal-aid project to reconstruct the transportation system in the area. The existing system has a high crash rate and is expected to operate over capacity before 2040. To address the deficiencies of this system, the preferred alternative seeks to improve vehicle delay, safety, and access and connectivity to active transportation in the project area. A pre-concept level cost estimate and construction schedule for the preferred alternative are included in this report. The purpose of this report is to provide information to the City and COMPASS to assist with grant proposals and project programming.

Figure 1. Project Vicinity Map

Project Scope

Purpose and Need Statement

The purpose of the project is to improve operations, safety, and mobility for all modes of travel on the project streets and intersections including Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard.

This project addresses three primary needs:

1. **Inadequate intersection capacity.** The left turn movements at Garrity & Flamingo currently operate over capacity in the PM peak hour, which may cause queue spillbacks that threaten the performance of adjacent driveways, intersections, and the Interstate 84 (I-84) interchange. In addition, significant growth is expected in the near future. The project area is projected to operate severely over capacity by 2040.
2. **High crash rate and severity.** The crash rate at three of the project intersections is above the base crash rate for similar intersections, with the Happy Valley & Stamm intersection at three times the base rate. Crash severity at these intersections is significantly higher than crash severity at other similar intersections.
3. **Lack of active transportation connectivity.** The project area has a number of notable gaps in active transportation facilities. Sidewalk gaps exist on Garrity Boulevard, Stamm Lane, and Happy Valley Road, and no bicycle lanes exist within the project area. This is in spite of several contributors to active transportation demand, including a bus route along Garrity Boulevard, St. Alphonsus Medical Center, and low income residential housing just to the south of the project area.

Project Narrative

The City of Nampa is proposing operational improvements to Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard as a result of a joint 2012 Federal Highway Administration (FHWA) and Idaho Transportation Department (ITD) safety audit on Garrity Boulevard between the I-84 Garrity Interchange eastbound ramps and Stamm Lane. The audit was conducted because the area experiences high crash rates, particularly at the arterial intersections.

Several recommendations came from the audit findings including the need to examine and implement operational improvements at the intersections of Garrity Boulevard with Flamingo Avenue and Stamm Lane and the I-84 eastbound ramps. Since the audit, this area has experienced significant growth. Saint Alphonsus is expanding its Nampa campus into a complete regional medical center and the Nampa Gateway Center continues to add tenants and new buildings. Currently WinCo, a discount grocer, has built a new store on the east side of Garrity Boulevard north of Stamm Lane. Additionally, a new high density housing complex was recently completed south of Stamm Lane west of Happy Valley Road. Within the next decade the College of Western Idaho anticipates doubling its enrollment at its principal campus which will increase north/south overall travel demand through the area.

Recently ITD constructed an additional lane on Garrity Boulevard between Flamingo Avenue and I-84 that connects to an additional eastbound on-ramp lane to improve traffic operations in the area.

Likewise, St. Alphonsus has made development-related improvements to the Garrity Boulevard and Flamingo Avenue intersection. However, these improvements alone are not sufficient for improving safety in the area. Thus, in late 2015 and early 2016 the City conducted an analysis of various street and intersection improvement options involving Flamingo Avenue, Stamm Lane, and Happy Valley Road. The goal of the analysis was to identify operational improvements that could be made utilizing existing right-of-way.

Two alternatives were considered as part of the analysis. Alternative 1 proposed eliminating southbound (SB) to eastbound (EB) left turns at the intersection of Garrity Boulevard and Flamingo Avenue. The second alternative eliminated SB to EB left turns at the intersection by establishing a one-way couplet with Flamingo Avenue and Stamm Lane between Garrity Boulevard and Happy Valley Road. The preferred alternative was Alternative 2 based on a reduction in delay and improvement to level of service (LOS) given both existing conditions and the 2040 traffic forecasts for the area.

As the City began conducting stakeholder outreach with adjacent businesses and property owners specific to Alternative 2, two additional alternatives were identified. An “Alternative 3” was proposed by an adjacent property owner and it was not supported by the City of Nampa. Alternative 4 was proposed by the City in response to Alternative 3. Alternative 4 moves SB to EB left turning traffic from the Garrity Boulevard and Flamingo Avenue intersection to the Garrity Boulevard and Stamm Lane intersection by making Happy Valley Road one-way northbound between Flamingo Avenue and Stamm Lane. It also provides additional operational improvements to the block as needed. Alternative 4 replaced Alternative 2 as the preferred alternative in late 2016. Improvements identified as part of the preferred alternative were identified for implementation in the short-term (the next 5 years) and the long term (by the year 2040).

Strategic Goals and Performance Measures

The following performance measures are recommended for the project in accordance with *Communities in Motion 2040* (CIM), the area’s Regional Long Range Transportation Plan:

- Transportation/Congestion Reduction (CIM Performance Measure 6)
- Transportation/Freight Movement and Economic Vitality (CIM Performance Measures 14)
- Transportation/Safety (CIM Performance Measures 15-24)
- System Reliability (CIM Performance Measures 26 and 28)
- Health (CIM Performance Measure 47)

The measurable variables that quantify the above measures include:

- Delay (i.e. Travel Time)
- Crashes
- Pedestrian level of service
- Connectivity to commercial centers and health services

Given the identified performance measures and variables pertaining to them, the strategic goals for the project are:

- Reduce the crash rate in the area by 20%.
    - This value is based on the crash rate reductions anticipated after the project is complete.
- Improve pedestrian level of service in the area by one level.
- Reduce current vehicle delay in the area by a 12% average across the four signalized intersections in the area.
- Improve the quality of bicycle and pedestrian connectivity to WinCo and the Gateway Commercial Center.
- Improve the quality of the bicycle and pedestrian connectivity to destinations north of I-84.

Project Description

The preferred alternative (Alternative 4) makes improvements to three of the four intersections in the project area; Garrity Boulevard at Stamm Lane, Stamm Lane at Happy Valley Road, and Flamingo Avenue at Happy Valley Road. In addition to improvements at these intersections, Happy Valley Road is modified to become one-way northbound, two signalized pedestrian crossings are added, and bicycle/pedestrian facilities are improved in the area. The project area includes:

- Approximately 1,700 ft of Garrity Boulevard with a northern terminus 400 ft northeast of Flamingo Avenue (MP 61.599) and a southern terminus approximately 500 ft southwest of Stamm Lane (MP 61.28).
- Approximately 2,000 ft of Happy Valley Road with a northern terminus at the intersection with E. Commerce Street and a southern terminus approximately 1,000 ft south of Stamm Lane.
- Approximately 1,200 ft of Flamingo Avenue with an eastern terminus approximately 230 ft east of Happy Valley Road and a western terminus approximately 225 ft northwest of Garrity Boulevard.
- Approximately 1,600 ft of Stamm Lane with an eastern terminus 300 ft east of Happy Valley Road and a western terminus 140 ft northwest of Garrity Boulevard.

Specifically, the City of Nampa proposes to construct the following improvements on Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard to improve operations, safety, and mobility.

1. Widen northbound Garrity Boulevard between Flamingo Avenue and Stamm Lane (approximately 340 feet) to convert the dedicated northbound right turn lane into a shared through travel lane/right turn lane connecting to the I-84 eastbound on-ramp.
    a. Remove and replace sidewalk along this segment of Garrity Boulevard.
    b. Update pavement markings, signs, and traffic signal indications to accommodate these improvements.
2. Widen the intersection of Stamm Lane with Garrity Boulevard.
    a. Add a second southbound left turn lane to Stamm Lane.

   b. Update pavement markings, signing, and traffic signal indications to convert the northbound dedicated right turn lane into a shared through travel lane/right turn lane connecting to the I-84 eastbound on-ramp.

3. Construct concrete median on Garrity Boulevard south of Stamm Lane to provide access management on this segment.
   a. Add raised concrete or landscaped median across the full width of the existing two way left turn lane and along the northbound left turn lane.
   b. Provide left turn lanes in the median at Comstock Avenue and Jacob Alcott Way.
4. Widen Stamm Lane between Happy Valley Road and Garrity Boulevard from two to three lanes to allow for two eastbound travel lanes and one westbound travel lane.
   a. Add curb, gutter, and sidewalk to the south side of Stamm Lane between Happy Valley Road and Garrity Boulevard as well as a signalized midblock pedestrian crossing.
5. Reconstruct approximately 370 feet of Happy Valley Road to operate as a one-way northbound roadway with two northbound travel lanes between Stamm Lane and Flamingo Avenue.
   a. Remove two southbound travel lanes and a southbound left turn lane at the intersection of Happy Valley with Stamm Lane.
   b. Extend active transportation facilities on the north side of Flamingo Avenue, install a signalized midblock pedestrian crossing on Happy Valley Road north of Flamingo Avenue, add sidewalk from Happy Valley Road along the Jimmy Johns building to the crossing at the I-84 eastbound on ramp, and update signing and pavement markings to guide active transportation users.
6. Improve and reconfigure the intersection of Happy Valley and Stamm Lane to accommodate one-way traffic on Happy Valley Road north of Stamm Lane.
   a. Terminate the proposed second eastbound lane on Stamm Lane with an eastbound to southbound dedicated right turn lane.
   b. Add a westbound to northbound right turn lane.
   c. Reconfigure the north leg of the intersection to accommodate one-way northbound travel.
   d. Update pavement markings, signs, and reconfigure the traffic signal indications to accommodate these improvements.
7. Reconstruct the intersection of Happy Valley Road with Flamingo Avenue to accommodate the one-way Happy Valley Road south of Flamingo Avenue.
   a. Remove the eastbound to southbound free-right turn lane.
   b. Reconfigure the south leg of the intersection to accommodate one-way northbound travel on Happy Valley Road.
   c. Extend the concrete island on the east leg of the intersection to remove the westbound to southbound dedicated left turn lane.
   d. Extend the median curb on the Flamingo Avenue west leg to Garrity Boulevard.

e. Reconfigure the traffic signal to accommodate one-way northbound travel on Happy Valley Road.

8. Retime all signals to optimize performance and coordinate with signals along the Garrity Boulevard corridor.

Additional improvements that may be incorporated in the future include:

1. Widen the intersection of Garrity Boulevard and Flamingo Avenue.
    a. Reconstruct the southbound leg to provide three southbound through lanes and a dedicated southbound right turn lane.
    b. Add a third receiving lane to southbound Garrity Boulevard terminating as a southbound left turn lane at Stamm lane OR continue that lane through the Stamm Lane intersection.
2. Widen the intersection of Garrity Boulevard and Stamm Lane:
    a. Add a second westbound left turn lane on Stamm Lane at Garrity Boulevard and make the movement protected only.
3. Widen the intersection of Happy Valley Road and Stamm Lane:
    a. Add a northbound left turn lane on Happy Valley Road; OR
    b. Add a northbound right turn lane on Happy Valley Road; OR
    c. Add a westbound left turn lane on Stamm Lane.
4. Retime all signals to optimize performance and coordinate with signals along the Garrity Boulevard corridor.

Existing Conditions

Land Use

Land use within the project area transitions from large lot commercial developments in the north and west to residential developments to the south and east. North of the project area, I-84 feeds traffic to the area's principal arterial, Garrity Boulevard. Saint Alphonsus Regional Medical Center is located west of Garrity Boulevard and WinCo and the Nampa Gateway Center are located to the east and comprise the large lot commercial developments in the area. Several small commercial developments also lie along Garrity Boulevard.

Stamm Lane is a boundary between commercial land uses to the north and residential land uses to the south.

Streets and Intersections

Garrity Boulevard (I-84 Business Loop) is an urban five-lane street with curb, gutter and sidewalk functionally classified as a principal arterial within the project limits. The posted speed limit is 35 miles per hour (mph). The street widens to provide dedicated right turn lanes for northbound right turns at the Stamm Lane intersection and northbound and southbound right turns at the Flamingo

Avenue intersection. Width for dual northbound and southbound left turn lanes is provided at the Flamingo Avenue intersection as well.

Flamingo Avenue is an urban five-lane street with curb, gutter and sidewalk functionally classified as a minor arterial within the project limits. The posted speed limit is 25 mph. The street widens to provide dedicated right turn lanes and dedicated dual left turn lanes for eastbound and westbound movements on the east and west legs of the Garrity Boulevard intersection.

Happy Valley Road in the project area is an urban five-lane street with curb, gutter and sidewalk north of the intersection with Stamm Lane and an urban three-lane street with curb, gutter and sidewalk south of the intersection with Stamm Lane. It is functionally classified as a minor arterial within the project limits and has a posted speed limit of 35 mph. There are raised medians on the portion of the street north of Stamm Lane for access control purposes.

In the project area, Stamm Lane is an urban two-lane street with curb, gutter and sidewalk on the north side of the street functionally classified as a minor arterial within the project limits. The posted speed limit is 35 mph. The street widens to provide a westbound dedicated left turn lane at the intersection with Garrity Boulevard. The street also widens in front of the newly constructed apartments to provide a two-way left turn lane west of Happy Valley Road.

All of the arterial intersections included in the project area are signalized. **Figure 1** shows the streets in the project area.

Active Transportation Facilities

There are several potentially significant generators of pedestrian traffic within and near the project area, including:

- Saint Alphonsus Regional Medical Center
- WinCo
- Nampa Gateway Center with many shops and restaurants
- The residential developments south of Stamm
- College of Western Idaho, located about a mile north of the project

The closest schools are about two miles from the project area and are not likely to contribute to pedestrian traffic in the area.

Connectivity is a vital component to making active transportation facilities useful, and therefore the facilities leading into and out of the project area should also be considered. Garrity Boulevard has sidewalk on both sides south of Stamm Lane, connecting the project area to downtown Nampa. Similarly, Flamingo Avenue has sidewalk connecting to St. Alphonsus Medical Center to the west. To the north of Stamm Lane, there is sidewalk on the west side of Garrity Boulevard until the I-84 eastbound ramps, where a crosswalk accesses sidewalk on the east side of the road that leads north through the interchange. East of the project area, Stamm Lane has sidewalk on the north side adjacent to WinCo and the Gateway Center. All curb ramps for street crossings contain truncated domes and appear to be ADA compliant, although no measurements were taken for this report. Both intersections on Flamingo Avenue have marked crosswalks on all four approaches. There are marked crosswalks on the east, west, and south approaches at the Garrity Boulevard and Stamm Lane intersection and the north approach to the Happy Valley Road and Stamm Lane intersection. Active transportation facilities at the Happy Valley Road and Stamm Lane intersection include

sidewalk connections to adjacent sidewalk and ADA compliant pedestrian ramps in the southwest corner that will be installed with current construction in this area.

The gaps in active transportation facilities surrounding the project area are as follows:

- There are no bicycle facilities on any of the project streets.
- The east side of Happy Valley Road has no sidewalk south of Stamm Lane to Orchard Avenue, and neither side has sidewalk south of Orchard Avenue.
- The south side of Stamm Lane has no sidewalk west of the new apartment complex.
- There are no pedestrian crossings of Stamm Lane to access WinCo and Nampa Gateway Center between the signalized public street intersections, a distance of almost 0.25 miles.
- There is no sidewalk connection on the east side of Garrity Boulevard between Flamingo Avenue and the pedestrian crosswalk with rapid rectangular flashing beacons (RRFB) at the eastbound I-84 on ramp.
- There is a 50-foot gap in sidewalk from restaurants at the Gateway Center to the pedestrian crosswalk with RRFBs at the eastbound I-84 on ramp.
    - Pedestrians have created a de facto pathway through the undeveloped land and the ITD right-of-way fence to access the pedestrian crossing.

Public Transportation

ValleyRide Route 53 Nampa North travels between the Valley Regional Transit (VRT) Happy Day Transit Center (HDTC) in Caldwell through downtown Nampa and along Garrity Boulevard to the CWI Main Campus. There is a southbound bus stop just south of the Garrity Boulevard/Stamm Lane intersection. The Route 53 service connects users to several other ValleyRide routes at park and ride lots at the HDTC and the CWI Main Campus north of the Garrity Boulevard Interchange, providing access to other locations throughout the Treasure Valley.

Traffic Conditions

The existing conditions analyzed follow the street and intersection network and traffic volumes examined in late 2015 for the initial project area analysis completed for the City of Nampa *Traffic Improvement Alternatives Analysis for Stamm Lane/Flamingo Boulevard* (February 2016) as depicted in **Figure 2**.

As a result, ITD's recent modifications to the Garrity/Flamingo intersection, the Garrity/Stamm intersection, and the eastbound I-84 ramp terminal intersection are not included in the existing traffic analysis. These modifications are not expected to have a major impact on the analysis because the proposed improvements primarily affect the left turn movements. **Table 1** summarizes the AM and PM peak hour traffic operations analysis results at each signalized intersection for the 2015 existing conditions. Analysis was completed using Synchro, with detailed Synchro output included in **Appendix A**. This study uses LOS D as a minimum acceptable intersection LOS, with no movements operating above a 1.0 volume to capacity (v/c) ratio. All intersections are estimated to currently operate acceptably except for the left-turn movements at the Garrity/Flamingo intersection.

Figure 2. 2015 Existing Network

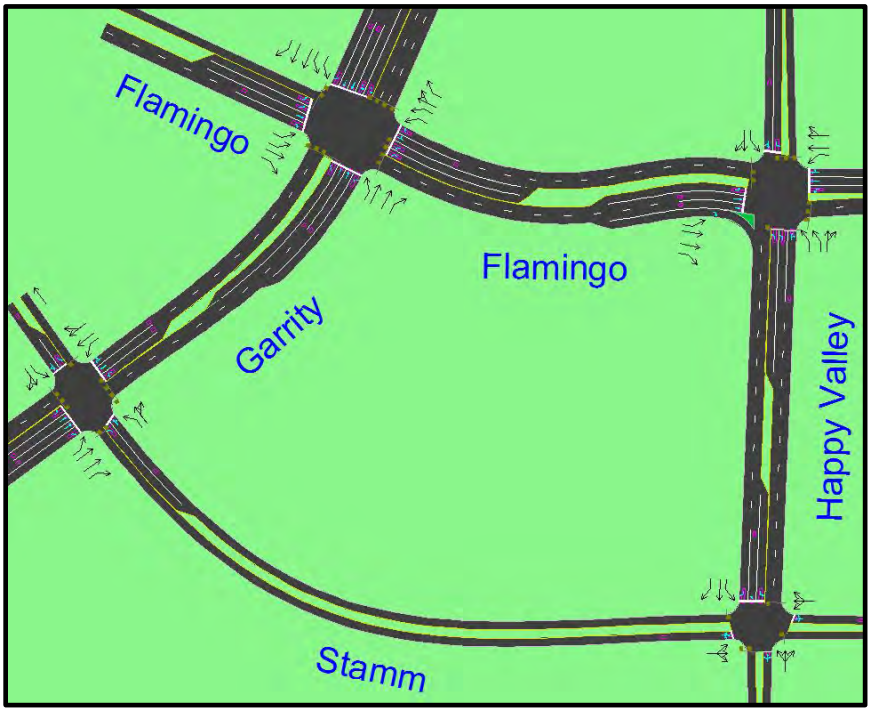


Table 1. Existing Conditions Analysis Results

Intersection	Performance Measures	2015 AM Peak	2015 PM Peak
		Existing	Existing
Garrity & Flamingo	***LOS - Delay***	**C – 27.1**	**D – 53.2**
	Max V/C - MVMT	0.81 - EBL	1.10 - SBL
Garrity & Stamm	***LOS - Delay***	**B – 16.1**	**B – 17.6**
	Max V/C - MVMT	0.87 - SBL	0.76 - SBT
Happy Valley & Stamm	***LOS - Delay***	**B – 18.2**	**B – 13.0**
	Max V/C - MVMT	0.88 - NBT	0.49 - EBT
Happy Valley & Flamingo	***LOS - Delay***	**B – 19.2**	**C – 20.9**
	Max V/C - MVMT	0.71 - NBL	0.74 - NBL

Utilities and Irrigation

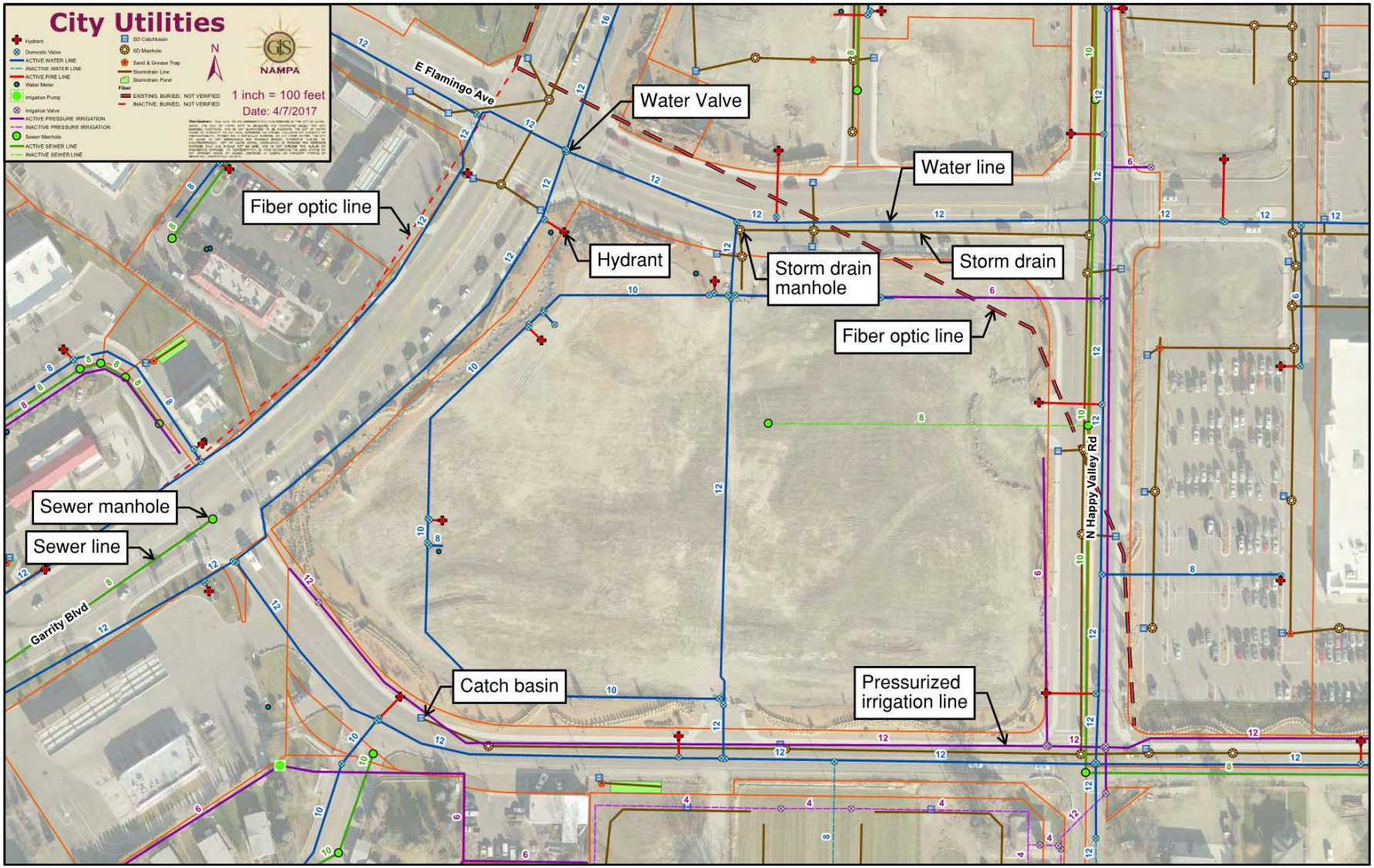
The City of Nampa provided a map of the existing City owned utilities, as shown in **Figure 3**. Other utilities were identified in a windshield survey and using Google Earth. Individual utility companies were not contacted as part of this project. Existing utilities along each street included in the project area are listed below.

- Garrity Boulevard
    - City of Nampa

        - Water lines and fire hydrants along both sides of the street with water valves in the intersection with Flamingo Avenue.
        - Existing storm drain inlets, pipes, and manholes in the vicinity of Flamingo Avenue.
        - Sewer line extends south from a manhole in the intersection with Stamm Lane.
        - Fiber optic cable along the west side of the street.
    - ITD
        - Street lighting luminaires on both sides of the street.
        - Traffic signal poles in all four corners of the intersections with Flamingo Avenue and Stamm Lane as well as controller cabinets and service pedestals in the northeast corners of each intersection.
    - Intermountain Gas Company
        - Gas lines along the west side of the street.
    - Idaho Power
        - Underground electrical service along both sides of the street with electrical service cabinets and pedestals along the west side serving businesses.
    - Irrigation
        - Dewey Lateral is enclosed in a pipe and crosses under the street from east to west.
- Flamingo Avenue
    - City of Nampa
        - Street lighting luminaires along both sides of the street.
        - Water lines and fire hydrants along the street with water valves.
        - Existing storm drain inlets, pipes, and manholes along the street.
        - Fiber optic cable along the street.
    - Intermountain Gas Company
        - Gas lines along both sides of the street.
    - Idaho Power
        - Underground electrical service along both sides of the street with electrical service cabinets and pedestals along both sides serving business.
- Happy Valley Road
    - City of Nampa
        - Street lighting luminaires along both sides of the street.
        - Water lines, pressurized irrigation line, and fire hydrants along the street with water valves.

        - Existing storm drain inlets, pipes, and manholes along the street.
        - Existing sewer line and manholes along the street and at the intersection with Stamm Lane.
        - Fiber optic cable along the street.
        - Traffic signal poles in all four corners of the intersection with Flamingo Avenue as well as a controller cabinet and service pedestal in the northeast corner of the intersection.
    - Intermountain Gas Company
        - Gas lines along both sides of the street.
    - Idaho Power
        - Underground electrical service along both sides of the street with electrical service cabinets and pedestals along both sides serving business.
    - Irrigation
        - Dewey Lateral is enclosed in a pipe and crosses under the street from east to west.
- Stamm Lane
    - City of Nampa
        - Street lighting luminaires along the north side of the street.
        - Water lines, pressurized irrigation line, and fire hydrants along the street with water valves.
        - Existing storm drain inlets, pipes, and manholes along the street.
        - Traffic signal poles in all four corners of the intersection with Flamingo Avenue as well as a controller cabinet and service pedestal in the northeast corner of the intersection.
    - Intermountain Gas Company
        - Gas lines along both sides of the street.
    - Idaho Power
        - Overhead electrical service along the south side of the street with electrical service cabinets and pedestals along the north side of the street.
    - Irrigation
        - Dewey Lateral is enclosed in a pipe and runs along the north side of the street.

Figure 3. City-owned utilities



Alternative Configurations

A total of 4 traffic operations alternatives were considered for the project area. Alternatives 1 and 2 were investigated by the City of Nampa in late 2015/early 2016.

- Alternative 1 eliminated the southbound (SB) to eastbound (EB) left turn movement at the intersection of Garrity Boulevard and Flamingo Avenue.
- Alternative 2 established a one-way east/west couplet using Flamingo Avenue and Stamm Lane east of Garrity Boulevard and west of Happy Valley Road. In this alternative westbound traffic was forced to use Flamingo Avenue via Happy Valley Road. Happy Valley Road remained a two-way roadway in this alternative.

The initial analysis conducted by the City was documented in a technical memo prepared by AECOM dated February 5, 2016. Minor revisions to the original analysis were completed for the City by AECOM in May 2016.

Alternative 2 (one-way couplet) was initially selected by City staff as the preferred concept for the area based on its operational performance. However, when this alternative was vetted with key stakeholders in the area, it was not supported. Stakeholders offered their own alternative for the area (Alternative 3) which was subsequently not supported by City staff.

An additional alternative (Alternative 4) was developed as a compromise through discussions between a key stakeholder and City staff. Alternative 4 reduces the southbound (SB) to eastbound (EB) left turn movement at the intersection of Garrity Boulevard and Flamingo Avenue by making Happy Valley Road one way northbound between Flamingo Avenue and Stamm Lane. **Figure 4** shows Alternative 4 as developed for this pre-concept report and **Figure 5** shows how the project could be developed over a series of phases. City of Nampa staff selected Alternative 4 as the preferred traffic alternative for the area in January 2017.

Figure 4. Overall Alternative 4 improvements

Figure 5. Phasing of Alternative 4 improvements

Traffic and Safety Analysis

Operations Analysis

An operations analysis of the proposed alternatives was produced separately for the City of Nampa and is presented in Appendix A. The results in **Table 2** indicate that the existing network will operate significantly over capacity by 2040. At Garrity Boulevard & Flamingo Avenue, the proposed improvements substantially reduce average delay in the AM peak but slightly increase average delay in the PM peak. Both cases show the intersection still operating over capacity. The Alternative 4 improvements cause average delay to increase somewhat at Garrity Boulevard & Stamm Lane while maintaining a similar v/c ratio. The delay increase is due to southbound left turn traffic being rerouted from the Garrity Boulevard & Flamingo Avenue intersection. The largest improvement is at Happy Valley Road & Stamm Lane, which improves several LOS grades and drops below capacity in both peak hours. The Happy Valley & Flamingo Avenue intersection improves moderately as well.

Table 2. 2040 Analysis Results

Intersection	Performance Measures	AM Peak		PM Peak	
		No Build	Proposed	No Build	Proposed
Garrity & Flamingo	***LOS - Delay***	**F – 148.2**	**F – 96.3**	**F – 98.6**	**F – 112.5**
	Max V/C - MVMT	1.37 - SBL	1.31 - NBL	1.53 - NBL	1.37 – NBL/EBL
Garrity & Stamm	***LOS - Delay***	**D – 48.3**	**E – 56.8**	**E – 63.5**	**E – 68.9**
	Max V/C - MVMT	1.09 - EBL	1.06 - NBT	1.06 - WBL	1.09 - WBL
Happy Valley & Stamm	***LOS - Delay***	**F – 103.4**	**B – 16.8**	**D – 53.8**	**B – 13.4**
	Max V/C - MVMT	1.27 - SBL	0.88 - NBT	1.14 - WBT	0.86 - EBR
Happy Valley & Flamingo	***LOS - Delay***	**D – 41.8**	**C – 20.9**	**C – 29.5**	**C – 27.9**
	Max V/C - MVMT	1.03 - WBL	0.68 - NBL	0.92 - NBL	0.75 - EBL

The proposed Alternative 4 improvements are a short term solution that will not meet capacity needs in 2040. Lane additions could help improve capacity in 2040 and beyond, although lane additions alone still may not be adequate in the long term. At Garrity Boulevard & Flamingo Avenue, right turn bays in each direction on Garrity would separate through traffic from right turns. In the southbound direction, this would allow a third receiving lane to be constructed. At Garrity Boulevard & Stamm Lane, a right turn bay from Stamm to northbound Garrity would help increase capacity. A comprehensive long-term solution would likely include I-84 interchange improvements and may even include additional interchanges on I-84, which would relieve demand from Garrity Boulevard. Additional evaluation is needed to develop a long range (2040 and beyond) improvement strategy for the project area. The strategy needs to consider high-capacity intersection designs, improvements to the Garrity Boulevard interchange, and establishment of active transportation corridors.

Safety Analysis

Crash History

COMPASS provided the most recent five years of available crash data from 2011–2015 for the project area as displayed in **Figure 6**. Figures of crash locations by crash type are included in **Appendix B**. That appendix also contains ITD-2658 forms that were used as part of the safety analysis. **Table 3** presents the crash summary broken out by total crashes, crash severity, base crash rates and existing crash rates in crashes per million vehicles entering the intersection (crash/MV). The base rate is the expected crash rate for similar intersections with similar traffic volumes in Idaho (all of the intersections in the project area are in the same intersection category; multi-lane with an ADT greater than 4,000.) About half of the existing crashes resulted in injury at all intersections except Happy Valley Road & Flamingo Avenue, suggesting that improvements should target a reduction in injury crashes. The intersection of Happy Valley Road and Stamm Lane has the highest crash rate, almost three times the base rate, and it has the highest percentage of injury crashes. Together, the high crash rate and high severity indicate a considerable safety concern at this intersection. The two Garrity Boulevard intersections also have crash rates that are notably higher than the applicable base rate.

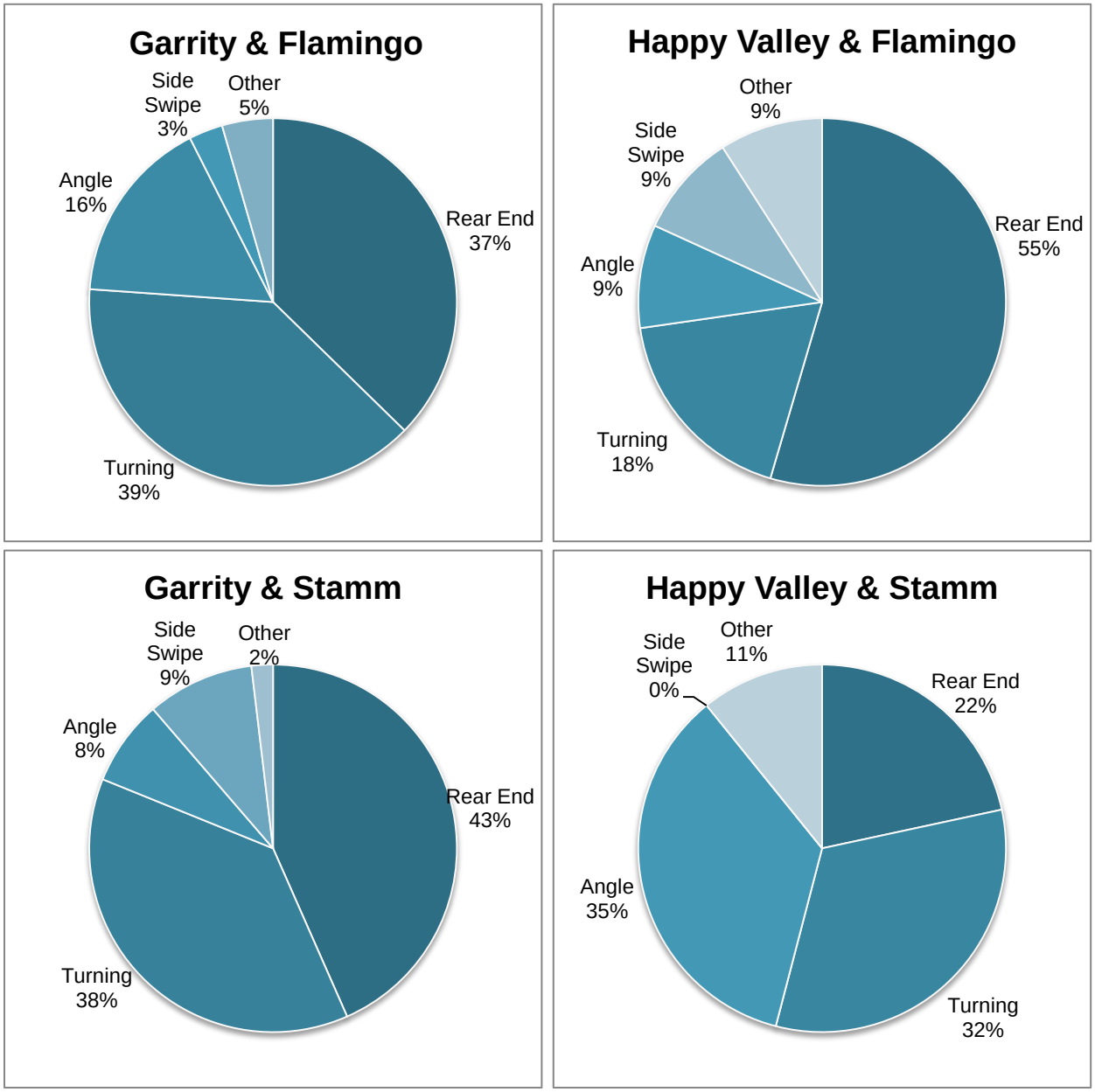
Table 3. 2011–2015 Intersection Crash Summary

Intersection	Total Crashes	Property Damage Crashes	Injury Crashes	Fatal Crashes	Percent Injury and Fatal Crashes	Ped or Bike Crashes	Base Rate (Crash/MV)	Existing Crash Rate (Crash/MV)
Garrity & Flamingo	67	37	30	0	45%	0	0.58	0.90
Garrity & Stamm	53	28	25	0	47%	0	0.58	0.81
Happy Valley & Flamingo	11	8	3	0	27%	0	0.58	0.28
Happy Valley & Stamm	37	17	20	0	54%	1	0.58	1.46

Crash types give more specific information about the specific safety concerns at each intersection. The crash types are broken down by intersection in **Figure 7**. The two Garrity Boulevard intersections have a relatively high percentage of turning crashes, which tend to be more severe than rear end crashes. These intersections would benefit from improvements that are associated with reducing right turn and left turn crashes. Rear end crashes, which are generally less severe than other crash types, accounted for over half of the total crashes at the Happy Valley & Flamingo intersection. Coupled with a low crash rate, this suggests safety concerns at this intersection are low. The Happy Valley & Stamm intersection had a high percentage of angle crashes (35%) as well as a high percentage of turning crashes (32%). These are severe crash types, which likely contributed to the high percentage of injury crashes at the intersection. Future improvements should target a reduction in angle and turning crashes. Crash reduction related to suggested improvements are provided in the next section.

Figure 6. Crash history (2011–2015)

Figure 7. Proportion of crash types by intersection



Street segment crash history is difficult to accurately ascertain for the project area because the segments between intersections are so short. It is questionable whether the data labeled as being non-intersection related is truly unrelated to an intersection. Assuming the labels are accurate, the road segment crash rate between the four major intersections is much lower than the base rate ITD estimates for similar road segments. This is evident in the road segment crash statistics shown in **Table 4**. The exception to this is on Garrity Boulevard south of Stamm Lane, which has an existing crash rate that is moderately higher than the base rate. Of the 33 crashes on this segment, 25 were related to driveways or minor intersections. Improvements on Garrity Boulevard south of Stamm Lane should focus on reducing driveway and intersection crashes.

Table 4. 2011–2015 Road Segment Crash Summary

Road Segment	Total Crashes	Property Damage Crashes	Injury Crashes	Fatal Crashes	Percent Injury and Fatal Crashes	Ped or Bike Crashes	Base Rate (ACC/MV)	Existing Crash Rate (ACC/MV)
Garrity Blvd, Stamm to Flamingo	13	9	4	0	31%	0	0.37	0.22
Garrity Blvd, south of Stamm	33	19	14	0	42%	0	0.37	0.55
Flamingo Ave, Garrity to Happy Valley	2	1	1	0	50%	0	0.37	0.09
Happy Valley Rd, Stamm to Flamingo	3	2	1	0	33%	0	0.37	0.18
Stamm Ln, Garrity to Happy Valley	3	2	1	0	33%	0	0.45	0.41

Crash Mitigation

Safety research has identified the benefits of a number of the improvements recommended through developed crash reduction factors. Crash reduction factors can be applied to estimate the reduction in the number of crashes that will occur at a given intersection and/or street segment. The research differentiates between road segment crashes and intersection crashes. **Table 5** summarizes the predicted crashes specific to the roadway segment improvements proposed as part of Alternative 4 given the associated crash reduction factors. The crash rate is in units of crashes per million vehicle miles traveled (crash/MVMT). **Table 6** summarizes the crashes predicted at the intersections with Alternative 4 improvements, with the crash rate in units of crashes per million vehicles (crash/MV). For intersections with multiple improvements, the crash reduction factor was split between the two intersections, and the historical crash rate of the second improvement was assumed to be the predicted crashes of the previous improvement. The proposed improvements are estimated to reduce crashes in the area and improve safety at the intersections and roadway segments.

Table 5. Crash Prediction on Road Segments

	Phase 2	Phase 4
Location	**Garrity south of Stamm**	**Happy Valley**
Improvement	**Install median curb**	**Convert to one way**
Crash Severity Type	All	All
Crash Reduction Factor	40%[a]	43%[b]
2011-2015 Crashes	33	1
Predicted Crashes	20	1
2011-2015 Crash Rate (crash/MVMT)	**2.02**	**0.18**
Predicted Crash Rate (crash/MVMT)	**1.21**	**0.18**

[a] *Idaho Transportation Department. Safety Evaluation Instruction Manual. ITD, Boise, ID. 1999.*
[b] *Gan, A., Shen, J., and Rodriguez, A. Update of Florida Crash Reduction Factors and Countermeasures to Improve the Development of District Safety Improvement Projects. Lehman Center for Transportation Research, Miami, FL. 2005.*

Table 6. Crash Prediction at Intersections

	Phase 1	Phase 2	Phase 3	Phase 4	
Location	**Garrity & Stamm**	**Happy Valley & Stamm**	**Garrity & Stamm**	**Happy Valley & Stamm**	**Happy Valley & Flamingo**
Improvement	**Add third NB Thru receiving lane**	**Add second NB Thru lane**	**Add second SB Left turn lane**	**Add NB Right, WB Right lanes; remove SB lanes**	**Convert to one way**
Crash Severity Type	All	All	All	All	All
Crash Reduction Factor	20%[a]	20%[a]	20%[a]	20%[a]	26%[b]
2011-2015 Crashes	53	37	42	30	11
Predicted Crashes	42	30	34	24	8
2011-2015 Crash Rate (crash/MV)	**0.81**	**1.46**	**0.65**	**1.17**	**0.28**
Predicted Crash Rate (crash/MV)	**0.65**	**1.17**	**0.52**	**0.93**	**0.21**

[a] *Idaho Transportation Department. Safety Evaluation Instruction Manual. ITD, Boise, ID. 1999.*
[b] *Gan, A., Shen, J., and Rodriguez, A. Update of Florida Crash Reduction Factors and Countermeasures to Improve the Development of District Safety Improvement Projects. Lehman Center for Transportation Research, Miami, FL. 2005.*

Identified Bicycle/Pedestrian Improvements

There are several locations in the project area that have been identified for bicycle and pedestrian improvements.

The first recommended improvement is a mid-block signalized pedestrian crossing on Stamm Lane between Garrity Boulevard and Happy Valley Road. With the construction of the new multi-family housing facility on the south side of Stamm and the WinCo Foods store on the north side, a need has been created for a pedestrian crossing at the mid-block of Stamm Lane. The signalized crossing would connect the newly paved sidewalk on the south side of Stamm to the existing paved sidewalk on the north side of the street.

The second recommended improvement is a bike facility along Happy Valley Road starting at Stamm Lane, extending through the intersection of Happy Valley and Flamingo, and ending at the side road near Starbucks and Jimmy John's. At the side road, a pedestrian signalized crossing could be added to cross Happy Valley Road and connect to the existing paved sidewalk. The existing sidewalk branches off in between the Jimmy John's and the parking lot of Panda Express, stopping roughly 75 feet before the pad of a pedestrian crossing at the eastbound I-84 on-ramp. Improvements would include connecting the existing sidewalk to the pedestrian crossing pad and the bicycle facility to Idaho Center Boulevard. This would create an active transportation connection between Idaho Center Boulevard and Happy Valley Road.

Environmental Scan

An environmental scan was produced as a memo separately from this report and is included in **Appendix C**. The following are the findings of the environmental scan:

- General Land Use
    - Area is highly urbanized, mainly under commercial use. Some residential use is present south of the project area. No designated open space is present in project area.
- Cultural Resources
    - Two properties were identified in assessor's records as being greater than 40 years old (4501 and 4719 Stamm Lane).
    - No sites within the project area are listed on the National Register of Historic Places (NRHP).
- Section 4(f) Properties
    - No Section 4(f) properties in the form of parks, recreation areas, or wildlife refuges are located in the project area.
    - Section 4(f) may apply if a historic property is identified and would be impacted.
- Biological Resources
    - No federally-listed species are expected to occur in the project area.
- Wetlands
    - No wetlands or waters of the U.S. under the jurisdiction of the Army Corps of Engineers are expected to occur in the project area.
- Noise
    - If travel lanes are added for the project, a noise study will likely be required. Noise receptors of concern are mainly located in residential areas south of Stamm Lane.
- Environmental Justice and Neighborhood Services
    - Minority and low-income populations have been identified in the project area. There is a mobile home community on the south side of Stamm Lane. Canyon County census tracts 204.01 (properties on south and west sides of Garrity and Stamm corridors) and 207 (properties within the interior of the "WinCo block" and north and east of Flamingo and Happy Valley corridors) are home to larger populations of minorities and those below poverty level.
    - Transit services in the form of a bus route and bus stops are located in the project area.
    - School bus stops are located in the project area.
    - Emergency services will require coordination during project design and construction.
- Hazardous Materials
    - Two fueling stations and an automobile repair shop are located on Garrity Boulevard and Stamm Lane in the areas of potential roadway widening. A more in-depth hazardous materials assessment may be advisable.

Future Environmental Studies and Permits

If the project receives federal funding, the following studies and/or permits may be required:

- National Environmental Policy Act (NEPA) documentation (likely a documented categorical exclusion)
- Archaeological and Historic Survey Report for Section 106 compliance
- A Section 4(f) finding (if historic resources may be impacted)
- Noise study per FHWA and ITD guidelines
- Socioeconomic impact analysis
- Hazardous materials assessment at a level appropriate to the project proposed

Cost and Schedule

Pre-concept Cost Estimate

Concept-level cost estimates for the proposed improvements were based on ITD's standard bid item list and average bid prices from early 2017. Bid item quantities were measured in Google Earth and ArcGIS. A separate cost estimate was made for each phase of Alternative 4, and developed to match the cost categories of the ITD-1150 form. All estimated costs are based on current (February 2017) unit prices and accepted assumptions for developing conceptual cost estimates for ITD. Preliminary engineering was assumed to be 20% of the construction cost. Right-of-way was assumed to be $5 per square foot plus $10,000 per parcel for the cost of negotiations. Construction traffic control was assumed to be 3% of the construction cost, and mobilization was assumed to be 5% of the construction cost. Since this is a planning level estimate that does not account for all bid items and quantities, a 30% contingency was applied to the cost of construction items and mobilization. Given these assumptions, the total project cost is estimated to be $2,404,000. The cost estimate breakdown is shown in **Table 7**. Draft ITD-1150 and ITD-2435 forms are included in **Appendix D**.

It should be noted that in the first six months of 2017 construction costs have been dynamic in nature. Many projects in the Treasure Valley market have been coming in above the engineer's estimate and this trend is forecast to continue into the foreseeable future. A 30% contingency was applied as an attempt to mitigate for rising construction costs. However, it is possible the rise in construction costs will outpace the contingency applied to the conceptual cost estimates presented in Table 7 and the estimates presented may be low.

Table 7. Cost Estimate Breakdown

	Phase 1	*Phase 2*	*Phase 3*	*Phase 4*	*TOTAL*
1. Preliminary Engineering	$61,000	$103,000	$153,000	$90,000	$407,000
2. Right-of-way	-	-	$177,000	$22,000	$199,000
3. Utility Adjustments	-	$6,000	$7,000	$10,000	$23,000
4. Earthwork	-	$2,000	$144,000	-	$146,000
5. Drainage & Minor Structures	-	$46,000	$12,000	-	$58,000
6. Pavement & Base	$67,000	$71,000	$163,000	$38,000	$339,000
9. Traffic Items	$32,000	$11,000	$69,000	$100,000	$212,000
10. Construction Traffic Control	$7,000	$6,000	$16,000	$10,000	$39,000
12. Landscaping	$36,000	$1,000	$12,000	$79,000	$128,000
13. Mitigation Measures	$14,000	$17,000	$51,000	$33,000	$115,000
14. Other Items	$68,000	$33,000	$87,000	$67,000	$255,000
15. Cost of Construction Items	$225,000	$193,000	$562,000	$337,000	$1,315,000
16. Mobilization	$11,000	$10,000	$28,000	$17,000	$66,000
17. Construction Engineering & Contingencies	$71,000	$61,000	$177,000	$106,000	$415,000
18. Total Construction Cost Estimate	$307,000	$264,000	$767,000	$460,000	$1,796,000
19. Total Project Cost Estimate	**$368,000**	**$366,000**	**$1,098,000**	**$572,000**	**$2,404,000**

Funding Strategies

There are several funding possibilities for the various phases of this project, including ITD's State Highway Account, the City of Nampa streets fund, grant opportunities, city impact fees, and private partnerships. The City will be collecting $1 million in impact fees over three years for improvements in the project area. This amount is more than the required amount of match funds for a grant, which should improve the City's score on grant applications. Potential grant opportunities include the following:

- **Strategic Initiatives Program.** ITD administers this program, which is a temporary Idaho funding measure that will expire in 2019. It allocates half of any general fund surplus to transportation, which will be split 60% for ITD projects and 40% for local jurisdiction projects.
- **Transportation Alternatives Program (TAP).** TAP grants from ITD support non-motorized project improvements. This could benefit Phase 4 since it includes primarily bicycle and pedestrian improvements.
- **Local Highway Safety Improvement Program (LHSIP).** Administered by the Local Highway Technical Assistance Council (LHTAC), LHSIP grants are based on reducing fatal and serious injury crashes. Applications are ranked using a benefit-cost ratio, where the benefit is measured as the dollar equivalency of predicted crash reduction, and the cost is the estimated project cost.
- **Transportation Investment Generating Economic Recovery (TIGER).** TIGER grants, administered by the U.S. Department of Transportation, are highly competitive federal grants for improving safety and economic opportunity.

Since most of these opportunities involve federal funds, the minimum local match is 7.34%. However successful applications tend to have match percentages in excess of 20%.

City impact fees and private partnerships are two other potential funding sources for the project, particularly for specific project improvements. ITD may be able to work with adjacent property owners to pay for median installation on Garrity Boulevard south of Stamm Lane given the safety analysis supports the need for the median. Walgreens has indicated plans to construct a store at the Happy Valley Road & Stamm Lane intersection (southeast quadrant), and they will need to perform a traffic impact study to ascertain their impacts to the area and provide the necessary mitigation.

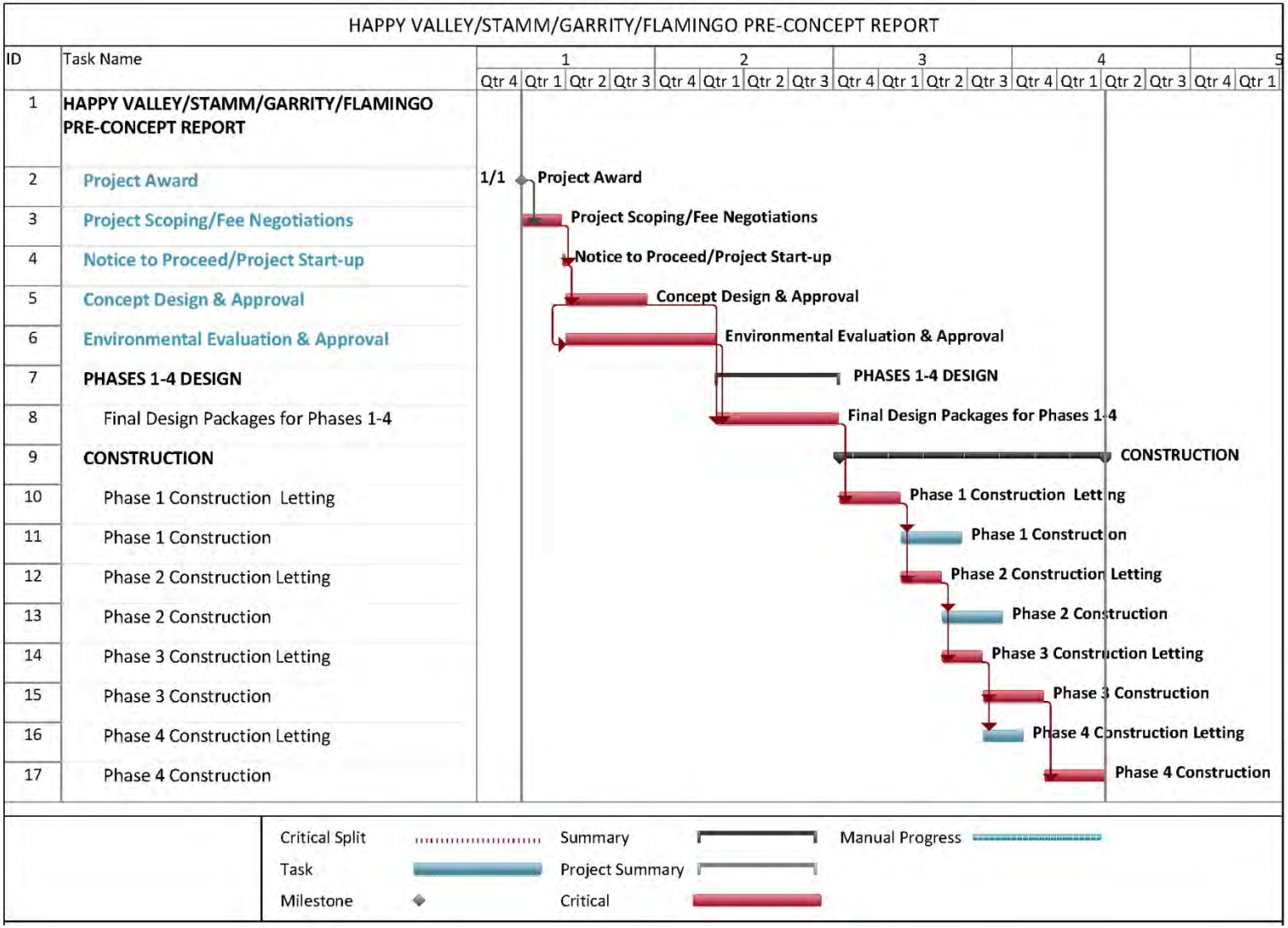
Ongoing Operations and Maintenance

Operations and maintenance for the roadways and intersections in the area is currently split between ITD, the City of Nampa, and the Nampa Highway District. This project would not add significantly to the operations and maintenance needs of the area. As the area grows, the City of Nampa will take on more of the operations and maintenance obligation. The City uses general funds for pavement management and signal/intersection operation and maintenance. This is assumed to continue in the future.

Schedule and Milestones

Figure 8 presents the conceptual federal-aid project development schedule based on the phases described above. Each phase is shown as an independent track for construction with a single design and environmental process, evaluation, and approval for the entire project. January 1, 2018 was selected as a starting point to simplify the schedule and show the durations of each proposed activity. None of the proposed dates are binding.

Figure 8. Conceptual Project Schedule



Conclusions

This Pre-Concept Report for the Happy Valley/Stamm/Garrity Flamingo Traffic Improvements makes the following conclusions:

- The project area contains a number of gaps in active transportation facilities.
- Currently, the four intersections operate under capacity. Most operate at LOS B and C in the AM and PM peak hour, with one operating at LOS D in the PM peak hour.
- The No Build condition is projected to operate significantly over capacity in 2040, with some intersections at LOS F in both the AM and PM peak hour. The worst v/c ratio is 1.53 in the PM peak hour at Garrity Boulevard & Flamingo Avenue.
- The Alternative 4 improvements show a capacity increase over No Build but still operate over capacity in 2040, with some intersections at LOS F in both the AM and PM peak hour. The worst v/c ratio is 1.37 in the PM peak hour at Garrity Boulevard & Flamingo Avenue.
- All intersections except Happy Valley Road & Flamingo Avenue have a crash rate that is higher than the base crash rate. The intersection of Happy Valley Road & Stamm Lane has a crash rate of 1.46 crashes per million vehicles, almost three times the base rate.
- Injury crashes account for approximately half of the crashes at all intersections except Happy Valley Road & Flamingo Avenue.
- The recommended Alternative 4 improvements are expected to reduce crash rates as follows:
    - Garrity Boulevard south of Stamm Lane: from 2.02 to 1.62 crash/MVMT
    - Happy Valley Road & Stamm Lane: from 1.46 to 0.58 crash/MV
    - Garrity Boulevard & Stamm Lane: from 0.81 to 0.45 crash/MV
    - Happy Valley Road & Stamm Lane: from 0.28 to 0.21 crash/MV
- The total project cost is estimated to be $2,038,000 (in 2017 dollars).

Recommendations

We recommend that the improvements in Alternative 4 be constructed to improve safety, mobility, and economic development in the area. If necessary, the improvements can be divided into four phases as funding becomes available as presented in **Figure 4**. While these improvements increase capacity, they do not provide enough capacity to provide LOS D during the peak hours given 2040 traffic volume projections. Future improvements beyond Alternative 4 are recommended as the project area approaches capacity. The benefits of this project align with the performance measures in *Communities in Motion 2040* for congestion reduction, freight movement, safety, reliability, and health. This project is expected to achieve the strategic goals of reducing crashes, improving pedestrian level of service, reducing vehicle delay, and improving bicycle and pedestrian connectivity.

Appendix A. Traffic Analysis

Memorandum

Date:	**February 5, 2016**
Prepared for:	**Clair Bowman – Senior Transportation Planner; City of Nampa**
Prepared by:	**Jay Witt, P.E. – AECOM** **Evan Reed, P.E., PTOE – AECOM**
Subject:	**Traffic Improvement Alternatives Analysis for Stamm Lane/Flamingo Boulevard**

Background

Within the next decade the College of Western Idaho anticipates doubling its enrollment at its principal campus off of Idaho Center Boulevard. Likewise, St. Alphonsus envisions growing its Garrity Boulevard campus into a complete regional medical center. Development at the Nampa Gateway Center is anticipated to continue with the addition of a WinCo grocery store between Flamingo Avenue and Stamm Lane. Growth from these and other proposed developments threaten to overwhelm the functionality of Garrity Boulevard.

Traffic improvements have been proposed for Garrity Boulevard by the Idaho Transportation Department (ITD) for the area between Stamm Lane and the I-84 westbound ramps. Despite these improvements, there remains a need to evaluate the local roadway network connecting Garrity Boulevard to Happy Valley Road via Flamingo Avenue and Stamm Lane.

The City of Nampa asked AECOM to analyze and assess the impacts two improvement alternatives would have on traffic in the area. The two alternatives include:

1. Alternative 1: Elimination of southbound (SB) to eastbound (EB) left turns at the intersection of Garrity Boulevard and Flamingo Avenue. This movement would be allowed only at the intersection of Garrity Boulevard and Stamm Lane located 600 feet to the south of the Garrity/Flamingo intersection.
2. Alternative 2: Establishing a one-way east/west couplet. Flamingo Avenue east of Garrity Boulevard would become a one-way westbound facility while Stamm Lane between Garrity Boulevard and Happy Valley Road would become one-way eastbound. Westbound traffic would be forced to use Flamingo Avenue via Happy Valley Road. This alternative assumes Happy Valley remains two-way between Flamingo Avenue and Stamm Lane.

Existing peak hour traffic data (both AM and PM) were used along with the COMPASS travel demand model to forecast 2040 peak hour conditions. These existing and 2040 conditions were then input into SYNCHRO and compared to the performance of the two alternatives. The results, analysis, and process used to estimate average weekday peak hour conditions are described below.

Existing Traffic Conditions

L2 Data Collection provided 24-hour traffic counts for four roadways and peak hour (AM and PM) traffic counts for 5 intersections. Counts were taken on Tuesday, December 15, 2015. Traffic counts collected in December between Thanksgiving and Christmas have a potential to be atypical, especially near large commercial developments. Therefore, AECOM adjusted the December counts using seasonal adjustment factors derived from ITD's automated traffic recorder (ATR) located on I-84 near Robinson Road, about 1 mile from the Garrity Boulevard interchange.

Once adjusted, the peak hour volumes for each approach of each intersection were entered into SYNCHRO to estimate the level of service (LOS), volume-to-capacity (v/c), and delay at each intersection in the area given current conditions. Peak hour traffic volume distributions were redistributed as appropriate to develop forecasts for each of the two alternatives. The raw traffic counts provided by L2, the seasonally adjusted counts for each intersection, and the redistributed traffic volumes are included as attachments to this memorandum.

2040 Traffic Forecasts

Developing the 2040 traffic forecast began by first comparing COMPASS' 2015 model to traffic counts for each leg of each intersection. AECOM used these comparisons to produce model adjustment factors to account for any over/under forecasting in the study area. PM peak hour counts were compared to COMPASS' 5PM-6PM peak hour model and AM counts were compared to AM peak hour forecasts derived from the daily model. Daily forecasts were converted to AM peak hour by applying a Daily-to-AM peak hour ratio calculated by comparing AM peak hour (7AM to 8AM) traffic volume to daily traffic volume at the Robinson Road ATR. These intersection-specific adjustment factors were then applied to 2040 COMPASS model forecasts with the assumption that any model inconsistencies are the same for both the 2015 and 2040 models.

Collected turning movement counts and the 2040 AM and PM peak hour forecasts were input into WinTurns, a software tool that employs the forecasting methodologies recommended by the National Cooperative Highway Research Program (NCHRP) Report 255 (*Highway Traffic Data for Urbanized Area Project Planning and Design*). WinTurns provides turning movement forecasts when future year peak hour traffic forecasts and existing turning movement counts are input. The 2040 forecasts for each intersection are included as attachments to this memorandum.

SYNCHRO Analysis

Synchro, a software package based on Highway Capacity Manual methodologies, was used to estimate impacts associated with the proposed alternatives. LOS, volume-to-capacity (v/c), and delay at each of four intersections were estimated given morning peak hour (AM) and evening (PM) peak hour conditions. The four intersections considered for the analysis include: the Garrity Boulevard/Flamingo Avenue intersection, the Garrity Boulevard/Stamm Lane intersection, the Flamingo Avenue/Happy Valley Road intersection, and the Stamm Lane/Happy Valley Road intersection. A set of analyses were done using existing (2015) conditions and those forecast to exist in 2040. Synchro's default inputs and built-in signal timing optimization algorithms were used for the analysis except when specific data were available. Peak hour factors of 0.92 or higher were used as appropriate to represent future-year conditions.

Existing (2015) Network and Alternatives:
The existing roadway/intersection network for the analysis was defined as the one in place for 2015. As a result, the changes proposed by ITD to the Garrity/Flamingo intersection, the Garrity/Stamm intersection, and the eastbound on-ramp are not included. The networks developed for each alternative assume specific improvements are necessary for implementation. The improvements include:

- Alternative 1 (No-Lefts)
  - Four southbound lanes at Garrity/Flamingo (1 right only, 3 through)
  - Four southbound lanes at Garrity/Stamm (1 right/through, 1 through, and 2 left only)
  - Widening on Stamm Lane to receive dual lefts from southbound Garrity
  - Four eastbound lanes at Stamm/Happy Valley (1 right only, 1 eastbound through, 2 left only)
- Alternative 2 (One-Way)
  - Four southbound lanes at Garrity/Flamingo (1 right only, 3 through)
  - Four southbound lanes at Garrity/Stamm (1 through lane, 1 shared through/right, and 2 left only)
  - Three eastbound lanes at Stamm/Happy Valley (1 right only, 1 shared eastbound through/left, and 1 left only)

Restriping of the Flamingo/Happy Valley intersection would also need to occur as part of each alternative. Additionally, Alternative 2 would require geometric reconfiguration as the eastbound to southbound free-right turn lane is no longer needed at the Flamingo/Happy Valley intersection.

Figures 1 through 3 show the intersection configurations used for the 2015 alternatives analysis.

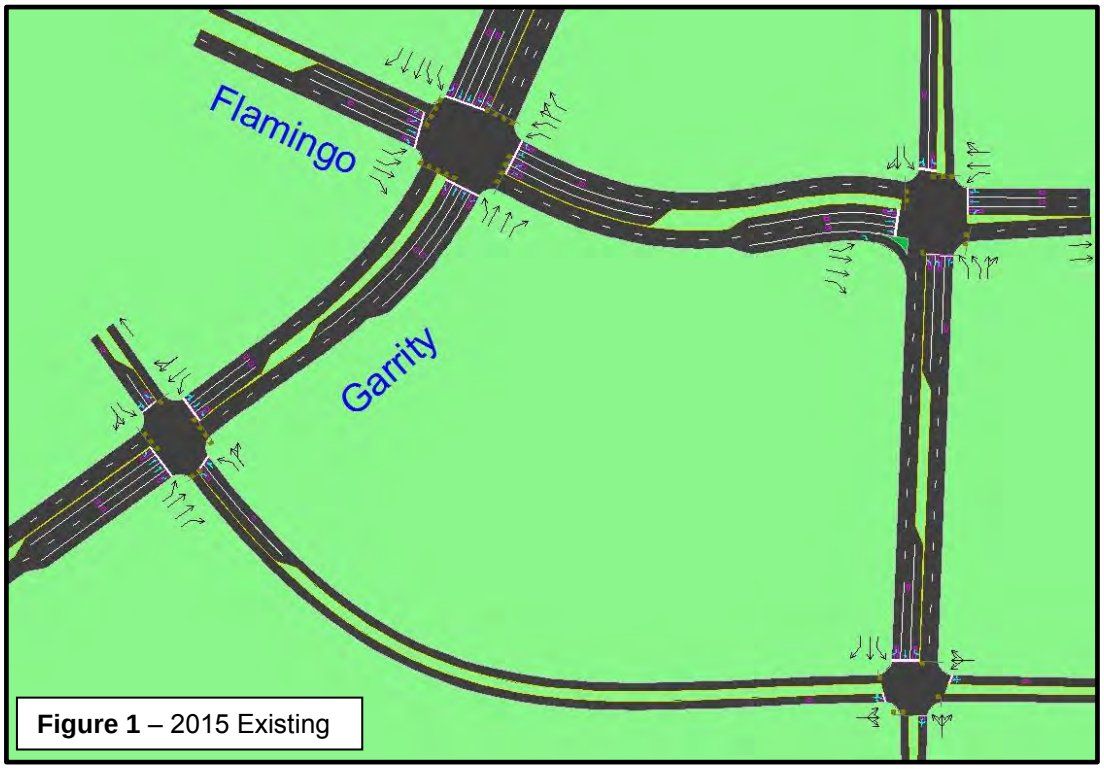


Figure 1 – 2015 Existing

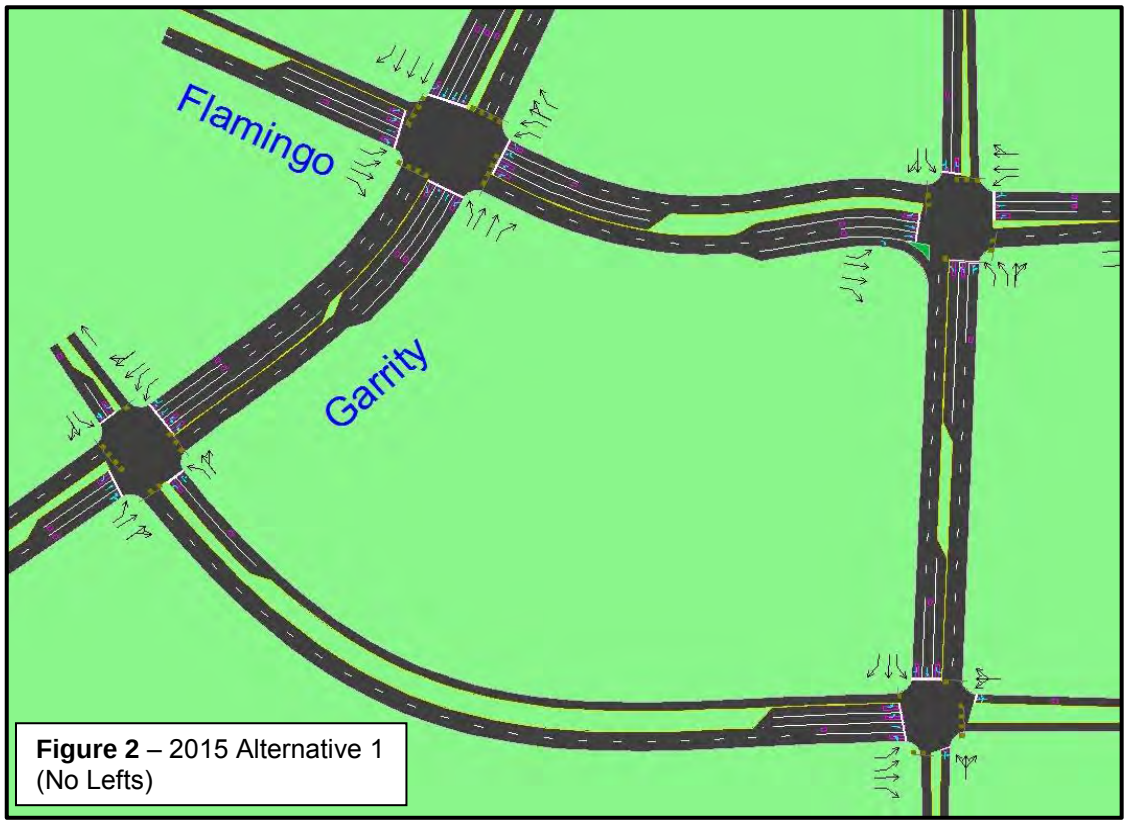


Figure 2 – 2015 Alternative 1 (No Lefts)

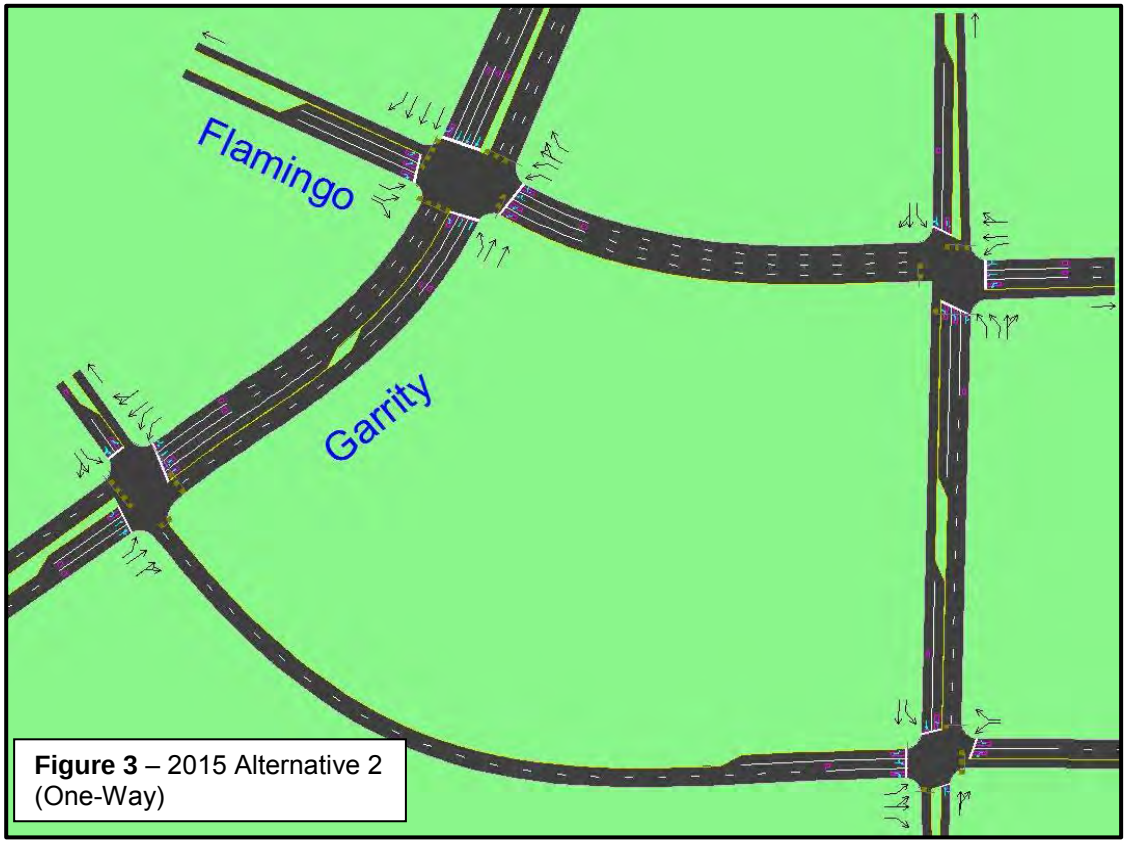


Figure 3 – 2015 Alternative 2 (One-Way)

2040 Network and Alternatives:
The roadway/intersection network assumed to exist in 2040 includes the improvements proposed by ITD to the intersections of Garrity/Flamingo and Garrity/Stamm. Thus the 2040 No Build scenario includes:

- Improvements to the northbound leg of Garrity Boulevard at Stamm Lane (1 left only, 2 through lanes, and 1 through/right shared)
- Improvements to the northbound legs of Garrity Boulevard at Flamingo Avenue (1 left only, 2 through lanes, and 1 through/right shared)

The two 2040 network alternatives were based on the 2040 No Build network and include the same assumed improvements necessary for implementation. Refer to the previous section for the specific improvements needed for each alternative. Figures 4 through 6 show the intersection configurations used for the 2040 alternatives analysis.

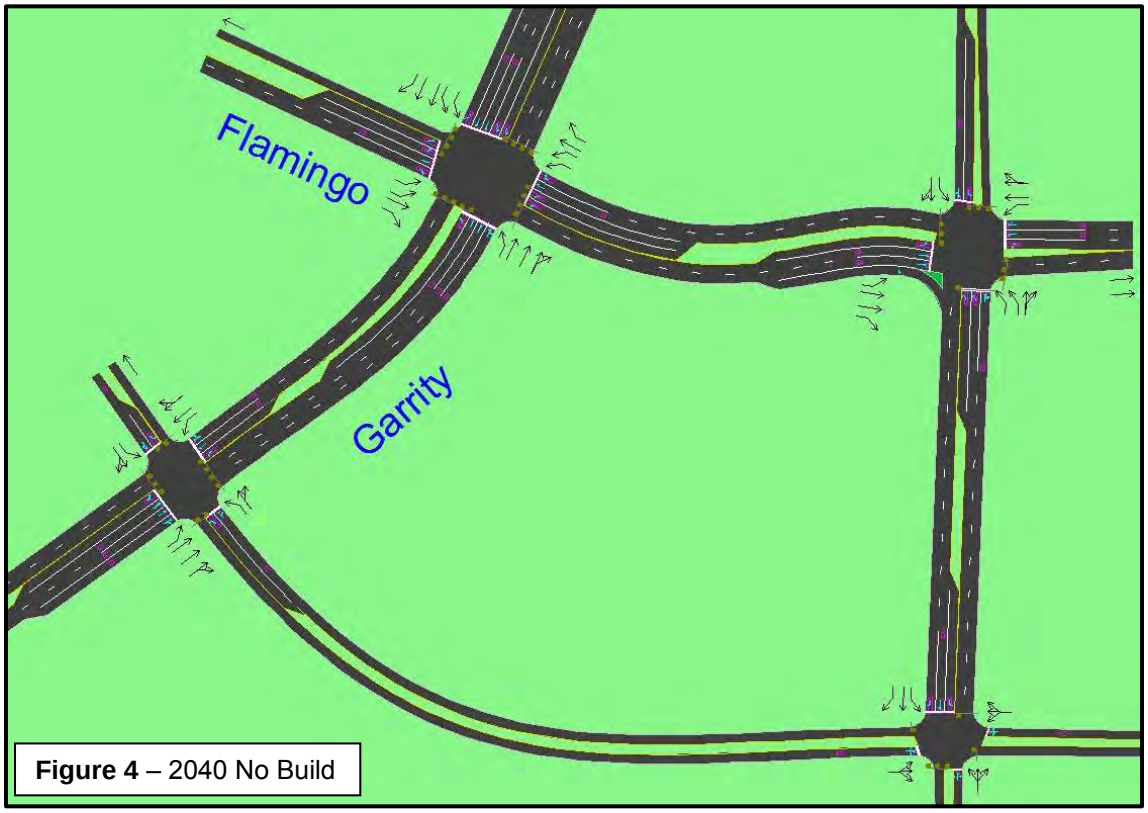


Figure 4 – 2040 No Build

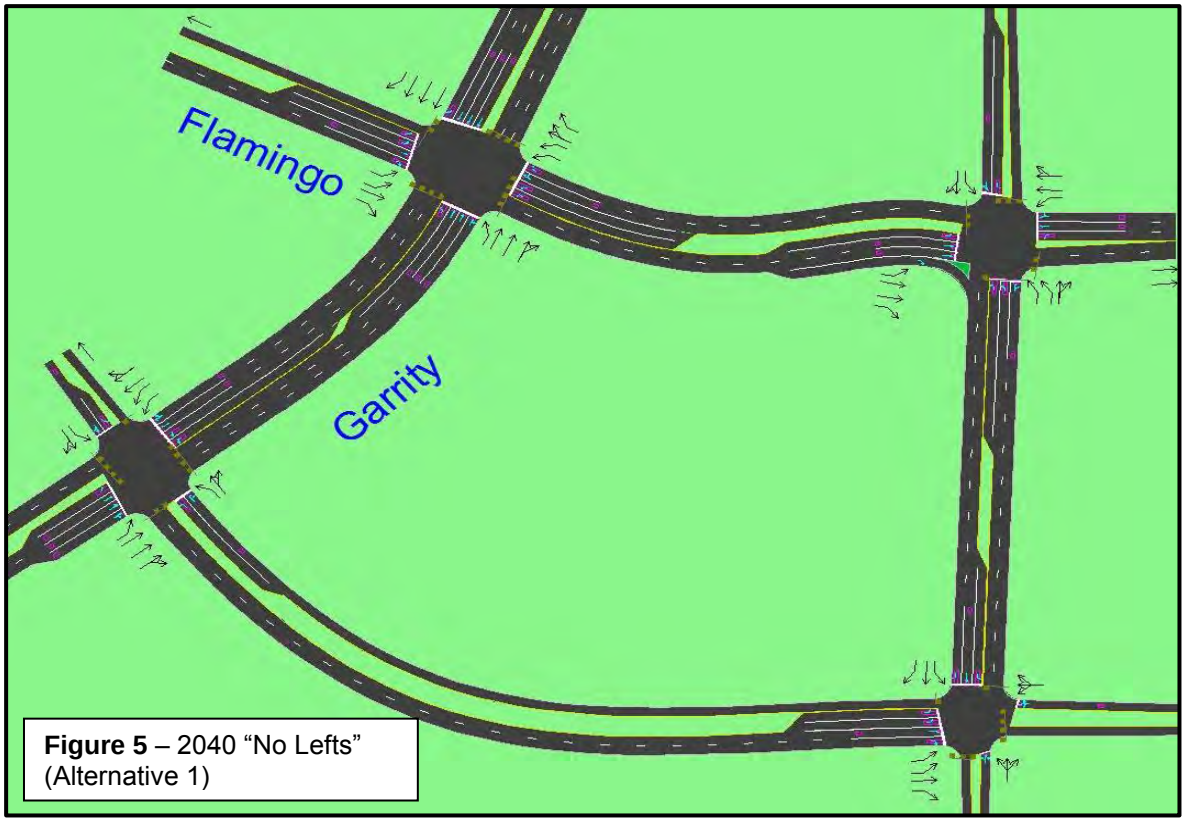


Figure 5 – 2040 "No Lefts" (Alternative 1)

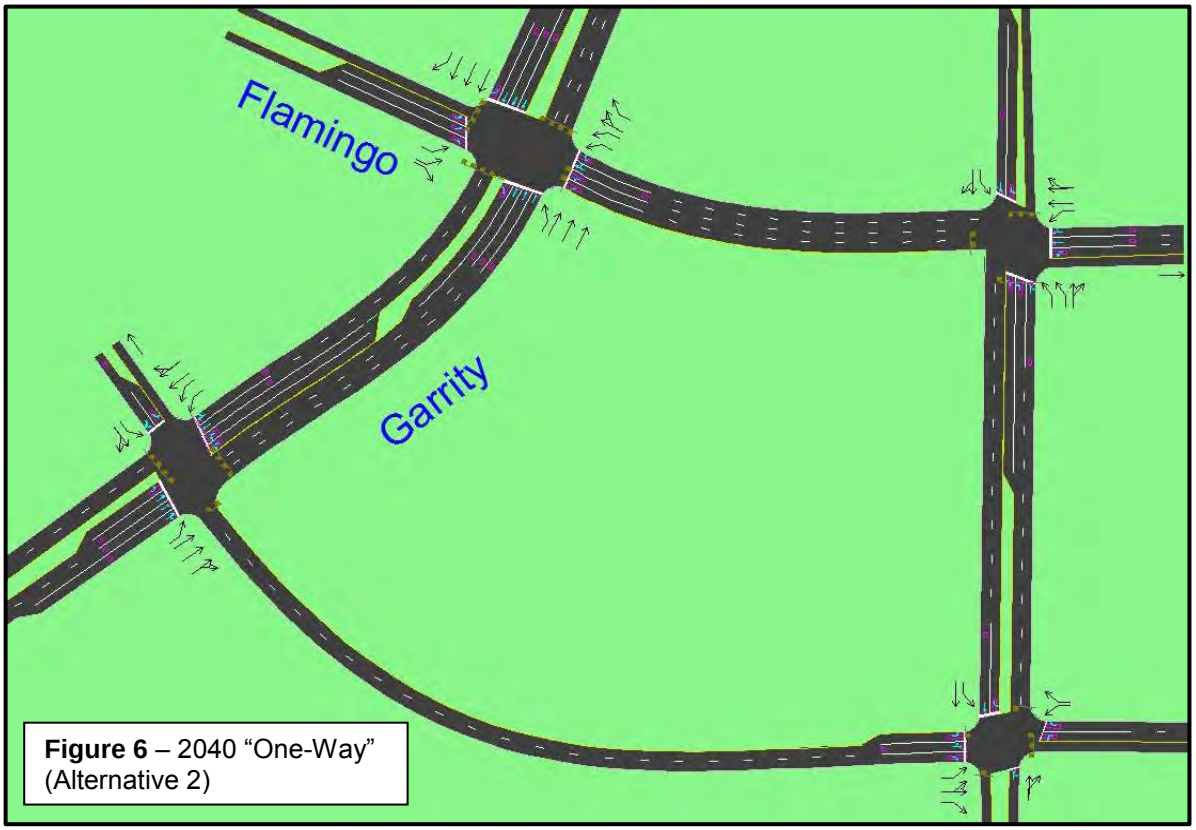


Figure 6 – 2040 "One-Way" (Alternative 2)

Conclusions and Recommendations

Table 1 summarizes the results for the SYNCHRO analysis of 2015 alternatives for both AM and PM peak hour conditions. Given AM peak hour conditions, Alternative 1 (No Lefts) is estimated to produce the least amount of total vehicle delay (70.6 seconds delay/vehicle) with Alternative 2 (One-Way) estimated to be slightly worse at 75.5 sec/veh total delay for all four intersections. However, when considering PM peak hour conditions, Alternative 2 is estimated to produce less delay (78.3 sec/veh) than both Alternative 1 (90.3 sec/veh) and the current configuration (104.7 sec/veh). When totaling the delay estimated for both AM and PM peak hours, Alternative 2 performs the best with 153.8 sec/veh of delay compared to Alternative 1 with 160.9 sec/veh of total delay and the current configuration with 185.3 sec/veh total delay.

The only movement with a volume close to capacity (Max v/c = 1.0) given Alternative 2 in 2015 is the eastbound left movement at the Garrity/Flamingo intersection during PM peak hour conditions.

Table 1 – 2015 Analysis Results

Intersection	Performance Measures	2015 AM Peak			2015 PM Peak		
		Existing	Alt 1	Alt 2	Existing	Alt 1	Alt 2
Garrity & Flamingo	***LOS - Delay***	**C – 27.1**	**C – 21.4**	**C – 24.5**	**D – 53.2**	**C – 29.1**	**C – 29.5**
	Max V/C - MVMT	0.81 - EBL	0.80 - NBT	0.73 - WBR	1.10 - SBL	0.89 - SBT	0.97 - EBL
Garrity & Stamm	***LOS - Delay***	**B – 16.1**	**B – 19.2**	**A – 9.3**	**B – 17.6**	**C – 31.4**	**B – 12.8**
	Max V/C - MVMT	0.87 - SBL	0.81 - NBT	0.69 - NBT	0.76 - SBT	0.98 - NBT	0.77 - SBL
Happy Valley & Stamm	***LOS - Delay***	**B – 18.2**	**B – 16.5**	**C – 23.3**	**B – 13.0**	**B – 14.1**	**B – 16.6**
	Max V/C - MVMT	0.88 - NBT	0.74 - NBT	0.84 - NBT	0.49 - EBT	0.59 - NBT	0.74 - NBT
Happy Valley & Flamingo	***LOS - Delay***	**B – 19.2**	**B – 13.5**	**B – 18.4**	**C – 20.9**	**B – 15.7**	**B – 19.4**
	Max V/C - MVMT	0.71 - NBL	0.66 - NBL	0.70 - NBL	0.74 - NBL	0.76 - NBL	0.81 - NBT

Table 2 summarizes the results for the analysis of 2040 alternatives for both AM and PM peak hour conditions. Alternative 2 (One-Way) outperforms the other alternatives (Alternative 1 and No Build) in both the AM and PM peak hours. The total delay for Alternative 2 during the AM peak hour in 2040 is 108.6 sec/veh. This is significantly lower than the total delay associated with Alternative 1 (175.7 sec/veh) and the No Build configuration (163.1 sec/veh). During the 2040 PM peak hour, Alternative 2 is estimated to have 315.9 sec/veh of total delay compared to 414.5 sec/veh (Alternative 1) and 440.9 sec/veh (No Build).

There is one intersection with a volume-to-capacity (max v/c) movement in excess of 1.0 during the AM peak hour given Alternative 2. It is the eastbound through movement at the Stamm/Happy Valley intersection. During the PM peak hour, three of the four intersections have movements with max v/c in excess of 1.0. They are the eastbound left movement at Garrity/Flamingo (1.29), the southbound left movement at Garrity/ Stamm (1.04), and the eastbound right movement at the Stamm/Happy Valley intersection (1.23).

Table 2 – 2040 Analysis Results

Intersection	Performance Measures	2040 AM Peak			2040 PM Peak		
		No Build	Alt 1	Alt 2	No Build	Alt 1	Alt 2
Garrity & Flamingo	***LOS - Delay***	**D – 50.9**	**E – 31.1**	**C – 31.5**	**F – 95.4**	**F – 99.5**	**F – 102.9**
	Max V/C - MVMT	1.02 - NBT	0.91 - SBT	0.95 - EBL	1.20 - EBL	1.29 - EBL	1.29 - EBL
Garrity & Stamm	***LOS - Delay***	**C – 28.2**	**E – 64.5**	**B – 19.5**	**F – 138.9**	**F – 168.4**	**F – 86.2**
	Max V/C - MVMT	0.93 - SBT	1.00 - SBL	0.91 - NBT	1.44 - NBL	1.43 - NBL	1.04 - SBL
Happy Valley & Stamm	***LOS - Delay***	**E – 56.9**	**E – 60.6**	**D – 37.4**	**F – 173.6**	**F – 130.5**	**F – 106.8**
	Max V/C - MVMT	1.06 - WBT	1.03 - SBL	1.15 - EBT	1.49 - WBT	1.35 - WBT	1.23 - EBR
Happy Valley & Flamingo	***LOS - Delay***	**C – 27.1**	**B – 19.5**	**C – 20.2**	**C – 33.0**	**B – 16.1**	**B – 20.0**
	Max V/C - MVMT	0.86 - NBL	0.75 - NBL	0.75 - NBL	0.86 - NBL	0.77 - NBL	0.81 - NBL

Given 2040 PM peak hour conditions, three of the four intersections in the study area operate at LOS F regardless of the alternative implemented. However, Alternative 2 provides an opportunity to improve operations at the Stamm/Happy Valley intersection by constructing a “free right” for eastbound to southbound traffic. Other alternatives require widening the east (westbound) leg of Stamm Lane east of Happy Valley Road.

Given the comparison of LOS, delay, and v/c, Alternative 2 (One-Way) outperforms Alternative 1 (No Lefts) and the existing (No Build) condition. Alternative 2 also eliminates the number of vehicle conflict points at the intersections of Garrity/Flamingo and Garrity/Stamm. This has the potential to improve safety at these intersections by potentially reducing the number, type, and severity of crashes in the area.

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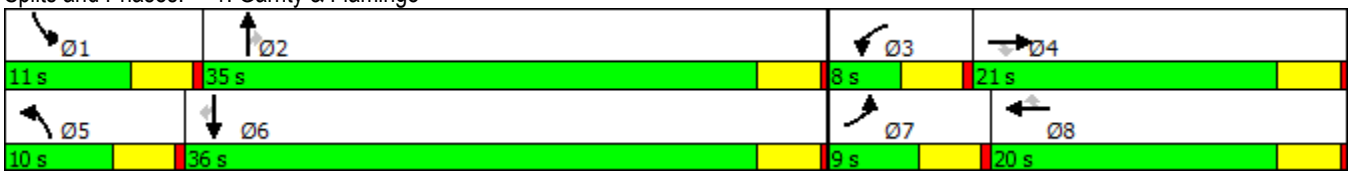
Traffic Analysis Results

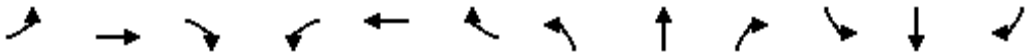
Prepared by HDR for City of Nampa

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	25	24	31	43	615	34	1181	16	236	716	285
Future Volume (vph)	164	25	24	31	43	615	34	1181	16	236	716	285
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	9.0	21.0	21.0	8.0	20.0	20.0	10.0	35.0	35.0	11.0	36.0	36.0
Total Split (%)	12.0%	28.0%	28.0%	10.7%	26.7%	26.7%	13.3%	46.7%	46.7%	14.7%	48.0%	48.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.0	19.5	19.5	4.0	13.6	13.6	5.9	31.1	31.1	7.0	36.3	36.3
Actuated g/C Ratio	0.07	0.27	0.27	0.06	0.19	0.19	0.08	0.43	0.43	0.10	0.50	0.50
v/c Ratio	0.81	0.05	0.07	0.18	0.85	0.84	0.42	0.89	0.02	0.78	0.43	0.42
Control Delay	61.6	22.0	0.2	36.2	34.2	34.0	41.9	29.0	0.1	50.8	14.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	22.0	0.2	36.2	34.2	34.0	41.9	29.0	0.1	50.8	14.2	3.1
LOS	E	C	A	D	C	C	D	C	A	D	B	A
Approach Delay		48.8			34.2			29.2			17.6	
Approach LOS		D			C			C			B	

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 72.7	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	186	27	34	34	361	354	60	1357	17	257	770	413
v/c Ratio	0.81	0.05	0.07	0.18	0.85	0.84	0.42	0.89	0.02	0.78	0.43	0.42
Control Delay	61.6	22.0	0.2	36.2	34.2	34.0	41.9	29.0	0.1	50.8	14.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	22.0	0.2	36.2	34.2	34.0	41.9	29.0	0.1	50.8	14.2	3.1
Queue Length 50th (ft)	45	8	0	8	86	83	27	304	0	61	133	0
Queue Length 95th (ft)	#95	29	0	21	#227	#222	39	#419	0	#120	182	8
Internal Link Dist (ft)		290			547			459			386	
Turn Bay Length (ft)	150		150	200			250		175	340		200
Base Capacity (vph)	231	504	519	189	473	464	147	1526	751	331	1782	986
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.05	0.07	0.18	0.76	0.76	0.41	0.89	0.02	0.78	0.43	0.42

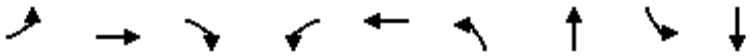
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	95	15	167	1	10	596	36	1	18
Future Volume (vph)	95	15	167	1	10	596	36	1	18
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	NA
Protected Phases		4			8	5	2		6
Permitted Phases	4		4	8				6	
Detector Phase	4	4	4	8	8	5	2	6	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	40.0	20.0	20.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	66.7%	33.3%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead		Lag	Lag
Lead-Lag Optimize?						Yes		Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	36.0	16.0	16.0
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.60	0.27	0.27
v/c Ratio	0.28	0.02	0.33	0.00	0.01	0.71	0.04	0.00	0.12
Control Delay	19.9	16.3	5.2	16.0	15.7	24.9	4.8	16.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	16.3	5.2	16.0	15.7	24.9	4.8	16.0	9.8
LOS	B	B	A	B	B	C	A	B	A
Approach Delay		10.8			15.7		23.7		9.9
Approach LOS		B			B		C		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Pretimed	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 19.2	Intersection LOS: B
Intersection Capacity Utilization 42.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Happy Valley & Flamingo



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	16	182	1	12	648	42	1	56
v/c Ratio	0.28	0.02	0.33	0.00	0.01	0.71	0.04	0.00	0.12
Control Delay	19.9	16.3	5.2	16.0	15.7	24.9	4.8	16.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	16.3	5.2	16.0	15.7	24.9	4.8	16.0	9.8
Queue Length 50th (ft)	29	2	0	0	1	108	5	0	5
Queue Length 95th (ft)	65	8	40	4	6	159	15	4	28
Internal Link Dist (ft)		547			117		529		252
Turn Bay Length (ft)	200		200			150		200	
Base Capacity (vph)	372	943	555	370	932	915	1106	362	475
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.02	0.33	0.00	0.01	0.71	0.04	0.00	0.12

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	1	2	73	4	3	1180	51	88	663
Future Volume (vph)	1	2	73	4	3	1180	51	88	663
Turn Type	custom	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases				2	7	4		3	8
Permitted Phases	6	6	2				4		
Detector Phase	6	6	2	2	7	4	4	3	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	21.0	21.0	21.0	21.0	8.0	51.0	51.0	8.0	43.0
Total Split (%)	26.3%	26.3%	26.3%	26.3%	10.0%	63.8%	63.8%	10.0%	53.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	7.6	7.6	17.3	17.3	4.1	31.4	31.4	4.1	38.2
Actuated g/C Ratio	0.12	0.12	0.27	0.27	0.06	0.48	0.48	0.06	0.59
v/c Ratio	0.01	0.05	0.21	0.21	0.05	0.73	0.07	0.87	0.34
Control Delay	26.0	17.5	23.5	7.5	34.0	15.6	1.9	95.4	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	17.5	23.5	7.5	34.0	15.6	1.9	95.4	7.5
LOS	C	B	C	A	C	B	A	F	A
Approach Delay		18.9		14.4		15.1			17.9
Approach LOS		B		B		B			B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 64.9	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 58.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 11: Stamm & Garrity

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	2	10	79	104	5	1255	55	96	712
v/c Ratio	0.01	0.05	0.21	0.21	0.05	0.73	0.07	0.87	0.34
Control Delay	26.0	17.5	23.5	7.5	34.0	15.6	1.9	95.4	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	17.5	23.5	7.5	34.0	15.6	1.9	95.4	7.5
Queue Length 50th (ft)	1	1	24	1	2	191	0	38	61
Queue Length 95th (ft)	4	13	69	39	8	251	11	#143	120
Internal Link Dist (ft)		83		992		526			459
Turn Bay Length (ft)	50		150		200		200	100	
Base Capacity (vph)	345	444	371	497	111	2626	1181	110	2625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.21	0.21	0.05	0.48	0.05	0.87	0.27

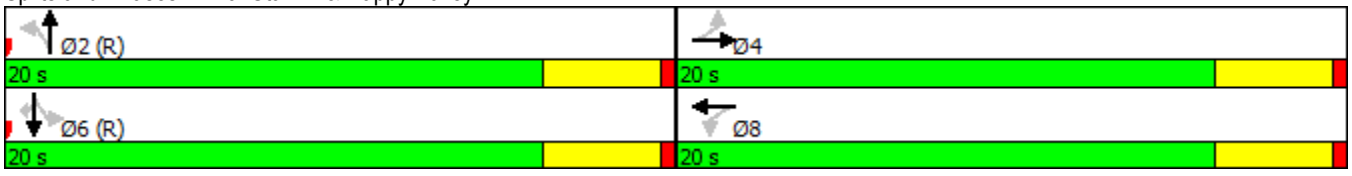
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	13	64	29	51	53	507	18	174	2
Future Volume (vph)	13	64	29	51	53	507	18	174	2
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0		4.0	4.0	4.0	4.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		16.0		16.0		16.0	16.0	16.0	16.0
Actuated g/C Ratio		0.40		0.40		0.40	0.40	0.40	0.40
v/c Ratio		0.24		0.30		0.88	0.08	0.25	0.00
Control Delay		5.4		5.1		29.5	8.5	9.2	0.0
Queue Delay		0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		5.4		5.1		29.5	8.5	9.2	0.0
LOS		A		A		C	A	A	A
Approach Delay		5.4		5.1		29.5		9.0	
Approach LOS		A		A		C		A	

Intersection Summary	
Cycle Length: 40	
Actuated Cycle Length: 40	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Pretimed	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 68.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Stamm & Happy Valley



Lane Group	EBT	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	173	216	626	20	189	2
v/c Ratio	0.24	0.30	0.88	0.08	0.25	0.00
Control Delay	5.4	5.1	29.5	8.5	9.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	5.1	29.5	8.5	9.2	0.0
Queue Length 50th (ft)	11	12	120	3	26	0
Queue Length 95th (ft)	37	41	#284	12	57	0
Internal Link Dist (ft)	992	685	366		529	
Turn Bay Length (ft)				150		
Base Capacity (vph)	728	725	712	255	745	649
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.30	0.88	0.08	0.25	0.00

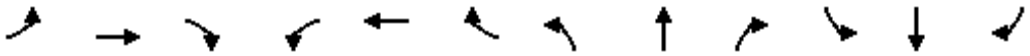
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	76	41	95	37	489	27	981	75	580	1588	141
Future Volume (vph)	322	76	41	95	37	489	27	981	75	580	1588	141
Turn Type	Prot	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases			4	8		8			2	6		6
Detector Phase	7	4	4	8	8	8	5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	28.0	28.0	20.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	16.0	36.0	36.0	20.0	20.0	20.0	8.0	114.0	114.0	106.0	106.0	106.0
Total Split (%)	10.7%	24.0%	24.0%	13.3%	13.3%	13.3%	5.3%	76.0%	76.0%	70.7%	70.7%	70.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	12.0	32.0	32.0	16.0	16.0	16.0	4.0	110.0	110.0	102.0	102.0	102.0
Actuated g/C Ratio	0.08	0.21	0.21	0.11	0.11	0.11	0.03	0.73	0.73	0.68	0.68	0.68
v/c Ratio	1.36	0.21	0.15	0.38	1.04	1.03	1.00	0.43	0.07	1.10	0.70	0.18
Control Delay	233.3	50.3	12.0	66.9	99.1	95.3	200.7	8.4	1.2	93.3	16.7	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	2.4	0.0
Total Delay	233.3	50.3	12.0	66.9	99.1	95.3	200.7	9.5	1.2	93.3	19.1	2.8
LOS	F	D	B	E	F	F	F	A	A	F	B	A
Approach Delay		178.0			92.6			16.1			36.2	
Approach LOS		F			F			B			D	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.36	
Intersection Signal Delay: 53.2	Intersection LOS: D
Intersection Capacity Utilization 81.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	366	83	58	103	290	282	47	1128	82	630	1708	204
v/c Ratio	1.36	0.21	0.15	0.38	1.04	1.03	1.00	0.43	0.07	1.10	0.70	0.18
Control Delay	233.3	50.3	12.0	66.9	99.1	95.3	200.7	8.4	1.2	93.3	16.7	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	2.4	0.0
Total Delay	233.3	50.3	12.0	66.9	99.1	95.3	200.7	9.5	1.2	93.3	19.1	2.8
Queue Length 50th (ft)	~241	68	0	48	~194	~182	47	205	0	~359	502	15
Queue Length 95th (ft)	#338	118	21	81	#397	#383	#69	229	14	#484	580	21
Internal Link Dist (ft)		290			547			459			386	
Turn Bay Length (ft)	150		150	200			250		175	340		200
Base Capacity (vph)	269	397	380	270	279	275	47	2620	1182	572	2430	1109
Starvation Cap Reductn	0	0	0	0	0	0	0	1167	0	0	564	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	0.21	0.15	0.38	1.04	1.03	1.00	0.78	0.07	1.10	0.92	0.18

Intersection Summary

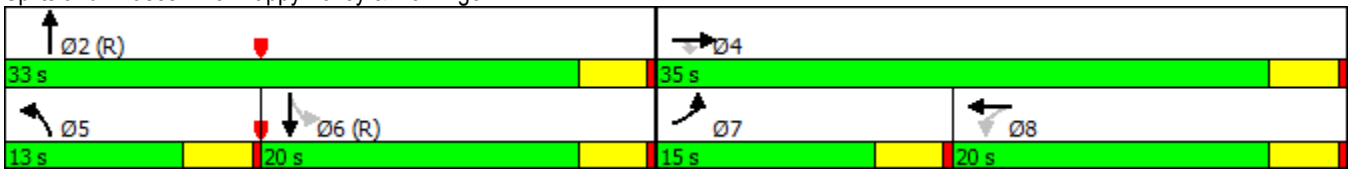
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

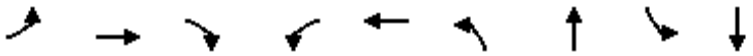
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	192	152	395	23	138	310	45	2	41
Future Volume (vph)	192	152	395	23	138	310	45	2	41
Turn Type	Prot	NA	Perm	Perm	NA	Prot	NA	Perm	NA
Protected Phases	7	4			8	5	2		6
Permitted Phases			4	8				6	
Detector Phase	7	4	4	8	8	5	2	6	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	20.0	20.0	12.0	20.0	20.0	20.0
Total Split (s)	15.0	35.0	35.0	20.0	20.0	13.0	33.0	20.0	20.0
Total Split (%)	22.1%	51.5%	51.5%	29.4%	29.4%	19.1%	48.5%	29.4%	29.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes		Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	11.0	31.0	31.0	16.0	16.0	9.0	29.0	16.0	16.0
Actuated g/C Ratio	0.16	0.46	0.46	0.24	0.24	0.13	0.43	0.24	0.24
v/c Ratio	0.73	0.10	0.45	0.09	0.19	0.74	0.08	0.01	0.27
Control Delay	44.4	10.8	3.0	21.4	20.6	40.1	9.7	20.0	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	10.8	3.0	21.4	20.6	40.1	9.7	20.0	11.2
LOS	D	B	A	C	C	D	A	B	B
Approach Delay		15.4			20.7		35.2		11.3
Approach LOS		B			C		D		B

Intersection Summary	
Cycle Length: 68	
Actuated Cycle Length: 68	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 44.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Happy Valley & Flamingo





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	209	165	429	25	158	337	65	2	125
v/c Ratio	0.73	0.10	0.45	0.09	0.19	0.74	0.08	0.01	0.27
Control Delay	44.4	10.8	3.0	21.4	20.6	40.1	9.7	20.0	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	10.8	3.0	21.4	20.6	40.1	9.7	20.0	11.2
Queue Length 50th (ft)	84	19	0	8	26	71	12	1	15
Queue Length 95th (ft)	#179	35	44	26	48	#125	32	6	54
Internal Link Dist (ft)		547			117		529		252
Turn Bay Length (ft)	200		200			200		200	
Base Capacity (vph)	286	1613	955	284	831	454	774	313	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.10	0.45	0.09	0.19	0.74	0.08	0.01	0.27

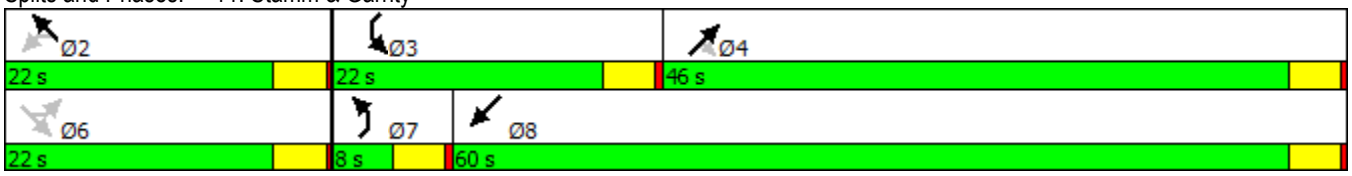
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	13	21	84	13	6	1019	108	182	1557
Future Volume (vph)	13	21	84	13	6	1019	108	182	1557
Turn Type	custom	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases				2	7	4		3	8
Permitted Phases	6	6	2				4		
Detector Phase	6	6	2	2	7	4	4	3	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	22.0	22.0	22.0	22.0	8.0	46.0	46.0	22.0	60.0
Total Split (%)	24.4%	24.4%	24.4%	24.4%	8.9%	51.1%	51.1%	24.4%	66.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	15.2	15.2	18.4	18.4	4.1	30.8	30.8	13.3	46.8
Actuated g/C Ratio	0.20	0.20	0.25	0.25	0.05	0.41	0.41	0.18	0.63
v/c Ratio	0.08	0.18	0.28	0.19	0.10	0.74	0.16	0.63	0.76
Control Delay	27.8	14.8	30.0	11.0	41.7	21.9	3.5	39.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	27.8	14.8	30.0	11.0	41.7	21.9	3.5	39.7	12.8
LOS	C	B	C	B	D	C	A	D	B
Approach Delay		18.1		20.6		20.3			15.6
Approach LOS		B		C		C			B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 74.8	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 68.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Stamm & Garrity



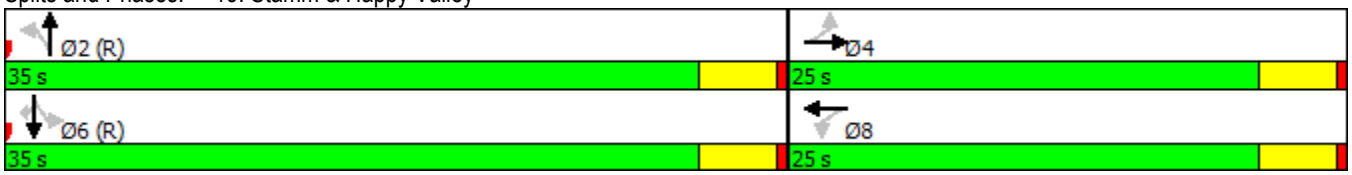
Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	22	67	91	89	10	1084	117	198	1692
v/c Ratio	0.08	0.18	0.28	0.19	0.10	0.74	0.16	0.63	0.76
Control Delay	27.8	14.8	30.0	11.0	41.7	21.9	3.5	39.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	27.8	14.8	30.0	11.0	41.7	21.9	3.5	39.7	12.8
Queue Length 50th (ft)	8	8	34	5	5	213	0	85	234
Queue Length 95th (ft)	19	45	90	45	14	307	28	172	419
Internal Link Dist (ft)		83		992		526			459
Turn Bay Length (ft)	50		150		150		200	100	
Base Capacity (vph)	324	449	327	457	97	2055	960	436	2752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	315
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.28	0.19	0.10	0.53	0.12	0.45	0.69

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	20	125	65	82	50	297	40	416	6
Future Volume (vph)	20	125	65	82	50	297	40	416	6
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0		4.0	4.0	4.0	4.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		21.0		21.0		31.0	31.0	31.0	31.0
Actuated g/C Ratio		0.35		0.35		0.52	0.52	0.52	0.52
v/c Ratio		0.49		0.39		0.47	0.09	0.47	0.01
Control Delay		13.6		15.3		11.2	8.0	11.3	1.8
Queue Delay		0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		13.6		15.3		11.2	8.0	11.3	1.8
LOS		B		B		B	A	B	A
Approach Delay		13.6		15.3		11.2		10.9	
Approach LOS		B		B		B		B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 12.2	Intersection LOS: B
Intersection Capacity Utilization 83.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 19: Stamm & Happy Valley



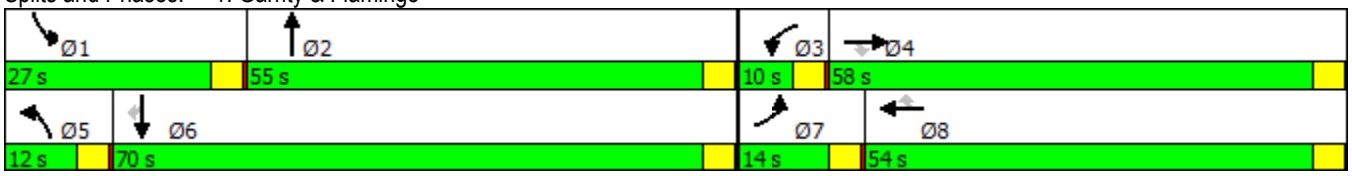
Lane Group	EBT	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	322	209	412	43	452	7
v/c Ratio	0.49	0.39	0.47	0.09	0.47	0.01
Control Delay	13.6	15.3	11.2	8.0	11.3	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	15.3	11.2	8.0	11.3	1.8
Queue Length 50th (ft)	60	47	84	7	95	0
Queue Length 95th (ft)	124	97	148	21	160	3
Internal Link Dist (ft)	992	685	366		529	
Turn Bay Length (ft)				150		
Base Capacity (vph)	653	535	870	476	962	826
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.39	0.47	0.09	0.47	0.01

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	251	129	75	63	65	907	53	1916	661	1398	337
Future Volume (vph)	251	129	75	63	65	907	53	1916	661	1398	337
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	8.0	20.0	20.0
Total Split (s)	14.0	58.0	58.0	10.0	54.0	54.0	12.0	55.0	27.0	70.0	70.0
Total Split (%)	9.3%	38.7%	38.7%	6.7%	36.0%	36.0%	8.0%	36.7%	18.0%	46.7%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	10.0	56.0	56.0	6.0	50.0	50.0	8.0	51.0	23.0	66.0	66.0
Actuated g/C Ratio	0.07	0.37	0.37	0.04	0.33	0.33	0.05	0.34	0.15	0.44	0.44
v/c Ratio	1.27	0.20	0.16	0.50	0.11	1.39	0.98	1.30	1.37	0.96	0.60
Control Delay	205.6	33.6	6.0	83.2	35.4	212.4	155.4	180.2	222.0	55.0	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	26.5	0.1
Total Delay	205.6	33.6	6.0	83.2	35.4	212.5	155.4	180.6	222.0	81.5	18.8
LOS	F	C	A	F	D	F	F	F	F	F	B
Approach Delay		120.4			193.5			179.6		107.4	
Approach LOS		F			F			F		F	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 148.2	Intersection LOS: F
Intersection Capacity Utilization 111.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	285	140	106	68	71	986	93	2266	718	1503	488
v/c Ratio	1.27	0.20	0.16	0.50	0.11	1.39	0.98	1.30	1.37	0.96	0.60
Control Delay	205.6	33.6	6.0	83.2	35.4	212.4	155.4	180.2	222.0	55.0	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	26.5	0.1
Total Delay	205.6	33.6	6.0	83.2	35.4	212.5	155.4	180.6	222.0	81.5	18.8
Queue Length 50th (ft)	~180	95	0	34	48	~1098	93	~1041	~475	739	183
Queue Length 95th (ft)	#269	150	18	61	87	#1364	#100	#1071	#604	#905	157
Internal Link Dist (ft)		290			547			459		386	
Turn Bay Length (ft)	150		150	200			250		340		200
Base Capacity (vph)	224	695	651	137	621	709	95	1740	526	1572	819
Starvation Cap Reductn	0	0	0	0	0	8	0	238	0	153	25
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.20	0.16	0.50	0.11	1.41	0.98	1.51	1.37	1.06	0.61

Intersection Summary

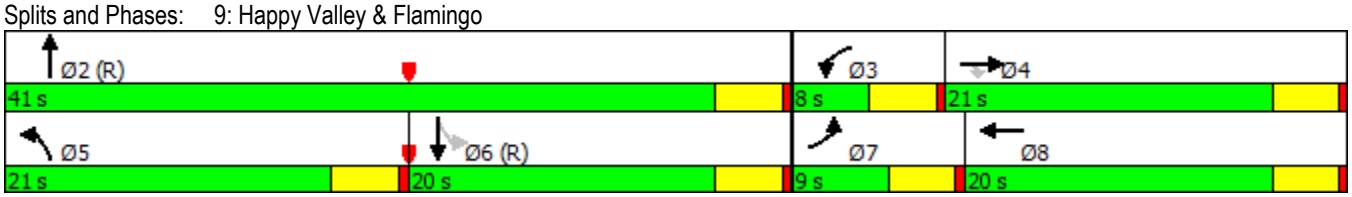
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

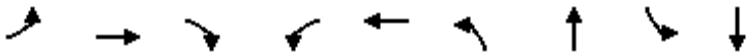
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	95	22	713	97	302	790	36	11	37
Future Volume (vph)	95	22	713	97	302	790	36	11	37
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	NA
Protected Phases	7	4		3	8	5	2		6
Permitted Phases			4					6	
Detector Phase	7	4	4	3	8	5	2	6	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	9.0	21.0	21.0	8.0	20.0	21.0	41.0	20.0	20.0
Total Split (%)	12.9%	30.0%	30.0%	11.4%	28.6%	30.0%	58.6%	28.6%	28.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	17.0	17.0	4.0	16.0	17.0	37.0	16.0	16.0
Actuated g/C Ratio	0.07	0.24	0.24	0.06	0.23	0.24	0.53	0.23	0.23
v/c Ratio	0.82	0.03	0.80	1.04	0.42	1.03	0.11	0.04	0.15
Control Delay	79.0	20.4	9.7	139.4	24.6	68.1	4.4	21.6	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.0	20.4	9.7	139.4	24.6	68.1	4.4	21.6	16.4
LOS	E	C	A	F	C	E	A	C	B
Approach Delay		17.9			51.7		61.5		17.3
Approach LOS		B			D		E		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 41.8	Intersection LOS: D
Intersection Capacity Utilization 62.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: Happy Valley & Flamingo





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	24	775	105	340	859	99	12	63
v/c Ratio	0.82	0.03	0.80	1.04	0.42	1.03	0.11	0.04	0.15
Control Delay	79.0	20.4	9.7	139.4	24.6	68.1	4.4	21.6	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.0	20.4	9.7	139.4	24.6	68.1	4.4	21.6	16.4
Queue Length 50th (ft)	45	4	0	~48	64	~200	8	4	14
Queue Length 95th (ft)	#126	13	#134	#140	101	#315	27	17	42
Internal Link Dist (ft)		547			117		529		252
Turn Bay Length (ft)	200		200			150		200	
Base Capacity (vph)	126	859	971	101	808	833	923	295	420
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.03	0.80	1.04	0.42	1.03	0.11	0.04	0.15

Intersection Summary

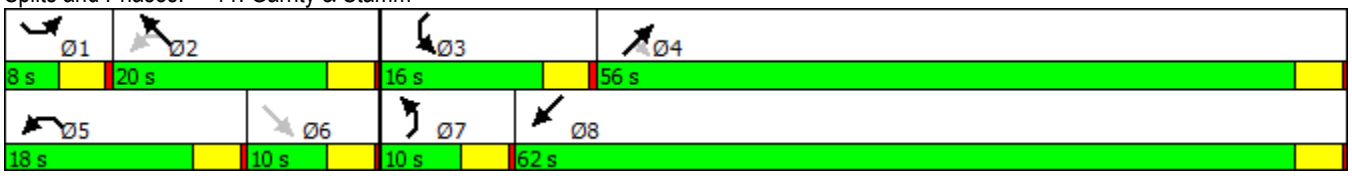
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	1	2	313	4	25	1883	143	200	1265
Future Volume (vph)	1	2	313	4	25	1883	143	200	1265
Turn Type	Prot	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA
Protected Phases	1		5	2	7	4		3	8
Permitted Phases		6	2				4		
Detector Phase	1	6	5	2	7	4	4	3	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	8.0	10.0	18.0	20.0	10.0	56.0	56.0	16.0	62.0
Total Split (%)	8.0%	10.0%	18.0%	20.0%	10.0%	56.0%	56.0%	16.0%	62.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	4.0	5.7	22.1	20.6	5.9	52.0	52.0	12.0	62.2
Actuated g/C Ratio	0.04	0.06	0.23	0.21	0.06	0.53	0.53	0.12	0.63
v/c Ratio	0.03	0.55	1.09	0.35	0.40	1.06	0.17	1.00	0.60
Control Delay	47.0	21.5	112.3	8.7	56.8	62.4	1.6	107.8	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Total Delay	47.0	21.5	112.3	8.7	56.8	62.4	1.6	107.8	13.9
LOS	D	C	F	A	E	E	A	F	B
Approach Delay		22.0		79.0		58.0			26.8
Approach LOS		C		E		E			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 98.2	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 48.3	Intersection LOS: D
Intersection Capacity Utilization 97.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Garrity & Stamm



Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	2	102	340	161	43	2003	155	217	1360
v/c Ratio	0.03	0.55	1.09	0.35	0.40	1.06	0.17	1.00	0.60
Control Delay	47.0	21.5	112.3	8.7	56.8	62.4	1.6	107.8	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Total Delay	47.0	21.5	112.3	8.7	56.8	62.4	1.6	107.8	13.9
Queue Length 50th (ft)	1	1	~225	2	27	~748	0	~143	285
Queue Length 95th (ft)	6	53	#370	58	40	#893	20	#293	361
Internal Link Dist (ft)		83		992		526			459
Turn Bay Length (ft)	50		150		150		100	100	
Base Capacity (vph)	72	192	313	457	109	1894	925	216	2258
Starvation Cap Reductn	0	0	0	0	0	0	0	0	459
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.53	1.09	0.35	0.39	1.06	0.17	1.00	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	17	190	122	24	231	136	637	309	529	33
Future Volume (vph)	17	190	122	24	231	136	637	309	529	33
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Prot	NA	Perm
Protected Phases		4			8		2	1	6	
Permitted Phases	4		4	8		2				6
Detector Phase	4	4	4	8	8	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	64.0	64.0	22.0	86.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	28.3%	53.3%	53.3%	18.3%	71.7%	71.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		30.0	30.0		30.0		60.0	18.0	82.0	82.0
Actuated g/C Ratio		0.25	0.25		0.25		0.50	0.15	0.68	0.68
v/c Ratio		0.61	0.27		1.24		1.18	1.27	0.45	0.03
Control Delay		47.9	9.9		162.5		125.5	188.7	10.1	2.0
Queue Delay		0.0	0.0		0.0		0.0	0.0	1.0	0.0
Total Delay		47.9	9.9		162.5		125.5	188.7	11.1	2.0
LOS		D	A		F		F	F	B	A
Approach Delay		33.8			162.5		125.5		73.7	
Approach LOS		C			F		F		E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 120	
Control Type: Pretimed	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 103.4	Intersection LOS: F
Intersection Capacity Utilization 125.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 19: Stamm & Happy Valley

Lane Group	EBT	EBR	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	225	133	564	887	336	575	36
v/c Ratio	0.61	0.27	1.24	1.18	1.27	0.45	0.03
Control Delay	47.9	9.9	162.5	125.5	188.7	10.1	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Total Delay	47.9	9.9	162.5	125.5	188.7	11.1	2.0
Queue Length 50th (ft)	155	9	~520	~829	~328	185	0
Queue Length 95th (ft)	242	59	#743	#1079	#513	257	10
Internal Link Dist (ft)	992		685	366		529	
Turn Bay Length (ft)		100			150		
Base Capacity (vph)	370	484	454	749	265	1273	1093
Starvation Cap Reductn	0	0	0	0	0	424	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.27	1.24	1.18	1.27	0.68	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	610	219	87	146	102	668	59	1274	852	1841	288
Future Volume (vph)	610	219	87	146	102	668	59	1274	852	1841	288
Turn Type	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	8	5	2	1	6	
Permitted Phases			4								6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	8.0	20.0	20.0
Total Split (s)	26.0	37.0	37.0	15.0	26.0	26.0	9.0	45.0	33.0	69.0	69.0
Total Split (%)	20.0%	28.5%	28.5%	11.5%	20.0%	20.0%	6.9%	34.6%	25.4%	53.1%	53.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	22.0	33.8	33.8	10.2	22.0	22.0	5.0	41.0	29.0	65.0	65.0
Actuated g/C Ratio	0.17	0.26	0.26	0.08	0.17	0.17	0.04	0.32	0.22	0.50	0.50
v/c Ratio	1.22	0.49	0.25	0.59	1.25	0.78	1.53	1.00	1.21	1.11	0.47
Control Delay	158.5	45.3	10.4	67.0	167.4	22.4	339.3	66.5	149.7	89.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	0.0	0.2	0.0
Total Delay	158.5	45.3	10.4	67.0	167.4	22.4	339.3	80.2	149.7	89.3	12.4
LOS	F	D	B	E	F	C	F	F	F	F	B
Approach Delay		115.7			92.1			95.9		96.5	
Approach LOS		F			F			F		F	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Natural Cycle: 130	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.53	
Intersection Signal Delay: 98.6	Intersection LOS: F
Intersection Capacity Utilization 104.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	693	238	123	159	430	407	104	1606	926	1980	417
v/c Ratio	1.22	0.49	0.25	0.59	1.25	0.78	1.53	1.00	1.21	1.11	0.47
Control Delay	158.5	45.3	10.4	67.0	167.4	22.4	339.3	66.5	149.7	89.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	0.0	0.2	0.0
Total Delay	158.5	45.3	10.4	67.0	167.4	22.4	339.3	80.2	149.7	89.3	12.4
Queue Length 50th (ft)	~368	172	9	67	~400	64	~122	491	~490	~1001	111
Queue Length 95th (ft)	#473	258	30	104	#623	205	#131	#572	#620	#1138	106
Internal Link Dist (ft)		290			547			459		386	
Turn Bay Length (ft)	150		150	200			250		340		200
Base Capacity (vph)	569	483	487	290	345	525	68	1606	765	1787	880
Starvation Cap Reductn	0	0	0	0	0	0	0	67	0	122	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.49	0.25	0.55	1.25	0.78	1.53	1.04	1.21	1.19	0.47

Intersection Summary

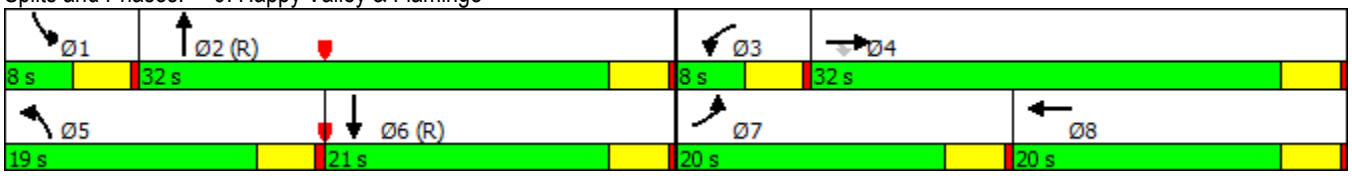
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

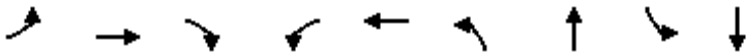
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	279	182	664	30	183	542	45	2	76
Future Volume (vph)	279	182	664	30	183	542	45	2	76
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	8.0	20.0	8.0	20.0
Total Split (s)	20.0	32.0	32.0	8.0	20.0	19.0	32.0	8.0	21.0
Total Split (%)	25.0%	40.0%	40.0%	10.0%	25.0%	23.8%	40.0%	10.0%	26.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	16.0	28.0	28.0	4.0	16.0	15.0	28.0	4.0	17.0
Actuated g/C Ratio	0.20	0.35	0.35	0.05	0.20	0.19	0.35	0.05	0.21
v/c Ratio	0.86	0.16	0.71	0.38	0.29	0.92	0.10	0.02	0.53
Control Delay	55.5	18.4	6.1	49.1	28.0	53.4	14.6	37.0	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	18.4	6.1	49.1	28.0	53.4	14.6	37.0	20.4
LOS	E	B	A	D	C	D	B	D	C
Approach Delay		20.3			30.9		49.6		20.5
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Pretimed	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 29.5	Intersection LOS: C
Intersection Capacity Utilization 66.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Happy Valley & Flamingo





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	303	198	722	33	207	589	65	2	233
v/c Ratio	0.86	0.16	0.71	0.38	0.29	0.92	0.10	0.02	0.53
Control Delay	55.5	18.4	6.1	49.1	28.0	53.4	14.6	37.0	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	18.4	6.1	49.1	28.0	53.4	14.6	37.0	20.4
Queue Length 50th (ft)	147	35	0	16	45	150	16	1	56
Queue Length 95th (ft)	#284	58	78	44	75	#244	42	8	125
Internal Link Dist (ft)		547			117		529		252
Turn Bay Length (ft)	200		200			150		200	
Base Capacity (vph)	354	1238	1023	88	706	643	638	88	438
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.16	0.71	0.38	0.29	0.92	0.10	0.02	0.53

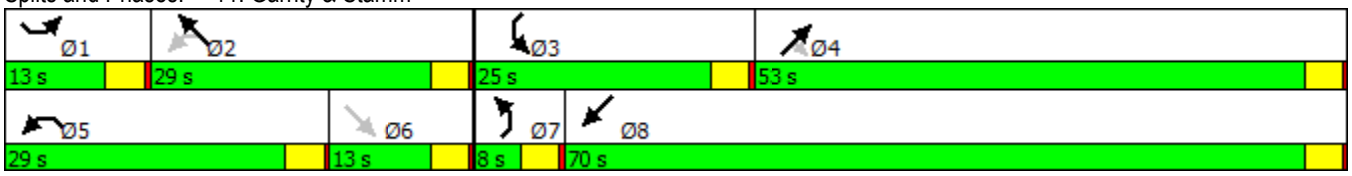
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	32	53	422	35	10	1244	309	248	1830
Future Volume (vph)	32	53	422	35	10	1244	309	248	1830
Turn Type	Prot	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA
Protected Phases	1		5	2	7	4		3	8
Permitted Phases		6	2				4		
Detector Phase	1	6	5	2	7	4	4	3	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	13.0	13.0	29.0	29.0	8.0	53.0	53.0	25.0	70.0
Total Split (%)	10.8%	10.8%	24.2%	24.2%	6.7%	44.2%	44.2%	20.8%	58.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	8.0	9.0	38.0	28.0	4.0	48.2	48.2	20.1	69.2
Actuated g/C Ratio	0.07	0.08	0.32	0.24	0.03	0.41	0.41	0.17	0.58
v/c Ratio	0.45	0.89	1.06	0.45	0.28	0.91	0.46	0.90	0.96
Control Delay	65.7	78.8	96.8	11.9	68.7	43.5	15.4	80.2	36.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.6
Total Delay	65.7	78.8	96.8	11.9	68.7	43.5	15.4	80.2	79.8
LOS	E	E	F	B	E	D	B	F	E
Approach Delay		75.4		67.5		38.2			79.9
Approach LOS		E		E		D			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 118.4	
Natural Cycle: 120	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 63.5	Intersection LOS: E
Intersection Capacity Utilization 94.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Garrity & Stamm



Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	55	162	459	242	17	1323	336	270	1995
v/c Ratio	0.45	0.89	1.06	0.45	0.28	0.91	0.46	0.90	0.96
Control Delay	65.7	78.8	96.8	11.9	68.7	43.5	15.4	80.2	36.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.6
Total Delay	65.7	78.8	96.8	11.9	68.7	43.5	15.4	80.2	79.8
Queue Length 50th (ft)	41	81	~347	25	13	499	96	206	662
Queue Length 95th (ft)	54	#213	#558	100	24	#641	178	#356	#1001
Internal Link Dist (ft)		83		992		526			459
Turn Bay Length (ft)	50		150		150		100	100	
Base Capacity (vph)	136	182	433	540	60	1480	746	313	2082
Starvation Cap Reductn	0	0	0	0	0	0	0	0	429
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.89	1.06	0.45	0.28	0.89	0.45	0.86	1.21

Intersection Summary

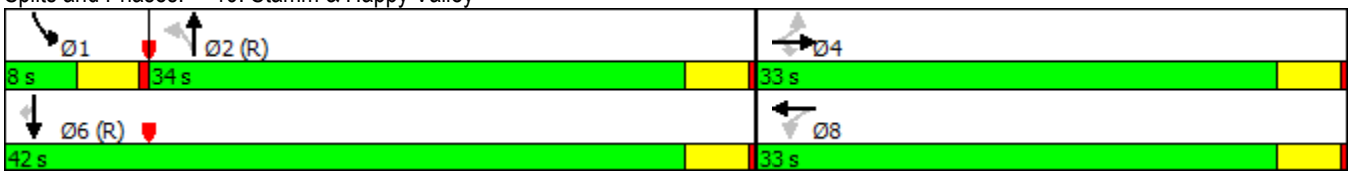
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	27	170	376	67	364	55	400	65	665	53
Future Volume (vph)	27	170	376	67	364	55	400	65	665	53
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Prot	NA	Perm
Protected Phases		4			8		2	1	6	
Permitted Phases	4		4	8		2				6
Detector Phase	4	4	4	8	8	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0	34.0	34.0	8.0	42.0	42.0
Total Split (%)	44.0%	44.0%	44.0%	44.0%	44.0%	45.3%	45.3%	10.7%	56.0%	56.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		29.0	29.0		29.0		30.0	4.0	38.0	38.0
Actuated g/C Ratio		0.39	0.39		0.39		0.40	0.05	0.51	0.51
v/c Ratio		0.35	0.57		1.14		1.02	0.76	0.77	0.07
Control Delay		18.4	14.0		104.5		69.8	82.0	21.8	3.2
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		18.4	14.0		104.5		69.8	82.0	21.8	3.2
LOS		B	B		F		E	F	C	A
Approach Delay		15.5			104.5		69.8		25.5	
Approach LOS		B			F		E		C	

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 75	
Control Type: Pretimed	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 53.8	Intersection LOS: D
Intersection Capacity Utilization 125.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 19: Stamm & Happy Valley



Lane Group	EBT	EBR	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	214	409	773	540	71	723	58
v/c Ratio	0.35	0.57	1.14	1.02	0.76	0.77	0.07
Control Delay	18.4	14.0	104.5	69.8	82.0	21.8	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	14.0	104.5	69.8	82.0	21.8	3.2
Queue Length 50th (ft)	69	81	~415	~255	33	254	0
Queue Length 95th (ft)	122	167	#626	#458	#101	397	17
Internal Link Dist (ft)	992		685	366		529	
Turn Bay Length (ft)		100			150		
Base Capacity (vph)	613	714	677	529	94	943	830
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.57	1.14	1.02	0.76	0.77	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	251	19	185	87	65	900	53	1916	144	1915	337
Future Volume (vph)	251	19	185	87	65	900	53	1916	144	1915	337
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	8.0	20.0	8.0
Total Split (s)	15.0	43.0	43.0	12.0	40.0	40.0	10.0	82.0	13.0	85.0	15.0
Total Split (%)	10.0%	28.7%	28.7%	8.0%	26.7%	26.7%	6.7%	54.7%	8.7%	56.7%	10.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effct Green (s)	11.0	39.2	39.2	7.8	36.0	36.0	6.0	78.0	9.0	81.0	92.0
Actuated g/C Ratio	0.07	0.26	0.26	0.05	0.24	0.24	0.04	0.52	0.06	0.54	0.61
v/c Ratio	1.16	0.04	0.55	0.53	1.25	1.24	1.31	0.85	0.77	1.07	0.45
Control Delay	165.3	42.1	36.7	80.6	170.0	167.5	262.3	35.0	92.7	74.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.7	0.0	14.0	0.2
Total Delay	165.3	42.1	36.7	80.6	170.0	167.5	262.3	81.7	92.7	88.9	6.0
LOS	F	D	D	F	F	F	F	F	F	F	A
Approach Delay		101.5			161.5			88.8		74.2	
Approach LOS		F			F			F		E	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.31	
Intersection Signal Delay: 96.3	Intersection LOS: F
Intersection Capacity Utilization 98.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	285	21	261	95	531	518	93	2266	157	2059	488
v/c Ratio	1.16	0.04	0.55	0.53	1.25	1.24	1.31	0.85	0.77	1.07	0.45
Control Delay	165.3	42.1	36.7	80.6	170.0	167.5	262.3	35.0	92.7	74.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.7	0.0	14.0	0.2
Total Delay	165.3	42.1	36.7	80.6	170.0	167.5	262.3	81.7	92.7	88.9	6.0
Queue Length 50th (ft)	~169	16	150	47	~621	~602	~116	682	79	~1167	68
Queue Length 95th (ft)	#257	39	167	79	#867	#846	#124	704	#135	#1300	56
Internal Link Dist (ft)		290			547			459		386	
Turn Bay Length (ft)	150		150	200			175		200		
Base Capacity (vph)	246	487	472	183	425	417	71	2661	205	1929	1078
Starvation Cap Reductn	0	0	0	0	0	0	0	732	0	251	128
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.04	0.55	0.52	1.25	1.24	1.31	1.17	0.77	1.23	0.51

Intersection Summary

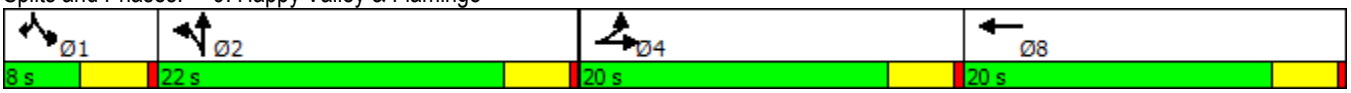
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	95	22	302	790	36	11	33
Future Volume (vph)	95	22	302	790	36	11	33
Turn Type	Split	NA	NA	Split	NA	Prot	Prot
Protected Phases	4	4	8	2	2	1	1
Permitted Phases							
Detector Phase	4	4	8	2	2	1	1
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	8.0
Total Split (s)	20.0	20.0	20.0	22.0	22.0	8.0	8.0
Total Split (%)	28.6%	28.6%	28.6%	31.4%	31.4%	11.4%	11.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	None	None
Act Effct Green (s)	8.7	8.7	10.7	19.6	19.6	4.2	4.2
Actuated g/C Ratio	0.16	0.16	0.20	0.37	0.37	0.08	0.08
v/c Ratio	0.35	0.04	0.48	0.68	0.15	0.09	0.14
Control Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
LOS	C	C	C	C	A	C	A
Approach Delay		25.0	22.3		20.5		
Approach LOS		C	C		C		

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 52.9	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 46.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Happy Valley & Flamingo



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	103	24	340	859	99	12	36
v/c Ratio	0.35	0.04	0.48	0.68	0.15	0.09	0.14
Control Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
Queue Length 50th (ft)	32	3	55	137	9	4	0
Queue Length 95th (ft)	75	13	95	#276	44	20	0
Internal Link Dist (ft)		547	117		529		
Turn Bay Length (ft)	200			200		200	
Base Capacity (vph)	563	1126	1124	1272	665	140	254
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.02	0.30	0.68	0.15	0.09	0.14

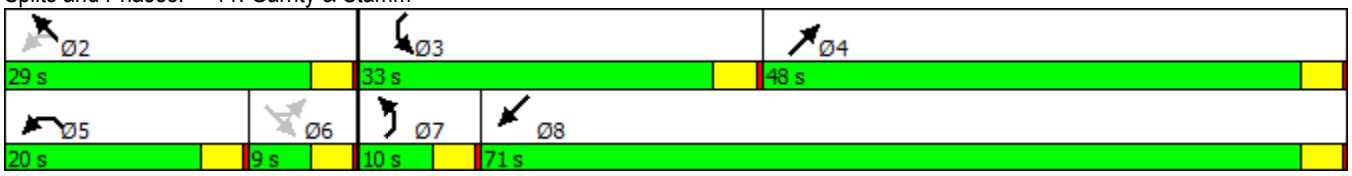
Intersection Summary

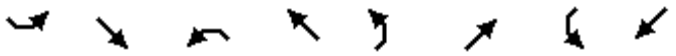
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	1	2	313	4	25	1883	869	1265
Future Volume (vph)	1	2	313	4	25	1883	869	1265
Turn Type	custom	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases			5	2	7	4	3	8
Permitted Phases	6	6	2					
Detector Phase	6	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	8.0	20.0	8.0	20.0	8.0	20.0
Total Split (s)	9.0	9.0	20.0	29.0	10.0	48.0	33.0	71.0
Total Split (%)	8.2%	8.2%	18.2%	26.4%	9.1%	43.6%	30.0%	64.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	None	None	None	None
Act Effct Green (s)	5.0	5.0	25.0	25.0	5.9	44.0	29.0	71.0
Actuated g/C Ratio	0.05	0.05	0.23	0.23	0.05	0.40	0.26	0.65
v/c Ratio	0.03	0.61	1.05	0.33	0.45	1.06	1.04	0.59
Control Delay	51.0	26.6	103.2	8.0	65.7	70.2	82.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Total Delay	51.0	26.6	103.2	8.0	65.7	70.2	82.0	14.0
LOS	D	C	F	A	E	E	F	B
Approach Delay		27.1		72.6		70.1		41.9
Approach LOS		C		E		E		D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Natural Cycle: 110	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 56.8	Intersection LOS: E
Intersection Capacity Utilization 98.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Garrity & Stamm





Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	2	102	340	161	43	2158	945	1360
v/c Ratio	0.03	0.61	1.05	0.33	0.45	1.06	1.04	0.59
Control Delay	51.0	26.6	103.2	8.0	65.7	70.2	82.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Total Delay	51.0	26.6	103.2	8.0	65.7	70.2	82.0	14.0
Queue Length 50th (ft)	1	1	~244	2	30	~613	~373	297
Queue Length 95th (ft)	6	#64	#391	55	43	#711	#500	364
Internal Link Dist (ft)		83		992		526		459
Turn Bay Length (ft)	50		150		50		225	
Base Capacity (vph)	68	168	325	482	97	2038	905	2303
Starvation Cap Reductn	0	0	0	0	0	0	0	591
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.61	1.05	0.33	0.44	1.06	1.04	0.79

Intersection Summary

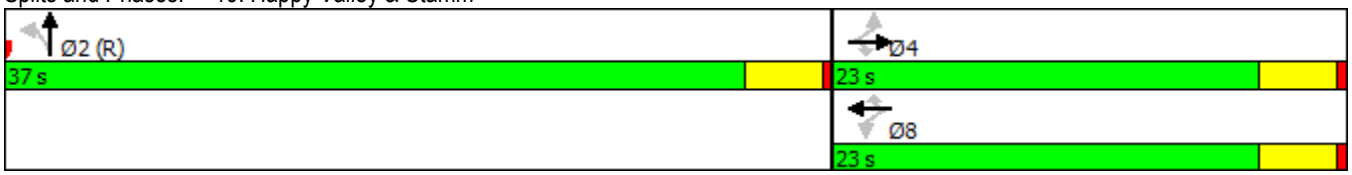
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT
Lane Configurations							
Traffic Volume (vph)	17	190	666	61	264	264	637
Future Volume (vph)	17	190	666	61	264	264	637
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4			8		2
Permitted Phases	4		4	8		8	
Detector Phase	4	4	4	8	8	8	2
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	37.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	38.3%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		19.0	19.0		19.0	19.0	33.0
Actuated g/C Ratio		0.32	0.32		0.32	0.32	0.55
v/c Ratio		0.40	0.73		0.66	0.44	0.88
Control Delay		18.6	6.6		25.1	7.5	24.3
Queue Delay		0.0	0.0		0.0	0.0	0.0
Total Delay		18.6	6.6		25.1	7.5	24.3
LOS		B	A		C	A	C
Approach Delay		9.5			17.2		24.3
Approach LOS		A			B		C

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Pretimed	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 16.8	Intersection LOS: B
Intersection Capacity Utilization 81.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 19: Happy Valley & Stamm



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	225	724	353	287	887
v/c Ratio	0.40	0.73	0.66	0.44	0.88
Control Delay	18.6	6.6	25.1	7.5	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	6.6	25.1	7.5	24.3
Queue Length 50th (ft)	63	0	109	19	248
Queue Length 95th (ft)	115	70	#191	70	#495
Internal Link Dist (ft)	992		685		366
Turn Bay Length (ft)				50	
Base Capacity (vph)	566	996	531	645	1012
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.73	0.66	0.44	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	610	114	192	191	102	668	59	1274	464	2229	288
Future Volume (vph)	610	114	192	191	102	668	59	1274	464	2229	288
Turn Type	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	8	5	2	1	6	7
Permitted Phases			4								6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	28.0	28.0	8.0	20.0	20.0	8.0	20.0	8.0	20.0	8.0
Total Split (s)	25.0	34.0	34.0	18.0	27.0	27.0	10.0	60.0	28.0	78.0	25.0
Total Split (%)	17.9%	24.3%	24.3%	12.9%	19.3%	19.3%	7.1%	42.9%	20.0%	55.7%	17.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effct Green (s)	21.0	31.2	31.2	12.8	23.0	23.0	6.0	56.8	23.2	74.0	95.0
Actuated g/C Ratio	0.15	0.22	0.22	0.09	0.16	0.16	0.04	0.41	0.17	0.53	0.68
v/c Ratio	1.37	0.30	0.63	0.66	1.30	0.91	1.37	0.78	0.89	1.27	0.37
Control Delay	223.2	48.2	38.0	72.0	191.0	49.2	276.5	39.3	75.0	155.9	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	0.0	0.2	0.0
Total Delay	223.2	48.2	38.0	72.0	191.0	49.2	276.5	46.9	75.0	156.1	4.1
LOS	F	D	D	E	F	D	F	D	E	F	A
Approach Delay		157.2			112.1			60.8		124.7	
Approach LOS		F			F			E		F	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Natural Cycle: 140	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.37	
Intersection Signal Delay: 112.5	Intersection LOS: F
Intersection Capacity Utilization 114.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	693	124	270	208	430	407	104	1606	504	2397	417
v/c Ratio	1.37	0.30	0.63	0.66	1.30	0.91	1.37	0.78	0.89	1.27	0.37
Control Delay	223.2	48.2	38.0	72.0	191.0	49.2	276.5	39.3	75.0	155.9	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	0.0	0.2	0.0
Total Delay	223.2	48.2	38.0	72.0	191.0	49.2	276.5	46.9	75.0	156.1	4.1
Queue Length 50th (ft)	~428	96	142	95	~452	172	~124	462	232	~1444	49
Queue Length 95th (ft)	#536	157	161	138	#681	#383	#132	497	#319	#1571	45
Internal Link Dist (ft)		290			547			459		386	
Turn Bay Length (ft)	150		150	200			250		340		200
Base Capacity (vph)	505	415	428	343	331	446	76	2061	588	1889	1140
Starvation Cap Reductn	0	0	0	0	0	0	0	424	0	150	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.37	0.30	0.63	0.61	1.30	0.91	1.37	0.98	0.86	1.38	0.37

Intersection Summary

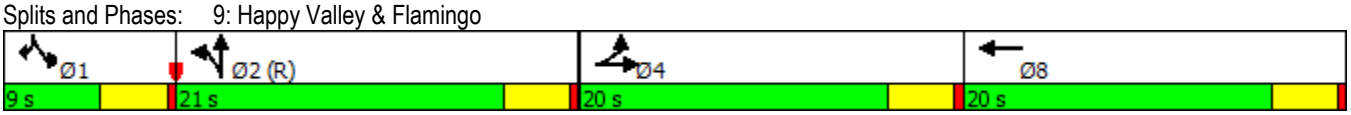
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	279	182	183	542	45	2	138
Future Volume (vph)	279	182	183	542	45	2	138
Turn Type	Split	NA	NA	Split	NA	Prot	Prot
Protected Phases	4	4	8	2	2	1	1
Permitted Phases							
Detector Phase	4	4	8	2	2	1	1
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	8.0
Total Split (s)	20.0	20.0	20.0	21.0	21.0	9.0	9.0
Total Split (%)	28.6%	28.6%	28.6%	30.0%	30.0%	12.9%	12.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	16.0	16.0	16.0	17.0	17.0	5.0	5.0
Actuated g/C Ratio	0.23	0.23	0.23	0.24	0.24	0.07	0.07
v/c Ratio	0.75	0.25	0.26	0.71	0.15	0.02	0.60
Control Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
LOS	D	C	C	C	B	C	B
Approach Delay		32.6	22.6		28.5		
Approach LOS		C	C		C		

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 46.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Happy Valley & Flamingo



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	303	198	207	589	65	2	150
v/c Ratio	0.75	0.25	0.26	0.71	0.15	0.02	0.60
Control Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
Queue Length 50th (ft)	122	36	37	119	16	1	0
Queue Length 95th (ft)	#234	63	64	172	45	7	#60
Internal Link Dist (ft)		547	117		529		
Turn Bay Length (ft)	200			200		200	
Base Capacity (vph)	404	808	807	833	447	126	252
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.25	0.26	0.71	0.15	0.02	0.60

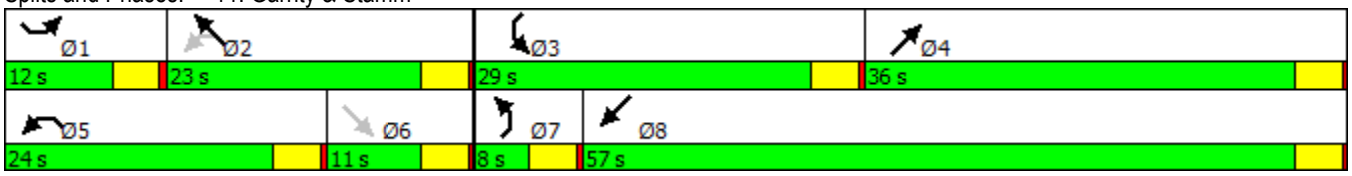
Intersection Summary

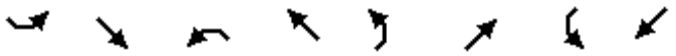
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	32	53	422	35	10	1244	781	1830
Future Volume (vph)	32	53	422	35	10	1244	781	1830
Turn Type	Prot	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	1		5	2	7	4	3	8
Permitted Phases		6	2					
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	8.0	20.0	8.0	20.0	8.0	20.0
Total Split (s)	12.0	11.0	24.0	23.0	8.0	36.0	29.0	57.0
Total Split (%)	12.0%	11.0%	24.0%	23.0%	8.0%	36.0%	29.0%	57.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	None	None	None	None
Act Effct Green (s)	7.3	7.0	31.0	21.6	4.0	32.0	25.0	57.8
Actuated g/C Ratio	0.07	0.07	0.31	0.22	0.04	0.32	0.25	0.58
v/c Ratio	0.42	0.89	1.09	0.47	0.24	1.01	0.99	0.97
Control Delay	54.1	71.3	101.0	11.5	54.8	59.1	66.6	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.4
Total Delay	54.1	71.3	101.0	11.5	54.8	59.1	66.6	78.0
LOS	D	E	F	B	D	E	E	E
Approach Delay		66.9		70.1		59.1		74.6
Approach LOS		E		E		E		E

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 68.9	Intersection LOS: E
Intersection Capacity Utilization 94.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Garrity & Stamm





Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	55	162	459	242	17	1659	849	1995
v/c Ratio	0.42	0.89	1.09	0.47	0.24	1.01	0.99	0.97
Control Delay	54.1	71.3	101.0	11.5	54.8	59.1	66.6	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.4
Total Delay	54.1	71.3	101.0	11.5	54.8	59.1	66.6	78.0
Queue Length 50th (ft)	34	59	~282	20	11	~385	278	546
Queue Length 95th (ft)	46	#181	#473	91	22	#497	#408	#879
Internal Link Dist (ft)		83		992		526		459
Turn Bay Length (ft)	50		150		50		100	
Base Capacity (vph)	142	182	423	510	71	1635	858	2059
Starvation Cap Reductn	0	0	0	0	0	0	0	324
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.89	1.09	0.47	0.24	1.01	0.99	1.15

Intersection Summary

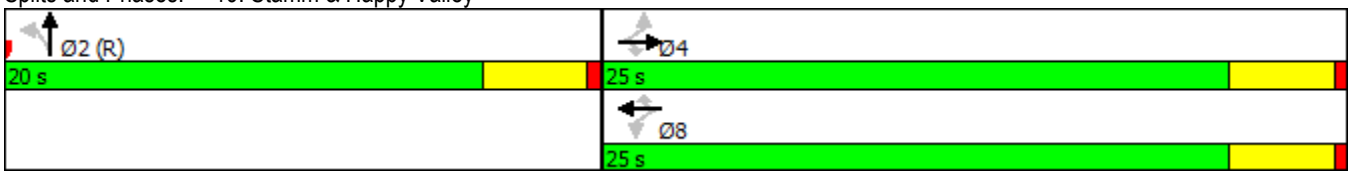
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT
Lane Configurations							
Traffic Volume (vph)	27	170	1040	97	364	280	400
Future Volume (vph)	27	170	1040	97	364	280	400
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4			8		2
Permitted Phases	4		4	8		8	
Detector Phase	4	4	4	8	8	8	2
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	20.0
Total Split (%)	55.6%	55.6%	55.6%	55.6%	55.6%	55.6%	44.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		21.0	21.0		21.0	21.0	16.0
Actuated g/C Ratio		0.47	0.47		0.47	0.47	0.36
v/c Ratio		0.27	0.86		0.65	0.36	0.82
Control Delay		8.5	10.3		14.0	3.8	26.7
Queue Delay		0.0	0.0		0.0	0.0	0.0
Total Delay		8.5	10.3		14.0	3.8	26.7
LOS		A	B		B	A	C
Approach Delay		10.0			10.2		26.7
Approach LOS		A			B		C

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Pretimed	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 19: Stamm & Happy Valley



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	214	1130	501	304	540
v/c Ratio	0.27	0.86	0.65	0.36	0.82
Control Delay	8.5	10.3	14.0	3.8	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	10.3	14.0	3.8	26.7
Queue Length 50th (ft)	31	5	90	11	119
Queue Length 95th (ft)	63	#280	170	43	#267
Internal Link Dist (ft)	992		685		366
Turn Bay Length (ft)				50	
Base Capacity (vph)	797	1320	774	856	658
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.86	0.65	0.36	0.82

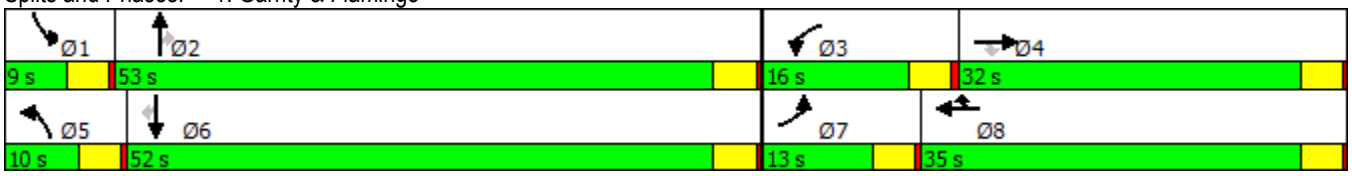
Intersection Summary

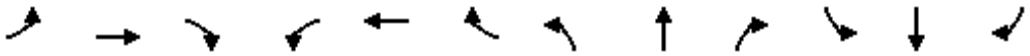
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	251	19	185	87	65	900	53	1916	59	144	1915	337
Future Volume (vph)	251	19	185	87	65	900	53	1916	59	144	1915	337
Turn Type	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8	5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	13.0	32.0	32.0	16.0	35.0	35.0	10.0	53.0	53.0	9.0	52.0	52.0
Total Split (%)	11.8%	29.1%	29.1%	14.5%	31.8%	31.8%	9.1%	48.2%	48.2%	8.2%	47.3%	47.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	9.0	32.1	32.1	10.0	8.7	31.0	6.0	49.0	49.0	5.0	48.0	48.0
Actuated g/C Ratio	0.08	0.29	0.29	0.09	0.08	0.28	0.05	0.45	0.45	0.05	0.44	0.44
v/c Ratio	1.04	0.04	0.47	0.54	0.60	1.09	0.96	0.96	0.08	1.01	0.92	0.62
Control Delay	113.7	31.1	18.8	60.2	65.3	89.4	134.0	42.0	2.1	126.9	37.1	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.8	0.0	0.0	0.0	0.0
Total Delay	113.7	31.1	18.8	60.2	65.3	89.4	134.0	84.7	2.1	126.9	37.1	18.1
LOS	F	C	B	E	E	F	F	F	A	F	D	B
Approach Delay		67.0			85.6			84.4			38.9	
Approach LOS		E			F			F			D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Natural Cycle: 110	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 65.0	Intersection LOS: E
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	285	21	261	82	84	978	93	2202	64	157	2059	488
v/c Ratio	1.04	0.04	0.47	0.54	0.60	1.09	0.96	0.96	0.08	1.01	0.92	0.62
Control Delay	113.7	31.1	18.8	60.2	65.3	89.4	134.0	42.0	2.1	126.9	37.1	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.8	0.0	0.0	0.0	0.0
Total Delay	113.7	31.1	18.8	60.2	65.3	89.4	134.0	84.7	2.1	126.9	37.1	18.1
Queue Length 50th (ft)	~111	11	68	58	60	~394	67	539	0	~58	489	158
Queue Length 95th (ft)	#192	32	92	110	112	#536	#83	#589	14	#128	564	153
Internal Link Dist (ft)		290			547			459			386	
Turn Bay Length (ft)	150		150	250		200	175		50	200		100
Base Capacity (vph)	275	543	556	183	139	898	97	2287	754	156	2241	787
Starvation Cap Reductn	0	0	0	0	0	0	0	284	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.04	0.47	0.45	0.60	1.09	0.96	1.10	0.08	1.01	0.92	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

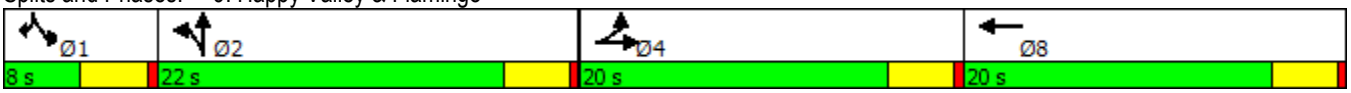
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	95	22	302	790	36	11	33
Future Volume (vph)	95	22	302	790	36	11	33
Turn Type	Split	NA	NA	Split	NA	Prot	Prot
Protected Phases	4	4	8	2	2	1	1
Permitted Phases							
Detector Phase	4	4	8	2	2	1	1
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	8.0
Total Split (s)	20.0	20.0	20.0	22.0	22.0	8.0	8.0
Total Split (%)	28.6%	28.6%	28.6%	31.4%	31.4%	11.4%	11.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	None	None
Act Effct Green (s)	8.7	8.7	10.7	19.6	19.6	4.2	4.2
Actuated g/C Ratio	0.16	0.16	0.20	0.37	0.37	0.08	0.08
v/c Ratio	0.35	0.04	0.48	0.68	0.15	0.09	0.14
Control Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
LOS	C	C	C	C	A	C	A
Approach Delay		25.0	22.3		20.5		
Approach LOS		C	C		C		

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 52.9
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 46.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Happy Valley & Flamingo



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	103	24	340	859	99	12	36
v/c Ratio	0.35	0.04	0.48	0.68	0.15	0.09	0.14
Control Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	21.6	22.3	21.8	9.3	29.3	1.2
Queue Length 50th (ft)	32	3	55	137	9	4	0
Queue Length 95th (ft)	75	13	95	#276	44	20	0
Internal Link Dist (ft)		547	117		529		
Turn Bay Length (ft)	200			200		200	
Base Capacity (vph)	563	1126	1124	1272	665	140	254
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.02	0.30	0.68	0.15	0.09	0.14

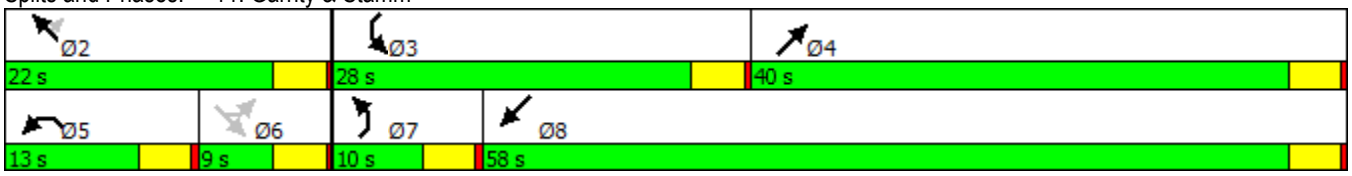
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	1	2	313	4	144	25	1883	869	1265
Future Volume (vph)	1	2	313	4	144	25	1883	869	1265
Turn Type	custom	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases			5	2		7	4	3	8
Permitted Phases	6	6			2				
Detector Phase	6	6	5	2	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	8.0	20.0	20.0	8.0	20.0	8.0	20.0
Total Split (s)	9.0	9.0	13.0	22.0	22.0	10.0	40.0	28.0	58.0
Total Split (%)	10.0%	10.0%	14.4%	24.4%	24.4%	11.1%	44.4%	31.1%	64.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.0	5.0	10.8	10.8	18.0	5.9	36.0	24.0	58.0
Actuated g/C Ratio	0.06	0.06	0.12	0.12	0.20	0.07	0.40	0.27	0.64
v/c Ratio	0.02	0.56	0.86	0.85	0.36	0.37	1.06	1.03	0.59
Control Delay	41.0	21.8	78.2	76.4	7.8	49.4	64.8	72.3	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	41.0	21.8	78.2	76.4	7.8	49.4	64.8	72.3	11.7
LOS	D	C	E	E	A	D	E	E	B
Approach Delay		22.1		55.5			64.5		36.5
Approach LOS		C		E			E		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 50.1	Intersection LOS: D
Intersection Capacity Utilization 89.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 11: Garrity & Stamm



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	2	102	173	171	157	43	2158	945	1360
v/c Ratio	0.02	0.56	0.86	0.85	0.36	0.37	1.06	1.03	0.59
Control Delay	41.0	21.8	78.2	76.4	7.8	49.4	64.8	72.3	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	41.0	21.8	78.2	76.4	7.8	49.4	64.8	72.3	11.7
Queue Length 50th (ft)	1	1	~111	~106	0	24	~497	~300	241
Queue Length 95th (ft)	6	#52	#245	#241	49	36	#595	#419	307
Internal Link Dist (ft)		83		992			526		459
Turn Bay Length (ft)	50		150		100	50		225	
Base Capacity (vph)	104	183	202	202	442	119	2040	915	2299
Starvation Cap Reductn	0	0	0	0	0	0	0	0	414
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.56	0.86	0.85	0.36	0.36	1.06	1.03	0.72

Intersection Summary

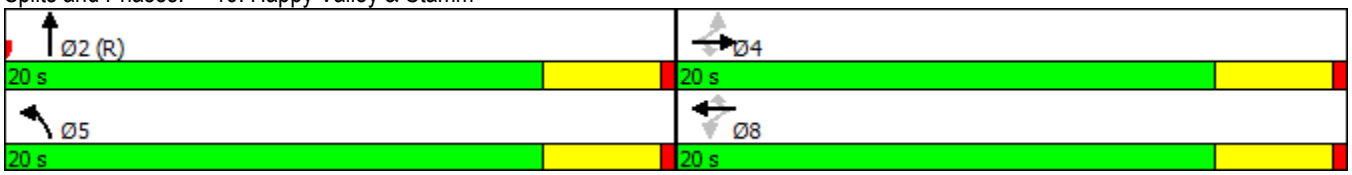
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Lane Configurations								
Traffic Volume (vph)	17	190	666	61	264	264	136	637
Future Volume (vph)	17	190	666	61	264	264	136	637
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases		4			8		5	2
Permitted Phases	4		4	8		8		
Detector Phase	4	4	4	8	8	8	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	8.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		16.0	16.0		16.0	16.0	16.0	16.0
Actuated g/C Ratio		0.40	0.40		0.40	0.40	0.40	0.40
v/c Ratio		0.31	0.68		0.52	0.41	0.21	0.52
Control Delay		9.8	4.8		12.6	7.5	8.9	10.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		9.8	4.8		12.6	7.5	8.9	10.5
LOS		A	A		B	A	A	B
Approach Delay		6.0			10.3			10.2
Approach LOS		A			B			B

Intersection Summary	
Cycle Length: 40	
Actuated Cycle Length: 40	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 8.6	Intersection LOS: A
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Happy Valley & Stamm



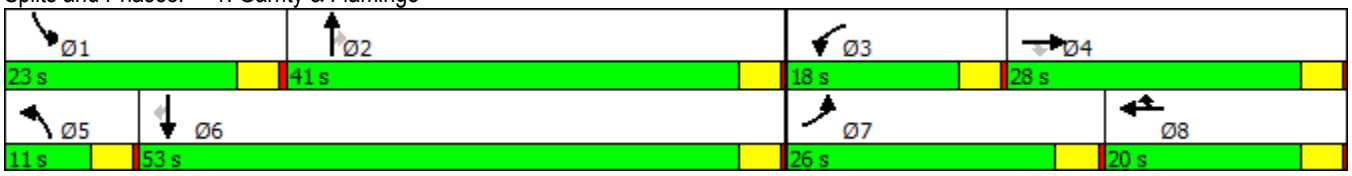
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	225	724	353	287	148	739
v/c Ratio	0.31	0.68	0.52	0.41	0.21	0.52
Control Delay	9.8	4.8	12.6	7.5	8.9	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	4.8	12.6	7.5	8.9	10.5
Queue Length 50th (ft)	32	0	56	25	20	59
Queue Length 95th (ft)	67	48	111	64	46	95
Internal Link Dist (ft)	992		685			366
Turn Bay Length (ft)				50	50	
Base Capacity (vph)	716	1067	676	699	708	1414
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.68	0.52	0.41	0.21	0.52

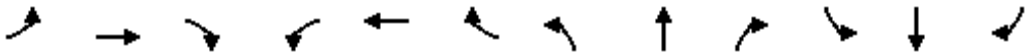
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	610	114	192	191	102	668	59	1274	131	464	2229	288
Future Volume (vph)	610	114	192	191	102	668	59	1274	131	464	2229	288
Turn Type	Prot	NA	Perm	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8	5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	28.0	28.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	26.0	28.0	28.0	18.0	20.0	20.0	11.0	41.0	41.0	23.0	53.0	53.0
Total Split (%)	23.6%	25.5%	25.5%	16.4%	18.2%	18.2%	10.0%	37.3%	37.3%	20.9%	48.2%	48.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	22.0	24.9	24.9	13.1	13.1	16.0	7.0	37.5	37.5	18.5	49.0	49.0
Actuated g/C Ratio	0.20	0.23	0.23	0.12	0.12	0.15	0.06	0.34	0.34	0.17	0.45	0.45
v/c Ratio	1.03	0.29	0.58	0.78	0.79	0.95	0.92	0.90	0.22	0.87	1.05	0.54
Control Delay	86.2	38.1	23.3	73.0	73.0	43.2	117.8	42.9	2.5	61.5	63.5	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.2	38.1	23.3	73.0	73.0	43.2	117.8	42.9	2.5	61.5	63.5	17.2
LOS	F	D	C	E	E	D	F	D	A	E	E	B
Approach Delay		65.1			52.3			44.4			57.4	
Approach LOS		E			D			D			E	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Natural Cycle: 110	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 54.7	Intersection LOS: D
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Garrity & Flamingo





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	693	124	270	156	163	726	104	1478	128	504	2397	417
v/c Ratio	1.03	0.29	0.58	0.78	0.79	0.95	0.92	0.90	0.22	0.87	1.05	0.54
Control Delay	86.2	38.1	23.3	73.0	73.0	43.2	117.8	42.9	2.5	61.5	63.5	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.2	38.1	23.3	73.0	73.0	43.2	117.8	42.9	2.5	61.5	63.5	17.2
Queue Length 50th (ft)	~270	74	78	113	118	131	74	382	0	179	~676	137
Queue Length 95th (ft)	#373	129	102	#216	#223	#265	#82	431	23	#263	#770	138
Internal Link Dist (ft)		290			547			459			386	
Turn Bay Length (ft)	150		150	250		200	250		50	340		100
Base Capacity (vph)	673	421	465	213	207	762	113	1651	575	592	2287	773
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.29	0.58	0.73	0.79	0.95	0.92	0.90	0.22	0.85	1.05	0.54

Intersection Summary

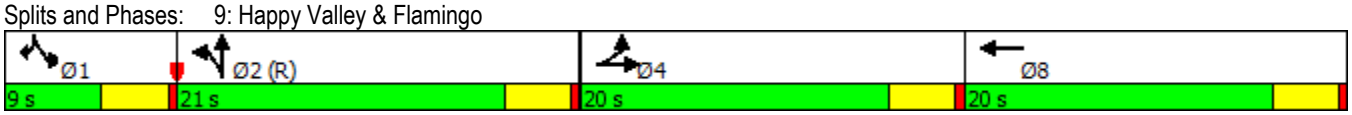
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	279	182	183	542	45	2	138
Future Volume (vph)	279	182	183	542	45	2	138
Turn Type	Split	NA	NA	Split	NA	Prot	Prot
Protected Phases	4	4	8	2	2	1	1
Permitted Phases							
Detector Phase	4	4	8	2	2	1	1
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	8.0
Total Split (s)	20.0	20.0	20.0	21.0	21.0	9.0	9.0
Total Split (%)	28.6%	28.6%	28.6%	30.0%	30.0%	12.9%	12.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	16.0	16.0	16.0	17.0	17.0	5.0	5.0
Actuated g/C Ratio	0.23	0.23	0.23	0.24	0.24	0.07	0.07
v/c Ratio	0.75	0.25	0.26	0.71	0.15	0.02	0.60
Control Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
LOS	D	C	C	C	B	C	B
Approach Delay		32.6	22.6		28.5		
Approach LOS		C	C		C		

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 46.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Happy Valley & Flamingo



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	303	198	207	589	65	2	150
v/c Ratio	0.75	0.25	0.26	0.71	0.15	0.02	0.60
Control Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.0	22.6	29.6	17.8	30.5	17.2
Queue Length 50th (ft)	122	36	37	119	16	1	0
Queue Length 95th (ft)	#234	63	64	172	45	7	#60
Internal Link Dist (ft)		547	117		529		
Turn Bay Length (ft)	200			200		200	
Base Capacity (vph)	404	808	807	833	447	126	252
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.25	0.26	0.71	0.15	0.02	0.60

Intersection Summary

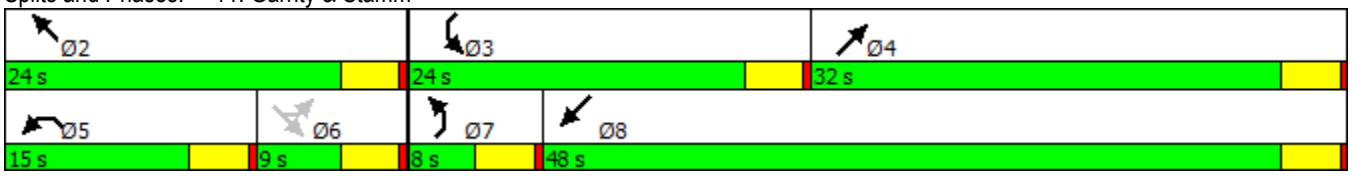
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

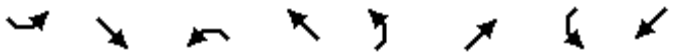
Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	32	53	422	35	10	1244	781	1830
Future Volume (vph)	32	53	422	35	10	1244	781	1830
Turn Type	custom	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases			5	2	7	4	3	8
Permitted Phases	6	6						
Detector Phase	6	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	8.0	20.0	8.0	20.0	8.0	20.0
Total Split (s)	9.0	9.0	15.0	24.0	8.0	32.0	24.0	48.0
Total Split (%)	11.3%	11.3%	18.8%	30.0%	10.0%	40.0%	30.0%	60.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	None	None	None	None
Act Effct Green (s)	5.0	5.0	11.0	20.0	4.0	28.0	20.0	50.4
Actuated g/C Ratio	0.06	0.06	0.14	0.25	0.05	0.35	0.25	0.63
v/c Ratio	0.59	0.87	0.97	0.43	0.19	0.92	0.99	0.89
Control Delay	62.9	61.0	71.7	8.6	41.6	34.0	60.0	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2
Total Delay	62.9	61.0	71.7	8.6	41.6	34.0	60.0	28.1
LOS	E	E	E	A	D	C	E	C
Approach Delay		61.5		49.9		34.0		37.7
Approach LOS		E		D		C		D

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 39.1 Intersection LOS: D
Intersection Capacity Utilization 84.9% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 11: Garrity & Stamm





Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	55	162	459	242	17	1659	849	1995
v/c Ratio	0.59	0.87	0.97	0.43	0.19	0.92	0.99	0.89
Control Delay	62.9	61.0	71.7	8.6	41.6	34.0	60.0	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2
Total Delay	62.9	61.0	71.7	8.6	41.6	34.0	60.0	28.1
Queue Length 50th (ft)	27	38	119	15	8	273	218	364
Queue Length 95th (ft)	40	#146	#212	71	18	#376	#340	#703
Internal Link Dist (ft)		83		992		526		459
Turn Bay Length (ft)	50		150		50		100	
Base Capacity (vph)	94	186	472	560	89	1796	858	2244
Starvation Cap Reductn	0	0	0	0	0	0	0	240
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.87	0.97	0.43	0.19	0.92	0.99	1.00

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Lane Configurations								
Traffic Volume (vph)	27	170	1040	97	364	280	55	400
Future Volume (vph)	27	170	1040	97	364	280	55	400
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA
Protected Phases		4			8		5	2
Permitted Phases	4		4	8		8		
Detector Phase	4	4	4	8	8	8	5	2
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	8.0	20.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		36.0	36.0		36.0	36.0	16.0	16.0
Actuated g/C Ratio		0.60	0.60		0.60	0.60	0.27	0.27
v/c Ratio		0.21	0.82		0.50	0.30	0.13	0.51
Control Delay		6.1	7.1		9.1	4.2	17.6	20.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		6.1	7.1		9.1	4.2	17.6	20.2
LOS		A	A		A	A	B	C
Approach Delay		6.9			7.2			19.9
Approach LOS		A			A			B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Pretimed	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 9.6	Intersection LOS: A
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 19: Happy Valley & Stamm

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	214	1130	501	304	60	480
v/c Ratio	0.21	0.82	0.50	0.30	0.13	0.51
Control Delay	6.1	7.1	9.1	4.2	17.6	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	7.1	9.1	4.2	17.6	20.2
Queue Length 50th (ft)	31	5	90	25	16	74
Queue Length 95th (ft)	57	#56	154	55	41	114
Internal Link Dist (ft)	992		685			366
Turn Bay Length (ft)				50	100	
Base Capacity (vph)	1028	1386	997	1000	472	943
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.82	0.50	0.30	0.13	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix B. Safety Analysis

Crashes 2011 - 2015; Angle Crashes

Crashes 2011 - 2015; Head-On Crashes

N

Crashes 2011 - 2015; Pedestrian Involved

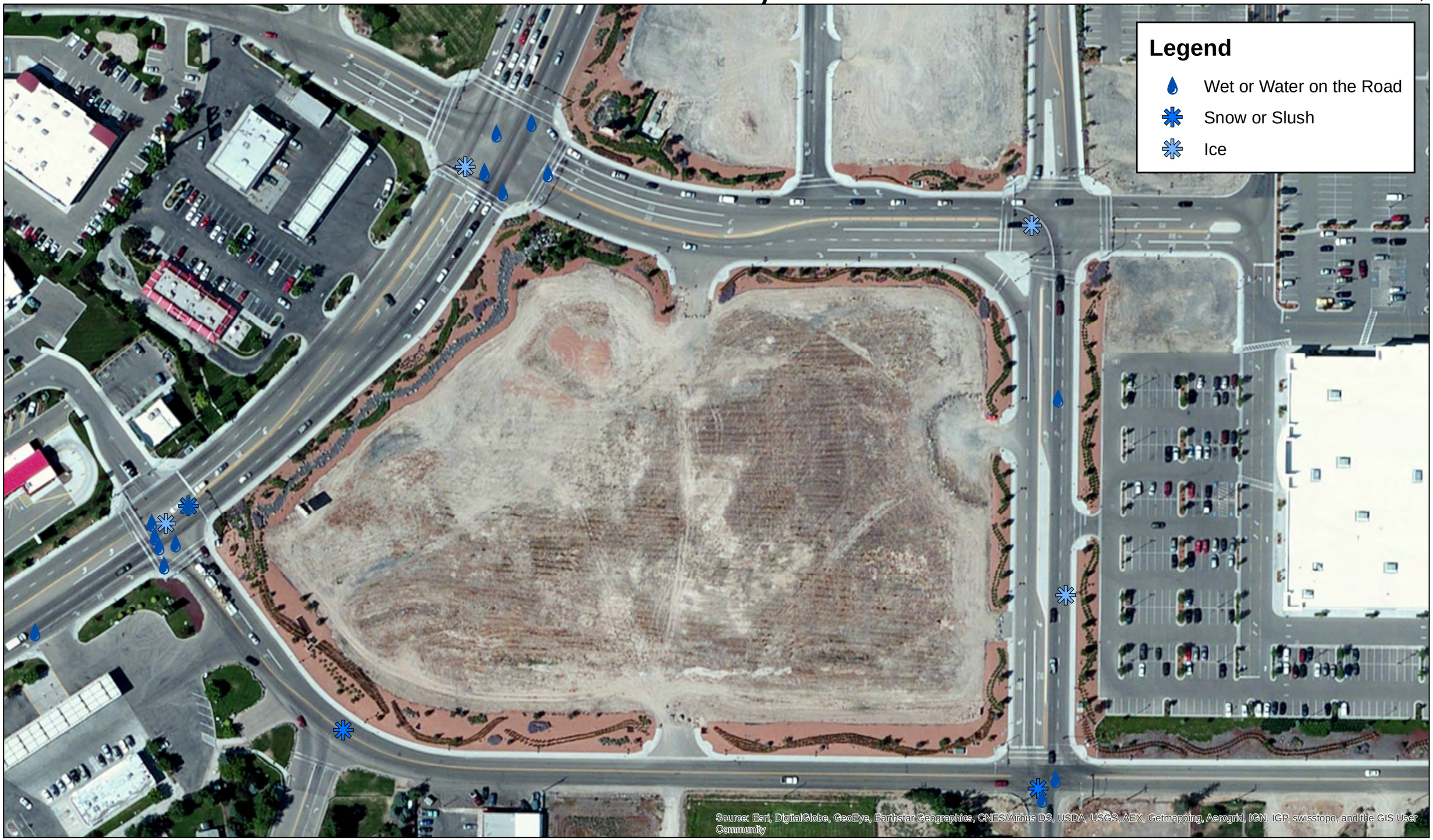
Crashes 2011 - 2015; Rear End Crashes

Crashes 2011 - 2015; Side Swipe Crashes

Crashes 2011 - 2015; Other Crashes

Crashes 2011 - 2015; Road Surface

N



Crashes 2011 - 2015; Adverse Light Conditions

N

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SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.00	SPOT	32.824	27

LOCATION	Garrity & Flamingo	PROPOSED IMPROVEMENT			
		LIFE	COST (1000)		
			CONST	R/W	TOTAL
IMPROVEMENT					

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	15	0	7	7	8						
	2012	11	0	5	5	6						
	2013	9	0	3	3	6						
	2014	15	0	5	5	10						
	2015	17	0	10	10	7						
TOTAL------		67	0	30	30	37	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.0	68.0
EXPECTED I+F AND PDO ACCIDENTS----------	21.4	45.6
DIFFERENCE (DEVIATION FROM EXPECTED)---	8.6	
STATISTICALLY SIGNIFICANT?----------	YES(+)	
CONFIDENCE LEVEL----------	90%	

- (●) SPOT INTERSECTION (INCLUDE X STREET)
- ( ) SPOT NON-INTERSECTION
- ( ) SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			CROSS STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
32.8	46.3	39.56	7.748	1.21	5	67	13.40	14.81	-	0.90	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.90	0	0.58	0.90	0.00	0.00

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F	30	22.8	684							
	PDO	37	2.2	81.4	$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)		67	16.4	765.4	11.4	13.4	1.21	0	1.000	0	0
YES(-)											
NO											

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST =	0.00	÷	0.00	=	#DIV/0!
ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) =	0.00	÷	0	=	#DIV/0!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

CHECKED BY: _____ DATE: _____ KEY NUMBER: _____

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

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SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.00	SPOT	32.824	27

LOCATION	Garrity & Stamm	PROPOSED IMPROVEMENT			
			COST (1000)		
		LIFE	CONST	R/W	TOTAL
IMPROVEMENT	Reconstruct Intersection	20			550

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	7	0	3	3	4						
	2012	8	0	5	5	3						
	2013	13	0	5	5	8						
	2014	12	0	7	7	5						
	2015	13	0	5	5	8						
TOTAL------		53	0	25	25	28	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.0	68.0
EXPECTED I+F AND PDO ACCIDENTS----------	17.0	36.0
DIFFERENCE (DEVIATION FROM EXPECTED)---	8.0	
STATISTICALLY SIGNIFICANT?----------	YES(+)	
CONFIDENCE LEVEL----------	95%	

(●) SPOT INTERSECTION (INCLUDE X STREET)
( ) SPOT NON-INTERSECTION
( ) SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			CROSS STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
32.8	46.3	39.56	2.83	1.21	5	53	10.60	13.01	-	0.81	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
		BASE RATE	EXPECTED	D.R.	CALC.
ACC/MVM	R.F.	ACC/MV(M)	ACC/MV(M)	MV(M)	R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.81	0.4	0.58	0.49	0.23	0.29

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F	25	22.8	570							
	PDO	28	2.2	61.6	$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)		53	16.4	631.6	11.9	10.6	1.21	20	0.712	3045.01	2977.205
YES(-)											
NO											

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST =	67.81	÷	550.00	= 0.12
ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) =	67.81	÷	20	= $3,390

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

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SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY						SPOT	12.273	27
LOCATION	Happy Valley & Flamingo					PROPOSED IMPROVEMENT		
					LIFE	COST (1000)		
						CONST	R/W	TOTAL
IMPROVEMENT								

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	0	0	0	0	0						
	2012	2	0	0	0	2						
	2013	2	0	0	0	2						
	2014	2	0	1	1	1						
	2015	5	0	2	2	3						
TOTAL------		11	0	3	3	8	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.0	68.0
EXPECTED I+F AND PDO ACCIDENTS----------	3.5	7.5
DIFFERENCE (DEVIATION FROM EXPECTED)---	-0.5	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- (●) SPOT INTERSECTION (INCLUDE X STREET)
- ( ) SPOT NON-INTERSECTION
- ( ) SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
12.3	24.5	18.39	8.955	1.50	5	11	2.20	7.75	-	0.28	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.28	*	0.58	*	*	*

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F										
	PDO				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			16.363			2.2	1.50	0	#VALUE!	0	#VALUE!

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = #VALUE! ÷ #VALUE! = 0

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = #VALUE! ÷ #VALUE! = #VALUE!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

CHECKED BY: _____ DATE: _____ KEY NUMBER: _____

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

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SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY						SPOT	9.694	27

LOCATION	Happy Valley & Stamm	PROPOSED IMPROVEMENT			
			COST (1000)		
		LIFE	CONST	R/W	TOTAL
IMPROVEMENT	Reconstruct Intersection	20			384

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	3	0	2	2	1						
	2012	12	0	7	7	5						
	2013	6	0	3	3	3						
	2014	11	0	5	5	6						
	2015	5	0	3	3	2						
TOTAL------		37	0	20	20	17	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.0	68.0
EXPECTED I+F AND PDO ACCIDENTS----------	11.8	25.2
DIFFERENCE (DEVIATION FROM EXPECTED)---	8.2	
STATISTICALLY SIGNIFICANT?----------	YES(+)	
CONFIDENCE LEVEL----------	95%	

(●) SPOT INTERSECTION (INCLUDE X STREET)
( ) SPOT NON-INTERSECTION
( ) SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			CROSS STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
9.7	18.4	14.05	4.185	1.45	5	37	7.40	5.07	-	1.46	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
1.46	0.4	0.58	0.88	0.58	0.40

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F	20	22.8	456							
	PDO	17	2.2	37.4	$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)		37	16.4	493.4	13.3	7.4	1.45	20	0.600	2859.83	2105.506
YES(-)											
NO											

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST =	754.32	÷ 384.00	=	1.96
ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) =	754.32	÷ 20	=	$37,716

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

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SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.09	SPOT	32.824	27

		PROPOSED IMPROVEMENT			
			COST (1000)		
LOCATION	Garrity Boulevard - Stamm to Flamingo	LIFE	CONST	R/W	TOTAL
IMPROVEMENT					

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	2	0	0	0	2						
	2012	0	0	0	0	0						
	2013	1	0	0	0	1						
	2014	0	0	0	0	0						
	2015	0	0	0	0	0						
TOTAL------		3	0	0	0	3	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.9	67.1
EXPECTED I+F AND PDO ACCIDENTS----------	1.0	2.0
DIFFERENCE (DEVIATION FROM EXPECTED)---	-1.0	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- ○ SPOT INTERSECTION (INCLUDE X STREET)
- ◉ SPOT NON-INTERSECTION
- ○ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
32.8	46.3	39.56		1.21	5	3	0.60	11.98	-	0.05	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
		BASE RATE	EXPECTED	D.R.	CALC.
ACC/MVM	R.F.	ACC/MV(M)	ACC/MV(M)	MV(M)	R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.05	*	0.37	*	*	*

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F										
	PDO				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			21.546			0.6	1.21	0	#VALUE!	0	#VALUE!

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = #VALUE! ÷ #VALUE! = 0

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = #VALUE! ÷ #VALUE! = #VALUE!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

ITD-2658 7-99

SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.29	SPOT	32.824	27

LOCATION	Garrity Boulevard - south of Stamm	PROPOSED IMPROVEMENT			
		LIFE	COST (1000) CONST	R/W	TOTAL
IMPROVEMENT	Prohibit Turning Movements	10			198

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	9	0	1	1	8						
	2012	2	0	0	0	2						
	2013	6	0	5	5	1						
	2014	8	0	4	4	4						
	2015	4	0	1	1	3						
TOTAL------		29	0	11	11	18	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.9	67.1
EXPECTED I+F AND PDO ACCIDENTS----------	9.5	19.5
DIFFERENCE (DEVIATION FROM EXPECTED)---	1.5	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- ○ SPOT INTERSECTION (INCLUDE X STREET)
- ◉ SPOT NON-INTERSECTION
- ○ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
32.8	46.3	39.56		1.21	5	29	5.80	11.98	-	0.48	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.48	0.4	0.37	0.29	0.11	0.24

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL							
	I+F	11	24.1	265.1	5	6	7	8	9	10	11
	PDO	18	2.2	39.6	$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			21.546			5.8	1.21	10	0.764	1506.2	1151.17

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = 355.03 ÷ 198.00 = 1.79

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = 355.03 ÷ 10 = $35,503

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

ITD-2658 7-99

SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.10	SPOT	12.273	27

LOCATION	Flamingo Avenue - Garrity to Happy Valley	PROPOSED IMPROVEMENT			
		LIFE	COST (1000)		
			CONST	R/W	TOTAL
IMPROVEMENT					

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	1	0	1	1	0						
	2012	0	0	0	0	0						
	2013	0	0	0	0	0						
	2014	1	0	0	0	1						
	2015	0	0	0	0	0						
TOTAL------		2	0	1	1	1	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.9	67.1
EXPECTED I+F AND PDO ACCIDENTS----------	0.7	1.3
DIFFERENCE (DEVIATION FROM EXPECTED)---	0.3	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- ○ SPOT INTERSECTION (INCLUDE X STREET)
- ◉ SPOT NON-INTERSECTION
- ○ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
12.3	24.5	18.39		1.50	5	2	0.40	4.48	-	0.09	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
		BASE RATE	EXPECTED	D.R.	CALC.
ACC/MVM	R.F.	ACC/MV(M)	ACC/MV(M)	MV(M)	R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.09	*	0.37	*	*	*

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F										
	PDO				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			21.546			0.4	1.50	0	#VALUE!	0	#VALUE!

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = #VALUE! ÷ #VALUE! = 0

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = #VALUE! ÷ #VALUE! = #VALUE!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

CHECKED BY: _____ DATE: _____ KEY NUMBER: _____

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

ITD-2658 7-99

SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.10	SPOT	12.273	27

LOCATION	Flamingo Avenue	PROPOSED IMPROVEMENT			
		LIFE	COST (1000)		
			CONST	R/W	TOTAL
IMPROVEMENT					

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	1	0	1	1	0						
	2012	0	0	0	0	0						
	2013	0	0	0	0	0						
	2014	1	0	0	0	1						
	2015	0	0	0	0	0						
TOTAL------		2	0	1	1	1	0	0	0	0	0	0

	I + F	PDO
AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.9	67.1
EXPECTED I+F AND PDO ACCIDENTS----------	0.7	1.3
DIFFERENCE (DEVIATION FROM EXPECTED)---	0.3	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- ○ SPOT INTERSECTION (INCLUDE X STREET)
- ◉ SPOT NON-INTERSECTION
- ○ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			CROSS STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
12.3	24.5	18.39		1.50	5	2	0.40	4.48	-	0.09	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.09	*	0.37	*	*	*

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F										
	PDO				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			21.546			0.4	1.50	0	#VALUE!	0	#VALUE!

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = #VALUE! ÷ #VALUE! = 0

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = #VALUE! ÷ #VALUE! = #VALUE!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

CHECKED BY: _____ DATE: _____ KEY NUMBER: _____

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(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

ITD-2658 7-99

SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.11	SPOT	8.955	27

LOCATION	Happy Valley Road - Stamm to Flamingo	PROPOSED IMPROVEMENT			
		LIFE	COST (1000)		
			CONST	R/W	TOTAL
IMPROVEMENT					

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	0	0	0	0	0						
	2012	0	0	0	0	0						
	2013	1	0	0	0	1						
	2014	2	0	1	1	1						
	2015	0	0	0	0	0						
TOTAL------		3	0	1	1	2	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.9	67.1
EXPECTED I+F AND PDO ACCIDENTS----------	1.0	2.0
DIFFERENCE (DEVIATION FROM EXPECTED)---	0.0	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- ○ SPOT INTERSECTION (INCLUDE X STREET)
- ◉ SPOT NON-INTERSECTION
- ○ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
9.0	18.4	13.68		1.53	5	3	0.60	3.27	-	0.18	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.18	*	0.37	*	*	*

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F										
	PDO				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			21.546			0.6	1.53	0	#VALUE!	0	#VALUE!

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = #VALUE! ÷ #VALUE! = 0

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = #VALUE! ÷ #VALUE! = #VALUE!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

CHECKED BY: _____ DATE: _____ KEY NUMBER: _____

ITD-2658 7-99
(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

ITD-2658 7-99

SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.23	SPOT	8.955	27

LOCATION	Happy Valley Road - south of Stamm	PROPOSED IMPROVEMENT			
		LIFE	COST (1000)		
			CONST	R/W	TOTAL
IMPROVEMENT					

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	0	0	0	0	0						
	2012	0	0	0	0	0						
	2013	1	0	0	0	1						
	2014	0	0	0	0	0						
	2015	0	0	0	0	0						
TOTAL------		1	0	0	0	1	0	0	0	0	0	0

	I + F	PDO
AVE. SEVERITY % FOR THIS ROAD TYPE--------	32.9	67.1
EXPECTED I+F AND PDO ACCIDENTS----------	0.3	0.7
DIFFERENCE (DEVIATION FROM EXPECTED)---	-0.3	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- ○ SPOT INTERSECTION (INCLUDE X STREET)
- ◉ SPOT NON-INTERSECTION
- ○ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
9.0	18.4	13.68		1.53	5	1	0.20	3.27	-	0.06	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.06	*	0.37	*	*	*

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F										
	PDO				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			21.546			0.2	1.53	0	#VALUE!	0	#VALUE!

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = #VALUE! ÷ #VALUE! = 0

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = #VALUE! ÷ #VALUE! = #VALUE!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

CHECKED BY: _____ DATE: _____ KEY NUMBER: _____

ITD-2658 7-99
(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

ITD-2658 7-99

SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY				0.00	0.20	SPOT	4.043	9
LOCATION	Stamm Lane - Garrity to Happy Valley				PROPOSED IMPROVEMENT			
					LIFE	COST (1000)		
						CONST	R/W	TOTAL
IMPROVEMENT								

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
	2011	1	0	1	1	0						
	2012	0	0	0	0	0						
	2013	1	0	0	0	1						
	2014	1	0	0	0	1						
	2015	0	0	0	0	0						
TOTAL------		3	0	1	1	2	0	0	0	0	0	0

AVE. SEVERITY % FOR THIS ROAD TYPE--------	35.7	64.3
EXPECTED I+F AND PDO ACCIDENTS----------	1.1	1.9
DIFFERENCE (DEVIATION FROM EXPECTED)---	-0.1	
STATISTICALLY SIGNIFICANT?----------	NO	
CONFIDENCE LEVEL----------	-	

- ○ SPOT INTERSECTION (INCLUDE X STREET)
- ◉ SPOT NON-INTERSECTION
- ○ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			CROSS STREET	VCF (3÷1)			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.			YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9 x MI.)	(8 ÷ 9)	(8 ÷ 10)
4.0	8.2	6.12		1.51	5	3	0.60	1.48	-	0.41	-

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MVM	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M)	CALC. R.F.
				1-(>3 OR 4)	(5 ÷ 1)
0.41	*	0.45	*	*	*

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4							
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL	5	6	7	8	9	10	11
	I+F										
	PDO				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
YES(+)											
YES(-)											
NO			21.546			0.6	1.51	0	#VALUE!	0	#VALUE!

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST = #VALUE! ÷ #VALUE! = 0

ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) = #VALUE! ÷ #VALUE! = #VALUE!

COMPUTED BY: _____ DATE: _____ PROJECT NO.: _____

CHECKED BY: _____ DATE: _____ KEY NUMBER: _____

ITD-2658 7-99
(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
BEFORE ACCIDENTS					EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=	

COMMENTS:

Appendix C. Environmental Scan

Technical Memorandum

Prepared For:	COMPASS
Prepared By:	HDR
Project:	Happy Valley/Stamm/Garrity/Flamingo Traffic Improvement Project – Pre-Concept Development
Date:	March 27, 2017

BACKGROUND

The City of Nampa (City) is proposing operational improvements to Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard as a result of a joint 2012 Federal Highway Administration/Idaho Transportation Department (FHWA/ITD) safety audit on Garrity Boulevard between the Interstate 84 (I-84) Garrity Interchange eastbound ramps and Stamm Lane. The audit was conducted because the area is a high crash location. Several recommendations came from the audit findings including the need to examine and implement operational improvements at the intersections of Garrity/Flamingo, Garrity/Stamm, and the I-84 eastbound ramps. Since the audit, this area has experienced significant growth. Saint Alphonsus is expanding its Nampa campus into a complete regional medical center and the Nampa Gateway Center continues to add tenants and new buildings. WinCo, a discount grocer, has recently opened a new store on the east side of Garrity Boulevard north of Stamm Lane. Additionally, a new high density housing complex was recently completed south of Stamm Lane west of Happy Valley Road. **Figure 1** shows a vicinity map of the project area. **Figure 2** details the project area, including surrounding businesses.

Recently, ITD constructed an additional eastbound on-ramp lane between Flamingo Avenue and I-84 to improve traffic operations in the area. Likewise, St. Alphonsus made development-related improvements to the Garrity/Flamingo intersection. However, these improvements are not sufficient for improving safety or traffic flow in the area. Thus, in late 2015/early 2016 the City conducted an analysis of various roadway/intersection improvement options involving Flamingo Avenue, Stamm Lane, and Happy Valley Road. The goal of the analysis was to identify operational improvements that could be made utilizing existing right-of-way.

The City has identified a preferred traffic alternative for the area, referred to as Alternative 4. Alternative 4 includes the following improvements:

- Widening approximately 340 feet of northbound Garrity Boulevard between Flamingo Avenue and Stamm Lane to allow for a 3rd through travel lane.
- Widening the intersection of Stamm Lane with Garrity Boulevard by adding a second left turn lane on the Garrity Boulevard southbound approach.
- Widening Stamm Lane between Happy Valley Road and Garrity Boulevard from two to three lanes to allow for two eastbound travel lanes and one westbound travel lane.

- Reconstructing Happy Valley Road to operate one-way northbound between Stamm Lane and Flamingo Avenue.
- Reconfiguring the intersection of Happy Valley Road and Stamm Lane to accommodate one-way traffic on Happy Valley Road; terminating the second eastbound lane on Stamm Lane with an eastbound to southbound right-turn only lane and adding a westbound to northbound designated right turn lane.
- Reconstructing the intersection of Happy Valley Road and Flamingo Avenue to accommodate a one-way Happy Valley Road.
- Adjusting and retiming all of the signals to accommodate new traffic volumes and patterns.

Additional mobility improvements are being included as part of the project including landscaping, sidewalks, and a possible mid-block pedestrian crossing on Stamm Lane.

PURPOSE

The City is proposing to construct these improvements to Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard in the near future to improve operations, safety, and mobility. This environmental scan has been prepared to support future funding application packages for the project. It summarizes the environmental impacts to the project area (also known as the "WinCo block"). The results of this environmental scan will assist with identifying potentially important environmental issues that will need to be addressed when considering improvements to the "WinCo block" area.

The environmental scan included the following topics:

- General Land Use
- Cultural Resources
- Section 4(f) Properties
- Biological Resources
- Wetlands
- Noise
- Environmental Justice and Neighborhood Services
- Hazardous Materials

The scan consisted of desktop reviews of the above-listed resources. Data from these reviews are summarized in the following paragraphs. It is important to note that the purpose of the scan is to identify potential environmental issues for consideration as the project moves forward into design stage. No field surveys, assessments, or official agency coordination has been conducted. Each topic summarized below includes a description of the scope of research conducted.

GENERAL LAND USE

Scope
Land use information was gathered using readily available online mapping services (Google Earth 2017).

Summary of Findings
The project area is highly urbanized, with no adjacent designated open space (**Figures 1 and 2**). Recent aerial photographs show a vacant lot at the center of the project area; however, a grocery store (WinCo) has recently been constructed and opened in this area. **Table 1** summarizes land use in the project area:

Table 1. Summary of Land Use in the Project Area

Road Segment	Side	Land Uses
Garrity	West	• Commercial (fast food, gas station, car wash, medical, retail)
	East	• Commercial (fast food, gas station, retail)
Stamm	North	• Commercial (retail)
	South	• Commercial (automobile repair station) • Residential
Happy Valley	West	• Commercial (retail)
	East	• Commercial (retail)
Flamingo	North	• Commercial (fast food, automobile repair station)
	South	• Commercial (retail)

CULTURAL RESOURCES

Scope
The scope of work for the cultural resources portion of the environmental scan included the following:

- A search for properties in the project area on the National Register of Historic Places (NRHP).
- A desktop survey of the project area in search of properties that may exceed 40 years of age.

This task does not meet the requirements of a Section 106 evaluation. No field surveys were conducted.

Summary of Findings
The NRHP database was researched for Nampa, Idaho (NPS 2017). No sites were listed in the database within or adjacent to the project area.

Canyon County assessor's information was researched online to identify properties with structures that are greater than 40 years old. Generally, structures may become eligible for listing in the NRHP when they are 50 years old. Ten years were added for this scan to allow

time for project development, in case certain properties may reach NRHP-eligible age by the time construction occurs. **Table 2** summarizes structures in the project area greater than 40 years of age.

Table 2. Summary of Structures in Project Area Greater than 40 Years Old

Property Address	Parcel No.	Location Description	Structure Type	Construction Year
4501 Stamm Lane	31114010	South side of Stamm, approx. 150 feet east of Round Valley	Light Manufacturing (Auto Repair)	1964
4719 Stamm Lane	25006000	Southeast corner of Stamm and Happy Valley	Residential Dwelling	1914

Additionally, canals have the potential to be a historic resource. Online mapping from the Idaho Department of Water Resources (IDWR 2017) indicates that the Dewey Lateral is located along the north side of Stamm Lane in the project area. Further research shows that the lateral crosses Stamm Lane from the south side approximately 330 feet east of the Nampa Gateway Center entrance. It is assumed that at this point, the lateral flows east via underground conveyance through the project area. It daylights once more southwest of the intersection between Garrity Boulevard and Stamm Lane, behind the Papa Murphy's restaurant location. As this canal has been placed in underground piping within the project area, it is not expected to be of historic concern. However, project designers will want to note its location for construction purposes.

SECTION 4(F) PROPERTIES

Section 4(f) of the Department of Transportation Act of 1966 protects publically-owned parks, recreational areas, wildlife and waterfowl refuges, and historic sites. As stated previously, the project area is highly urbanized. There are no parks, recreational areas, or wildlife/waterfowl refuges in or near the project area. The nearest City park is Lakeview Park, located on Garrity Boulevard approximately 1.7 miles southwest of the project area. There is also a playground area within the Happy Valley mobile home community, approximately 500 feet south of Stamm Lane on Long Valley Street. Ridgecrest Golf Course is located approximately 1,500 feet northwest of the project area, across the interstate. These parks would not be impacted by traffic improvements in the project area. Section 4(f) would only apply to this project in the case of an impact to a historic property.

BIOLOGICAL RESOURCES

Scope

The scope of work for assessment of biological resources in the area included the following:

- Obtaining an official species list from the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) service.
- Reviewing the trust resources report for the project area from USFWS for information regarding migratory birds and other species of concern in the area.

Summary of Findings

The threatened and endangered species review included the USFWS official species list issued for the project (**Attachment A**) by IPAC on March 9, 2017 (USFWS 2017b, Consultation Code: 01EIFW00-2017-SLI-0605). The list included one threatened species and no endangered species under the Endangered Species Act that may occur or may be affected by the project (**Table 3**). No species under the jurisdiction of National Oceanic and Atmospheric Administration (NOAA) Fisheries were listed as threatened or endangered within the project area.

Table 3. Species Listed in Project Official Species List (Consultation Code: 01EIFW00-2017-SLI-0605, March 9, 2017)

Species Name	Scientific Name	Federal Status
Slickspot Peppergrass	*Lepidium papilliferum*	Listed threatened

Slickspot peppergrass is typically found in sagebrush steppe habitat. The proposed project is located in a developed/urbanized area; habitat for slickspot peppergrass does not exist in the proposed project area. Proposed critical habitat has been proposed for slickspot peppergrass, none of which is located within Canyon County. This project would likely not impact slickspot peppergrass.

The Migratory Bird Treaty Act (MBTA) protects migratory birds, including their nests. The IPaC resource list for the project area identifies several migratory birds that may occur in the project area (USFWS 2017a). With the highly urbanized nature of the area, it is unlikely nesting and breeding habitat for these birds would be disturbed as a result of project construction. However, if shrubs and/or trees require removal during construction, care should be taken to protect potential migratory bird habitat. Per the USFWS migratory bird national standard conservation measures for vegetation removal (USFWS 2016), vegetation removal, trimming, and grading of vegetated areas should be scheduled outside of the peak bird breeding season to the maximum extent practicable.

WETLANDS

Scope

The scope of work for the wetlands portion of the environmental scan included the following:

- A desktop survey of available mapping and photographs to identify areas where there is potential for wetlands.
- A review of the National Wetland Inventory (NWI), as maintained by the USFWS.
- A review of Natural Resource Conservation Service (NRCS) soil data to identify hydric soils in the area.

This task did not include formal wetland delineations per Army Corps of Engineers guidelines.

Summary of Findings

The desktop survey did not reveal potential wetlands in the project area (Google Earth 2017). The area is developed and consists of landscaping, often bermed, along the perimeter of the roadway.

The NWI shows a thin line of riverine wetlands through the project area north of Stamm Lane (USFWS 2017c). However, this line follows the historic surface location of Dewey Lateral through the area, which has since been buried underground. No wetlands or riparian areas in the project area associated with the Dewey Lateral have been observed. The area to which the Dewey Lateral drains is located approximately 0.6 miles west of the project area and is mapped by NWI as a freshwater pond.

NRCS soil data for the project area indicated the presence of four types of silt loams (Elijah, Elijah-Vickery, Power-Potratz, and Power-Pudram). None of these soil types have hydric status per the NRCS web soil survey (NRCS 2017).

Based on the desktop review of the project area, it is unlikely wetland impacts would occur as a result of the project. An updated review of the project area for wetland areas should be conducted during concept design to confirm whether these conditions remain unchanged, including roadside ditches that may be located in the area.

NOISE

Scope

The assessment for noise in this environmental scan included:

- A review of the current ITD noise guidelines to ascertain the potential for noise modeling requirements for the selected alternative.
- A review of City ordinances for specific construction timing requirements to reduce nuisance noise conditions.

Summary of Findings

According to the current ITD noise guidelines (ITD 2011), a Type I project is a proposed federal-aid highway project or one that requires FHWA-approval and involves one of the following:

- The construction of a highway in a new location
- The physical alteration of an existing highway where there is substantial change in the horizontal or vertical alignment.
- The addition of a through-traffic lane (including restriping existing pavement for the purpose of adding a through-traffic lane or auxiliary lane)
- The addition of an auxiliary lane (except as a turn lane)
- The addition or relocation of interchange lanes or ramps
- The addition of a weigh station, rest stop, ride-share lot, or toll plaza

Type I projects require a traffic noise analysis, and depending upon the outcome of the analysis, may be required to provide noise mitigation. The project is not proposing roadway in a new

location nor is it substantially changing roadway alignment. It will, however, likely be adding through-traffic lanes. As such, a traffic noise analysis will likely be required.

ITD policy states that retail, office, and other commercial or industrial enterprises and their associated parking areas are typically noise tolerant and are typically located adjacent to roadways in part because of their high visibility to passing traffic. These uses/activities often do not desire noise abatement measures. However, the project could require noise abatement measures, particularly in the area of the residential development on the south side of Stamm Lane.

City code 6-7 (Sterling 2017) is related to public noise disturbance. It states that construction activities must be confined to the hours between 7 a.m. and 11 p.m. unless a special permit approved by the building department or city engineer has been received.

ENVIRONMENTAL JUSTICE AND NEIGHBORHOOD SERVICES

Scope

The scope for identifying potential environmental justice and neighborhood services issues for the project included the following:

- Review of census data for the project area to identify potential disadvantaged populations.
- Review of land use in the area to identify potential for disproportionate impacts to disadvantaged populations.
- Review of neighborhood services in the area that may be impacted by the project.

Summary of Findings

Census data were reviewed for the project area. The project footprint is located within Canyon County census tracts 204.01 (properties on south and west sides of Garrity and Stamm corridors) and 207 (properties within the interior of the "WinCo block" and north and east of Flamingo and Happy Valley corridors). Demographics are summarized in **Table 4**.

Table 4. Summary of Project Area Census Data

Demographic Indicator	Year(s)	Census Tracts 204.01 & 207[1]	Nampa City[2]	Canyon County[2]	State of Idaho[2]
Population, estimate	2015	12,708	89,839	207,478	1,654,930
Population	2010	N/A	81,748	188,923	1,567,582
White alone, percent	2015	88.2%	85.5%	93.5%	93.4%
	2010	N/A	82.9%	83.0%	89.1%
Black or African American alone, percent	2015	4.0%	0.3%	0.8%	0.8%
	2010	N/A	0.7%	0.6%	0.6%

Table 4. Summary of Project Area Census Data

Demographic Indicator	Year(s)	Census Tracts 204.01 & 207[1]	Nampa City[2]	Canyon County[2]	State of Idaho[2]
American Indian and Alaska Native alone, percent	2015	2.5%	0.8%	1.7%	1.7%
	2010	N/A	1.2%	1.1%	1.4%
Asian alone, percent	2015	0.1%	0.8%	1.0%	1.5%
	2010	N/A	0.9%	0.8%	1.2%
Native Hawaiian and other Pacific Islander alone, percent	2015	0.1%	0.8%	0.3%	0.2%
	2010	N/A	0.4%	0.2%	0.1%
Two or more races, percent	2015	3.3%	4.6%	2.5%	2.3%
	2010	N/A	3.2%	3.0%	2.5%
Hispanic or Latino, percent	2015	30.3%	24.6%	24.8%	12.2%
	2010	N/A	22.9%	23.9%	11.2%
White alone, not Hispanic or Latino, percent	2015	65.2%	N/A	71.0%	82.5%
	2010	N/A	72.7%	72.3%	84.0%
Persons below poverty level, percent	2011 – 2015	20.7%	23.6%	15.9%	15.1%

N/A = not available

[1] Source: US Census Bureau, American Fact Finder, https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

[2] Source: US Census Bureau Quick Facts https://www.census.gov/quickfacts/table/RHI105210/1656260,16027,16,00

Based on the data in **Table 4**, it appears that the City and the census tracts within the project area are home to larger populations of minorities and those below poverty level than Canyon County or Idaho as a whole. In addition, a mobile home community is present on the south side of Stamm Lane within the project area.

If the project receives federal funding, it will have to comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and Title VI of the Civil Rights Act of 1964. The project would need to be evaluated for disproportionately high and adverse effects upon minority or low-income populations in the project area. This could include considerations such as whether project improvements would cause traffic delays for residents attempting to exit the mobile home community and access to community services that primarily benefit minority or low-income populations.

Neighborhood transit services in the project area include ValleyRide bus route 53, known as Nampa North (ValleyRide 2017). This route travels along Garrity Boulevard from the College of Western Idaho main campus north of the project through Nampa to the Happy Day Transit Center in Caldwell. There are bus stops along this route near the intersections of Garrity Boulevard with Stamm Lane and Flamingo Road. Project design and construction would

require coordination with ValleyRide. Currently, there are no park and ride lots in the project area.

Current Nampa School District bussing information online shows that bus stops are located in the project area, including at the intersection of Stamm Lane and Round Valley Street (Nampa 2017). These bus stops are likely to fluctuate year to year depending on current student attendance and home location. Coordination with the school district on bussing safety during construction and operation of selected improvements should occur.

Neighborhood emergency services include a newly expanded Saint Alphonsus medical center currently under construction. The expanded hospital is expected to be open in 2017. Access to this medical center will require consideration during alternative selection and also during construction. The nearest fire station to the project area is Nampa Fire Department Station 5 at 91 Happy Valley Road, which is ¾ miles south of the project area. The police station is located in downtown Nampa. A medic station is located on the west side of town. Access for emergency services to neighboring businesses and residential areas will require coordination during construction.

HAZARDOUS MATERIALS

Scope
The scope of work for the hazardous materials portion of the environmental scan included the following:

- A desktop survey of available maps and photographs of the project area noting properties where there is potential for hazardous materials use, storage, and/or releases.
- A web-based search of mapped properties in the project area based on databases maintained by the Idaho Department of Environmental Quality (IDEQ) and the Environmental Protection Agency (EPA).

Summary of Findings
The desktop aerial and street-level photograph review (Google Earth 2017) revealed the following observations:

- Two fueling stations are located on Garrity Boulevard in the project area – the Phillips 66 at the southwest corner at Flamingo Avenue and the Shell at the southeast corner at Stamm Lane.
- A 4-bay garage is located at the southeast corner of Stamm Lane and Happy Valley Road. The structure appeared out of use in the June 2015 street level imagery and a “for sale/for lease” sign was present. Some trash and debris was scattered throughout the property. A chemical storage tote of unknown contents was located at the front of the building. As of the April 2016 aerial imagery, the property appeared in use and debris largely cleared.

- An auto repair business on the south side of Stamm Lane has been present since at least the 1992 aerial imagery. Assessor's records indicate this structure has been present since 1964.
- The majority of the area north and east of the project area is developed for retail and commercial business. Flamingo Avenue from Garrity Boulevard to Stamm Lane did not appear until the 2003 aerial imagery. Ground disturbance for construction of the Gateway Center appears between the 2005 and 2006 aerial imagery. The Dewey Lateral appears to have been moved from a ditch within the WinCo property to underground conveyance between the 2006 and 2007 aerial imagery. A tire shop is located on the northeast corner of Garrity Boulevard and Flamingo Avenue.
- Much of the west side of Garrity Boulevard through the project area is comprised of fast food restaurants. A car wash is located on the southwest corner of Garrity Boulevard and Stamm Lane. Saint Alphonsus medical center is located at the northwest corner of Garrity Boulevard and Flamingo Road.
- The southwest corner of Stamm Lane and Happy Valley Road was under agricultural use in the June 2015 street level imagery. Some equipment storage was apparent in the yard area. No tanks can be seen from the imagery. This site was no longer present as of the April 2016 aerial imagery and was under residential development.
- An automobile scrap yard is located on Garrity Boulevard southwest of the project area and has been present since at least the 1992 aerial imagery.

Based on EPA database review, the project area contains no National Priority List sites or Comprehensive Environmental Response, Compensation, and Liability Information System sites. No sites within the project area were subject to corrective action under the Resource Conservation and Recovery Act (RCRA). One RCRA site is located south of the project area on Garrity Boulevard. The facility is listed as an antique restoration business and RCRA information has not been updated for the site since 2000. No violations were reported at this facility. Two other EPA-listed facilities in and near the project area are permitted for air emissions and would not be expected to impact ground-disturbing activities associated with project construction (EPA 2017).

IDEQ database information indicates there are two underground storage tank (UST) sites within the project area associated with the fueling stations on Garrity Boulevard. The latest inspections listed for both these facilities show warnings or violations. However, no leaking or contamination has been noted at these locations. Another UST site is located at the Saint Alphonsus location. This tank was installed in 2016 and no inspections are yet listed in the database. The IDEQ database map identifies a second RCRA facility in the Nampa Gateway Center, near the retail and fast food businesses. No further information was available; no businesses were identified in the area that may have required RCRA reporting (IDEQ 2017).

In conclusion, the need for Phase 1 environmental site assessments will depend, in part, on the preferred alternative selected. The two fuel stations on Garrity Boulevard and the automobile repair shop on Stamm Lane may have impacts on road widening activities.

CONCLUSIONS

The following findings were made as a result of this environmental scan:

- General Land Use
  - Area is highly urbanized, mainly under commercial use. Some residential use is present south of the project area. No designated open space is present in project area.
- Cultural Resources
  - Two properties were identified in assessor's records as being greater than 40 years old (4501 and 4719 Stamm Lane).
  - No sites within the project area are listed on the NRHP.
- Section 4(f) Properties
  - No Section 4(f) properties in the form of parks, recreation areas, or wildlife refuges are located in the project area.
  - Section 4(f) may apply if a historic property is identified that would be impacted.
- Biological Resources
  - No federally-listed species are expected to occur in the project area.
- Wetlands
  - No wetlands or waters of the U.S. under the jurisdiction of the Army Corps of Engineers are expected to occur in the project area.
- Noise
  - If travel lanes are added for the project, a noise study will likely be required. Noise receptors of concern are mainly located in residential areas south of Stamm Lane.
- Environmental Justice and Neighborhood Services
  - Minority and low-income populations have been identified in the project area.
  - Transit services in the form of a bus route and bus stops are located in the project area.
  - School bus stops are located in the project area.
  - Emergency services will likely require coordination during project design and construction.
- Hazardous Materials
  - Two fueling stations and an automobile repair shop are located on Garrity Boulevard and Stamm Lane in the areas of potential roadway widening. A more in-depth hazardous materials assessment may be advisable depending on the preferred alternative selected.

Future Studies or Permits

If the project receives federal funding, the following studies and/or permits may be required:

- National Environmental Policy Act (NEPA) documentation (likely a documented categorical exclusion)
- Archaeological and Historic Survey Report for Section 106 compliance

- A Section 4(f) finding (if historic resources may be impacted)
- Noise study per FHWA and ITD guidelines
- Socioeconomic impact analysis
- Hazardous materials assessment at a level appropriate to the project proposed

REFERENCES

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FIGURES

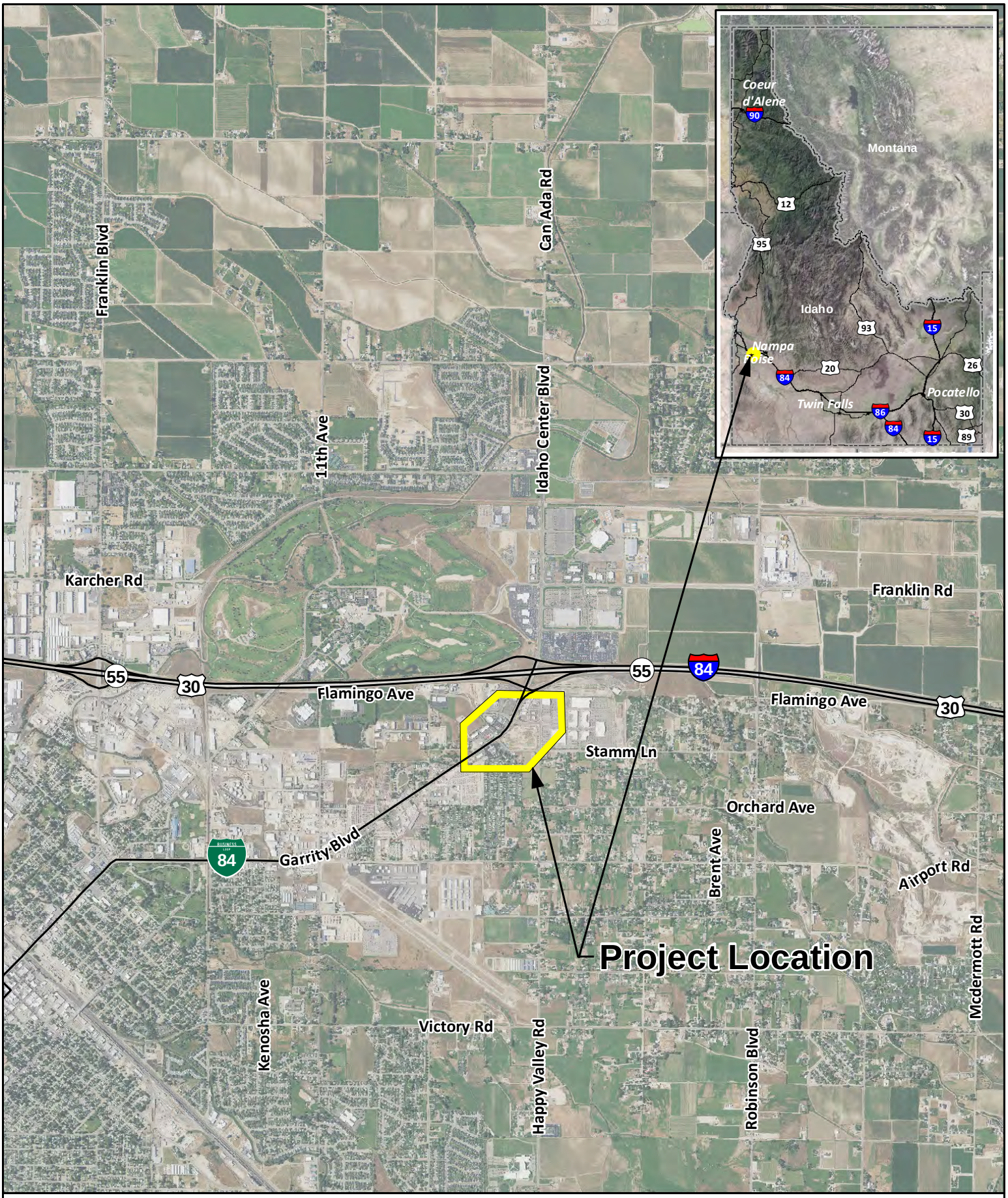

Figure 1. Vicinity Map
COMPASS, Happy Valley/Stamm/Garrity/Flamingo
Traffic Improvements, Nampa, ID, Environmental Scan

Imagery: 2015 NAIP, 1 Meter Resolution
Source: USDA/NRCS Digital Gateway
Other Data Sources: Ada County; Idaho Geospatial Clearinghouse (INSIDE Idaho); Community Planning Association of Southwest Idaho

Map Date: 3/22/2017
Document: Q:\ERM_misc\COMPASS\map_docs\Vicinity_LetPort.mxd

Document: Q:\ERM_misc\COMPASS\map_docs\Site_11x17Land.mxd

Map Production Date: 3/27/2017

Imagery: 2015 1 meter resolution NAIP; Source: USDA/NRCS Digital Gateway
Other Data Sources: USGS; US Census Bureau

Figure 2.
Project Area Map
COMPASS Happy Valley/Stamm/ Garrity/Flamingo Traffic Improvements, Nampa, ID
Environmental Scan

ATTACHMENT A:

IPaC OFFICIAL SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Idaho Fish and Wildlife Office
1387 SOUTH VINNELL WAY, SUITE 368
BOISE, ID 83709
PHONE: (208)378-5243 FAX: (208)378-5262

Consultation Code: 01EIFW00-2017-SLI-0605 March 09, 2017
Event Code: 01EIFW00-2017-E-01029
Project Name: COMPASS - Garrity-Flamingo-Happy Valley-Stamm

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

Please note: The IPaC module for producing a list of proposed and designated critical habitat is currently incomplete. At this time, we ask that you use the information given below to determine whether your action area falls within a county containing proposed/designated critical habitat for a specific species. If you find that your action falls within a listed county, use the associated links for that species to determine if your action area actually overlaps with the proposed or designated critical habitat.

Canada Lynx (*Lynx canadensis*) - *Designated February 24, 2009.*
Counties: Boundary County.

Federal Register Notice:
http://www.gpo.gov/fdsys/pkg/FR-2009-02-25/pdf/E9-3512.pdf#page=1
Printable Maps:
http://www.fws.gov/mountain-prairie/species/mammals/lynx/criticalhabitat_files/20081222_fedre

GIS Data: http://criticalhabitat.fws.gov/docs/crithab/zip/lunx_ch.zip
KML for Google Earth: (None Currently Available)

Selkirk Mountains Woodland Caribou (*Rangifer tarandus Caribou*) - *Proposed November 30, 2011.*
Counties: Bonner and Boundary Counties.

Federal Register Notice: http://www.fws.gov/idaho/home/2011-30451FINALR.pdf
Printable Maps: http://www.fws.gov/idaho/home/Map1_sub1_150.pdf
GIS Data: (None Currently Available)
KML for Google Earth: (None Currently Available)

Bull Trout (*Salvelinus confluentus*) - *Designated September 30, 2010.*
Counties: Adams, Benewah, Blaine, Boise, Bonner, Boundary, Butte, Camas, Clearwater, Custer, Elmore, Gem, Idaho, Kootenai, Lemhi, Lewis, Nez Perce, Owyhee, Shoshone, Valley, and Washington Counties.

Federal Register Notice:
http://www.gpo.gov/fdsys/pkg/FR-2010-10-18/pdf/2010-25028.pdf#page=2
Printable Maps: http://www.fws.gov/pacific/bulltrout/CH2010_Maps.cfm#CHMaps
GIS Data: http://criticalhabitat.fws.gov/docs/crithab/zip/bulltrout.zip
KML for Google Earth:
http://www.fws.gov/pacific/bulltrout/finalcrithab/BT_FCH_2010_KML.zip

Kootenai River White Sturgeon (*Acipenser transmontanus*) - *Designated July 9, 2008.*
Counties: Boundary County.

Federal Register Notice:
http://www.gpo.gov/fdsys/pkg/FR-2008-07-09/pdf/E8-15134.pdf#page=1
Printable Maps: (None Currently Available)
GIS Data: http://criticalhabitat.fws.gov/docs/crithab/zip/fch_73fr39506_acit_2009.zip
KML for Google Earth: (None Currently Available)

Slickspot Peppergrass (*Lepidium papilliferum*) - Proposed May 10, 2011. Counties: Ada, Canyon, Elmore, Gem, Owyhee, and Payette Counties.

Federal Register Notice: http://www.gpo.gov/fdsys/pkg/FR-2011-10-26/pdf/2011-27727.pdf
Printable Maps: http://www.fws.gov/idaho/Lepidium.html
GIS Data: (None Currently Available)
KML for Google Earth: (None Currently Available)

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

Official Species List

Provided by:

Idaho Fish and Wildlife Office
1387 SOUTH VINNELL WAY, SUITE 368
BOISE, ID 83709
(208) 378-5243

Consultation Code: 01EIFW00-2017-SLI-0605
Event Code: 01EIFW00-2017-E-01029

Project Type: TRANSPORTATION

Project Name: COMPASS - Garrity-Flamingo-Happy Valley-Stamm
Project Description: Project development for safety improvement of roadway system

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-116.51477336883546 43.596259295958276, -116.51588916778566 43.59664779491487, -116.51799201965333 43.59506270341208, -116.51631832122804 43.59364851790792, -116.51249885559083 43.59364851790792, -116.51247739791872 43.59621267591491, -116.51477336883546 43.596259295958276)))

Project Counties: Canyon, ID

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Flowering Plants	Status	Has Critical Habitat	Condition(s)
Slickspot peppergrass *(Lepidium papilliferum)*	Threatened	Proposed	

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Appendix D. Cost Summary and Project Request Forms

Project Cost Summary Sheet

ITD 1150 (Rev. 09-13)
itd.idaho.gov

Round Estimates to Nearest $1,000

Key Number	Project Number	Date
	10051634	4/12/2017

Location	District
Intersections of Garrity Blvd., Stamm Ln., Flamingo Ave., Happy Valley Rd., Nampa, Idaho 83687	

Segment Code	Begin Mile Post	End Mile Post	Length in Miles
2040	61.214	61.474	0.89

	Previous ITD 1150	Initial or Revise To
1a. Preliminary Engineering (PE)		
1b. Preliminary Engineering by Consultant (PEC)		$407,000
2. Right-of-Way: Number of Parcels Number of Relocations		$199,000
3. Utility Adjustments: ☐ Work ☐ Materials ☐ By State ☐ By Others		$23,000
4. Earthwork		$146,000
5. Drainage and Minor Structures		$58,000
6. Pavement and Base		$339,000
7. Railroad Crossing:		
Grade/Separation Structure _____		
At-Grade Signals ☐ Yes ☐ No		
8. Bridges/Grade Separation Structures:		
☐ New Structure Length/Width _____		
Location _____		
☐ Repair/Widening/Rehabilitation Length/Width _____		
Location		
9. Traffic Items (Delineators, Signing, Channelization, Lighting, and Signals)		$212,000
10. Construction Traffic Control (Sign, Pavement Markings, Flagging, and Traffic Separation)		$39,000
11. Detours		
12. Landscaping		$129,000
13. Mitigation Measures		$115,000
14. Other Items (Roadside Development, Guardrail, Fencing, Sidewalks, Curb and Gutter, C.S.S. Items)		$256,000
15. Cost of Constructions (Items 3 through 14)		$1,317,000
16. Mobilization 5 % of Item 15		$66,000
17. Construction Engineer and Contingencies 30 % of Items 15 and 16		$415,000
18. Total Construction Cost (15 + 16 + 17)		$1,798,000
19. Total Project Cost (1 + 2 + 18)		$2,404,000
20. Project Cost Per Mile	$1,000	$2,701,000

Prepared By:

Project Cost Summary Sheet

ITD 1150 (Rev. 09-1
itd.idaho.gov

Round Estimates to Nearest $1,000

Key Number	Project Number	Date
	10051634	3/29/2017

Location	District
Garrity Boulevard, Vicinity of Stamm Lane, Nampa, Idaho 83687	3

Segment Code	Begin Mile Post	End Mile Post	Length in Miles
2040	61.214	61.474	0.26

	Previous ITD 1150	Initial or Revise
1a. Preliminary Engineering (PE)		
1b. Preliminary Engineering by Consultant (PEC)		$61,000
2. Right-of-Way: Number of Parcels Number of Relocations		
3. Utility Adjustments: ☐ Work ☐ Materials ☐ By State ☐ By Others		
4. Earthwork		
5. Drainage and Minor Structures		
6. Pavement and Base		$67,000
7. Railroad Crossing:		
Grade/Separation Structure _____		
At-Grade Signals ☐ Yes ☐ No		
8. Bridges/Grade Separation Structures:		
☐ New Structure Length/Width _____		
Location _____		
☐ Repair/Widening/Rehabilitation Length/Width _____		
Location		
9. Traffic Items (Delineators, Signing, Channelization, Lighting, and Signals)		$32,000
10. Construction Traffic Control (Sign, Pavement Markings, Flagging, and Traffic Separation)		$7,000
11. Detours		
12. Landscaping		$36,000
13. Mitigation Measures		$14,000
14. Other Items (Roadside Development, Guardrail, Fencing, Sidewalks, Curb and Gutter, C.S.S. Items)		$68,000
15. Cost of Constructions (Items 3 through 14)		$224,000
16. Mobilization 5 % of Item 15		$11,000
17. Construction Engineer and Contingencies 30 % of Items 15 and 16		$71,000
18. Total Construction Cost (15 + 16 + 17)		$306,000
19. Total Project Cost (1 + 2 + 18)		$367,000
20. Project Cost Per Mile	$1,000	$1,412,000

Prepared By:

Project Cost Summary Sheet

ITD 1150 (Rev. 09-1
itd.idaho.gov

Round Estimates to Nearest $1,000

Key Number	Project Number	Date
	10051634	3/29/2017

Location	District
Happy Valley Road, Airport Road to Stamm Lane, Nampa, Idaho 83687	3

Segment Code	Begin Mile Post	End Mile Post	Length in Miles
LOCAL	N/A	N/A	0.19

	Previous ITD 1150	Initial or Revise
1a. Preliminary Engineering (PE)		
1b. Preliminary Engineering by Consultant (PEC)		$103,000
2. Right-of-Way: Number of Parcels Number of Relocations		
3. Utility Adjustments: ☐ Work ☐ Materials ☐ By State ☐ By Others		$6,000
4. Earthwork		$2,000
5. Drainage and Minor Structures		$46,000
6. Pavement and Base		$71,000
7. Railroad Crossing:		
Grade/Separation Structure _____		
At-Grade Signals ☐ Yes ☐ No		
8. Bridges/Grade Separation Structures:		
☐ New Structure Length/Width _____		
Location _____		
☐ Repair/Widening/Rehabilitation Length/Width _____		
Location		
9. Traffic Items (Delineators, Signing, Channelization, Lighting, and Signals)		$11,000
10. Construction Traffic Control (Sign, Pavement Markings, Flagging, and Traffic Separation)		$6,000
11. Detours		
12. Landscaping		$1,000
13. Mitigation Measures		$17,000
14. Other Items (Roadside Development, Guardrail, Fencing, Sidewalks, Curb and Gutter, C.S.S. Items)		$33,000
15. Cost of Constructions (Items 3 through 14)		$193,000
16. Mobilization 5 % of Item 15		$10,000
17. Construction Engineer and Contingencies 30 % of Items 15 and 16		$61,000
18. Total Construction Cost (15 + 16 + 17)		$264,000
19. Total Project Cost (1 + 2 + 18)		$367,000
20. Project Cost Per Mile	$1,000	$1,932,000

Prepared By:

Project Cost Summary Sheet

ITD 1150 (Rev. 09-13)
itd.idaho.gov

Round Estimates to Nearest $1,000

Key Number	Project Number	Date
	10051634	3/29/2017

Location	District
Garrity Boulevard and Stamm Lane, Nampa, Idaho 83687	3

Segment Code	Begin Mile Post	End Mile Post	Length in Miles
2040	61.409	N/A	0.23

	Previous ITD 1150	Initial or Revise To
1a. Preliminary Engineering (PE)		
1b. Preliminary Engineering by Consultant (PEC)		$153,000
2. Right-of-Way: Number of Parcels Number of Relocations		$177,000
3. Utility Adjustments: ☐ Work ☐ Materials ☐ By State ☐ By Others		$7,000
4. Earthwork		$144,000
5. Drainage and Minor Structures		$12,000
6. Pavement and Base		$163,000
7. Railroad Crossing:		
Grade/Separation Structure _____		
At-Grade Signals ☐ Yes ☐ No		
8. Bridges/Grade Separation Structures:		
☐ New Structure Length/Width _____		
Location _____		
☐ Repair/Widening/Rehabilitation Length/Width _____		
Location		
9. Traffic Items (Delineators, Signing, Channelization, Lighting, and Signals)		$69,000
10. Construction Traffic Control (Sign, Pavement Markings, Flagging, and Traffic Separation)		$16,000
11. Detours		
12. Landscaping		$12,000
13. Mitigation Measures		$51,000
14. Other Items (Roadside Development, Guardrail, Fencing, Sidewalks, Curb and Gutter, C.S.S. Items)		$87,000
15. Cost of Constructions (Items 3 through 14)		$561,000
16. Mobilization 5 % of Item 15		$28,000
17. Construction Engineer and Contingencies 30 % of Items 15 and 16		$177,000
18. Total Construction Cost (15 + 16 + 17)		$766,000
19. Total Project Cost (1 + 2 + 18)		$1,096,000
20. Project Cost Per Mile	$1,000	$4,765,000

Prepared By:

Project Cost Summary Sheet

ITD 1150 (Rev. 09-13)
itd.idaho.gov

Round Estimates to Nearest $1,000

Key Number	Project Number	Date
	10051634	3/29/2017

Location	District
Happy Valley Road, Stamm Lane to Flamingo Avenue, Nampa, Idaho 83687	3

Segment Code	Begin Mile Post	End Mile Post	Length in Miles
LOCAL	N/A	N/A	0.21

	Previous ITD 1150	Initial or Revise To
1a. Preliminary Engineering (PE)		
1b. Preliminary Engineering by Consultant (PEC)		$90,000
2. Right-of-Way: Number of Parcels Number of Relocations		$22,000
3. Utility Adjustments: ☐ Work ☐ Materials ☐ By State ☐ By Others		$10,000
4. Earthwork		
5. Drainage and Minor Structures		
6. Pavement and Base		$38,000
7. Railroad Crossing:		
Grade/Separation Structure _____		
At-Grade Signals ☐ Yes ☐ No		
8. Bridges/Grade Separation Structures:		
☐ New Structure Length/Width _____		
Location _____		
☐ Repair/Widening/Rehabilitation Length/Width _____		
Location		
9. Traffic Items (Delineators, Signing, Channelization, Lighting, and Signals)		$100,000
10. Construction Traffic Control (Sign, Pavement Markings, Flagging, and Traffic Separation)		$10,000
11. Detours		
12. Landscaping		$79,000
13. Mitigation Measures		$33,000
14. Other Items (Roadside Development, Guardrail, Fencing, Sidewalks, Curb and Gutter, C.S.S. Items)		$67,000
15. Cost of Constructions (Items 3 through 14)		$337,000
16. Mobilization 5 % of Item 15		$17,000
17. Construction Engineer and Contingencies 30 % of Items 15 and 16		$106,000
18. Total Construction Cost (15 + 16 + 17)		$460,000
19. Total Project Cost (1 + 2 + 18)		$572,000
20. Project Cost Per Mile	$1,000	$2,724,000

Prepared By:

ITD 2435 (Rev. 01-09)

Local Federal-Aid Project Request

Instructions

1. Under Character of Proposed Work, mark appropriate boxes when work includes Bridge Approaches in addition to a Bridge.
2. Attach a Vicinity Map showing the extent of the project limits.
3. Attach an ITD 1150, Project Cost Summary Sheet.
4. Signature of an appropriate local official is the only kind recognized.

Note: In Applying for a Federal-Aid Project, You are Agreeing to Follow all of the Federal Requirements Which Can Add Substantial Time and Costs to the Development of the Project.

Sponsor (City, County, Highway District, State/Federal Agency)			Date
City of Nampa, Idaho			5/1/2017
Project Title (Name of Street or Road)	**F.A. Route Number**	**Project Length**	**Bridge Length**
Happy Valley/Stamm/Garrity/Flamingo - Phase 1		0.26 miles	N/A

Project Limits (Local Landmarks at Each End of the Project)
The intersection of Garrity & Stamm

Character of Proposed Work (Mark Appropriate Items)

☐ Excavation	☒ Bicycle Facilities	☒ Utilities	☒ Sidewalk
☐ Drainage	☒ Traffic Control	☒ Landscaping	☐ Seal Coat
☒ Base	☐ Bridge(s)	☐ Guardrail	☐ _____
☒ Bit. Surface	☒ Curb & Gutter	☐ Lighting	

Estimated Costs (Attach ITD 1150, Project Cost Summary Sheet)

Preliminary Engineering (ITD 1150, Line 1)	$ 61,000
Right-of-Way (ITD 1150, Line 2)	$ 0.00
Construction (ITD 1150, Line 18)	$ 306,000

Preliminary Engineering By: ☐ Sponsor Forces ☒ Consultant

Checklist (Provide Names, Locations, and Type of Facilities)

Railroad Crossing	None
Within 2 miles of an Airport	Nampa Municipal Airport
Parks (City, County, State or Federal)	None
Environmentally Sensitive Areas	No Section 4(f) properties, wetlands, or listed species are expected
Federal Lands (Indian, BLM, etc.)	None
Historical Sites	No NRHP sites
Schools	College of Western Idaho, 1.7 mi. Snake River Elementary, 1.8 mi.
Other	Saint Alphonsus Regional Medical Center on the west side of Garrity

Additional Right-of-Way Required: ☒ None ☐ Minor (1-3 Parcels) ☐ Extensive (4 or More Parcels)

Will any Person or Business be Displaced: ☐ Yes ☒ No ☐ Possibly

Standards	Existing	Proposed	Standards	Existing	Proposed
Number of Lanes			Roadway Width (Shoulder to Shoulder)	ft	ft
Pavement Type	Superpave		Right-of-Way Width	ft	ft

Sponsor's Signature	Title

Additional Information to be Furnished by the District

Functional Classification	Terrain Type	20	ADT/DHV

ITD 2435 (Rev. 01-09)

Local Federal-Aid Project Request

Instructions

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2. Attach a Vicinity Map showing the extent of the project limits.
3. Attach an ITD 1150, Project Cost Summary Sheet.
4. Signature of an appropriate local official is the only kind recognized.

Note: In Applying for a Federal-Aid Project, You are Agreeing to Follow all of the Federal Requirements Which Can Add Substantial Time and Costs to the Development of the Project.

Sponsor (City, County, Highway District, State/Federal Agency)			Date
City of Nampa, Idaho			5/1/2017
Project Title (Name of Street or Road)	**F.A. Route Number**	**Project Length**	**Bridge Length**
Happy Valley/Stamm/Garrity/Flamingo - Phase 2		0.19 miles	N/A

Project Limits (Local Landmarks at Each End of the Project)
The intersection of Happy Valley & Stamm

Character of Proposed Work (Mark Appropriate Items)

☒ Excavation	☒ Bicycle Facilities	☒ Utilities	☒ Sidewalk
☒ Drainage	☒ Traffic Control	☒ Landscaping	☐ Seal Coat
☒ Base	☐ Bridge(s)	☐ Guardrail	☐ _____
☒ Bit. Surface	☒ Curb & Gutter	☐ Lighting	

Estimated Costs (Attach ITD 1150, Project Cost Summary Sheet)

Preliminary Engineering (ITD 1150, Line 1)	$ 103,000
Right-of-Way (ITD 1150, Line 2)	$ 0.00
Construction (ITD 1150, Line 18)	$ 264,000

Preliminary Engineering By: ☐ Sponsor Forces ☒ Consultant

Checklist (Provide Names, Locations, and Type of Facilities)

Railroad Crossing	None
Within 2 miles of an Airport	Nampa Municipal Airport
Parks (City, County, State or Federal)	None
Environmentally Sensitive Areas	No Section 4(f) properties, wetlands, or listed species are expected
Federal Lands (Indian, BLM, etc.)	None
Historical Sites	No NRHP sites
Schools	College of Western Idaho, 1.7 mi. Snake River Elementary, 1.8 mi.
Other	Saint Alphonsus Regional Medical Center on the west side of Garrity

Additional Right-of-Way Required: ☒ None ☐ Minor (1-3 Parcels) ☐ Extensive (4 or More Parcels)

Will any Person or Business be Displaced: ☐ Yes ☒ No ☐ Possibly

Standards	Existing	Proposed	Standards	Existing	Proposed
Number of Lanes			Roadway Width (Shoulder to Shoulder)	ft	ft
Pavement Type	Superpave		Right-of-Way Width	ft	ft

Sponsor's Signature	Title

Additional Information to be Furnished by the District

Functional Classification	Terrain Type	20	ADT/DHV

ITD 2435 (Rev. 01-09)

Local Federal-Aid Project Request

Instructions

1. Under Character of Proposed Work, mark appropriate boxes when work includes Bridge Approaches in addition to a Bridge.
2. Attach a Vicinity Map showing the extent of the project limits.
3. Attach an ITD 1150, Project Cost Summary Sheet.
4. Signature of an appropriate local official is the only kind recognized.

Note: In Applying for a Federal-Aid Project, You are Agreeing to Follow all of the Federal Requirements Which Can Add Substantial Time and Costs to the Development of the Project.

Sponsor (City, County, Highway District, State/Federal Agency)			Date
City of Nampa, Idaho			5/1/2017
Project Title (Name of Street or Road)	**F.A. Route Number**	**Project Length**	**Bridge Length**
Happy Valley/Stamm/Garrity/Flamingo - Phase 3		0.23 miles	N/A

Project Limits (Local Landmarks at Each End of the Project)
The intersection of Garrity & Stamm

Character of Proposed Work (Mark Appropriate Items)

☒ Excavation	☒ Bicycle Facilities	☒ Utilities	☒ Sidewalk
☒ Drainage	☒ Traffic Control	☒ Landscaping	☐ Seal Coat
☒ Base	☐ Bridge(s)	☐ Guardrail	☐ _____
☒ Bit. Surface	☒ Curb & Gutter	☐ Lighting	

Estimated Costs (Attach ITD 1150, Project Cost Summary Sheet)

Preliminary Engineering (ITD 1150, Line 1)	$ 153,000
Right-of-Way (ITD 1150, Line 2)	$ 177,000
Construction (ITD 1150, Line 18)	$ 766,000

Preliminary Engineering By: ☐ Sponsor Forces ☒ Consultant

Checklist (Provide Names, Locations, and Type of Facilities)

Railroad Crossing	None
Within 2 miles of an Airport	Nampa Municipal Airport
Parks (City, County, State or Federal)	None
Environmentally Sensitive Areas	No Section 4(f) properties, wetlands, or listed species are expected
Federal Lands (Indian, BLM, etc.)	None
Historical Sites	No NRHP sites
Schools	College of Western Idaho, 1.7 mi. Snake River Elementary, 1.8 mi.
Other	Saint Alphonsus Regional Medical Center on the west side of Garrity

Additional Right-of-Way Required: ☐ None ☐ Minor (1-3 Parcels) ☒ Extensive (4 or More Parcels)

Will any Person or Business be Displaced: ☐ Yes ☒ No ☐ Possibly

Standards	Existing	Proposed	Standards	Existing	Proposed
Number of Lanes			Roadway Width (Shoulder to Shoulder)	ft	ft
Pavement Type	Superpave		Right-of-Way Width	ft	ft

Sponsor's Signature	Title

Additional Information to be Furnished by the District

Functional Classification	Terrain Type	20	ADT/DHV

ITD 2435 (Rev. 01-09)

Local Federal-Aid Project Request

Instructions

1. Under Character of Proposed Work, mark appropriate boxes when work includes Bridge Approaches in addition to a Bridge.
2. Attach a Vicinity Map showing the extent of the project limits.
3. Attach an ITD 1150, Project Cost Summary Sheet.
4. Signature of an appropriate local official is the only kind recognized.

Note: In Applying for a Federal-Aid Project, You are Agreeing to Follow all of the Federal Requirements Which Can Add Substantial Time and Costs to the Development of the Project.

Sponsor (City, County, Highway District, State/Federal Agency)			Date
City of Nampa, Idaho			5/1/2017
Project Title (Name of Street or Road)	**F.A. Route Number**	**Project Length**	**Bridge Length**
Happy Valley/Stamm/Garrity/Flamingo - Phase 4		0.21 miles	N/A

Project Limits (Local Landmarks at Each End of the Project)
The intersections of Stamm & Happy Valley, Stamm & Flamingo

Character of Proposed Work (Mark Appropriate Items)

☐ Excavation	☒ Bicycle Facilities	☒ Utilities	☒ Sidewalk
☐ Drainage	☒ Traffic Control	☒ Landscaping	☐ Seal Coat
☒ Base	☐ Bridge(s)	☐ Guardrail	☐ _____
☒ Bit. Surface	☒ Curb & Gutter	☐ Lighting	

Estimated Costs (Attach ITD 1150, Project Cost Summary Sheet)

Preliminary Engineering (ITD 1150, Line 1)	$ 90,000
Right-of-Way (ITD 1150, Line 2)	$ 22,000
Construction (ITD 1150, Line 18)	$ 460,000

Preliminary Engineering By: ☐ Sponsor Forces ☒ Consultant

Checklist (Provide Names, Locations, and Type of Facilities)

Railroad Crossing	None
Within 2 miles of an Airport	Nampa Municipal Airport
Parks (City, County, State or Federal)	None
Environmentally Sensitive Areas	No Section 4(f) properties, wetlands, or listed species are expected
Federal Lands (Indian, BLM, etc.)	None
Historical Sites	No NRHP sites
Schools	College of Western Idaho, 1.7 mi. Snake River Elementary, 1.8 mi.
Other	Saint Alphonsus Regional Medical Center on the west side of Garrity

Additional Right-of-Way Required: ☐ None ☒ Minor (1-3 Parcels) ☐ Extensive (4 or More Parcels)

Will any Person or Business be Displaced: ☐ Yes ☒ No ☐ Possibly

Standards	Existing	Proposed	Standards	Existing	Proposed
Number of Lanes			Roadway Width (Shoulder to Shoulder)	ft	ft
Pavement Type	Superpave		Right-of-Way Width	ft	ft

Sponsor's Signature	Title

Additional Information to be Furnished by the District

Functional Classification	Terrain Type	20	ADT/DHV

Infrastructure Project Charter Template

ITD 0332 (Rev. 09-13)
itd.idaho.gov

Use this template to create your charter without going into the PSS.

1. Project Information

Key Number	Project Name			Temporary Key Number
TBD	Happy Valley/Stamm/Garrity/Flamingo Traffic Improvements			TBD
District	Work Authority	Funding Year	Route(s)	
D3		TBD	I-84B (Garrity Blvd.) MP 61.28 to MP 61.599, Flamingo Ave., Stamm Ln., Happy Valley Rd.	
Beginning Mile Post(s)	Ending Mile Post(s)	Current Project Phase	Type of Project	
61.28	61.599	Development Phase	Safety	

Program

Highway Local
- ☐ Bridge Local
- ☐ Bridge Off System
- ☐ STP Local Rural
- ☒ STP Local Urban
- ☐ STP Transportation Mgmt. Area
- ☐ TAP Transportation Mgmt. Area

Highway Other Federal Programs
- ☐ High Priority (SAFETEA LU)
- ☐ High Priority (TEA 21)
- ☐ Discretionary Earmarks (carryover)
- ☐ Emergency Relief
- ☐ Federal Lands Access
- ☐ Indian Reservation Roads
- ☐ Other Federal Non Formula

Highway Other State Programs
- ☐ Federal Non-Participating
- ☒ Local Private Partnership

Public Transit
- ☐ Capital
- ☐ Operations

Aeronautics
- ☐ New Airport Facilities
- ☐ Airport Facility Maintenance
- ☐ Airport Planning
- ☐ Aviation System Planning

Highway Planning
- ☐ Metropolitan Planning MPOs
- ☐ State Planning and Research
- ☒ Systems Planning

Highway Safety
- ☐ Rest Area
- ☐ Safety Federal Rail
- ☐ Safety State Rail
- ☒ Safety Statewide

Highway Statewide Competitive
- ☐ CMAQ
- ☐ Recreational Trails
- ☐ Safe Routes to School
- ☒ TAP Urban and Rural

SHS Bridges
- ☐ Bridge Preservation
- ☐ Bridge Restoration

SHS Expansion
- ☐ Early Development
- ☐ Expansion
- ☐ Formula Debt Service plus Fees and Interest

SHS Other
- ☐ State Board Unallocated
- ☒ System Support

SHS Pavements
- ☐ Pavement Preservation
- ☐ Restoration

2. Exit Criteria

Evaluation Phase		Development Phase		Implementation Phase
Temporary Key No.	Temporary Key No. Date	PS&E Package Delivered	Contract Awarded	Final Voucher Issued
TBD	Select	Select	Select	Select

3. Project Organization Chart

Project Sponsor			
Sponsor Name	External Sponsor	External Sponsor Name	Sponsor Contact Info or Email
City of Nampa, COMPASS	☐		
Project Owner			
Owner Name	External Owner	External Owner Name	Owner Contact Info or Email
City of Nampa, ITD	☐		
Project Manager			
Project Manager Name	Project Manager Contact Info or Email		

Infrastructure Project Charter Template

Use this template to create your charter without going into the PSS.

Stakeholders		
Stakeholder Name	Interest	Contact Information
City of Nampa	Sponsor/Owner	bowmanc@cityofnampa.us
Nampa Highway District	Safety and Capacity	eric@nampahighway1.com
COMPASS	Project Funding and Safety	kparker@compassidaho.org
ITD - District 3	Sponsor/Owner	erika.bowen@itd.idaho.gov
Jacksons	Property Owner	TBD
St. Als	Property Owner	TBD
Nampa Gateway Center	Property Owner	TBD
WinCo	Property Owner	TBD
Subway	Property Owner	TBD

4. Scope and Strategic Objectives

Project Objective Statement

The City of Nampa is proposing operational improvements to Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard as a result of a joint 2012 Federal Highway Administration (FHWA) and Idaho Transportation Department (ITD) safety audit on Garrity Boulevard between the I-84 Garrity Interchange eastbound ramps and Stamm Lane. The audit was conducted because the area experiences high crash rates, particularly at the arterial intersections.

The purpose of the project is to improve operations, safety, and mobility for all modes of travel on the project streets and intersections including Flamingo Avenue, Stamm Lane, Happy Valley Road, and Garrity Boulevard.
This project addresses three primary needs:

1. Inadequate intersection capacity. The left turn movements at Garrity & Flamingo currently operate over capacity in the PM peak hour, which may cause queue spillbacks that threaten the performance of adjacent driveways, intersections, and the Interstate 84 (I-84) interchange. In addition, significant growth is expected in the near future. The project area is projected to operate severely over capacity by 2040.

2. High crash rate and severity. The crash rate at three of the project intersections is above the base crash rate for similar intersections, with the Happy Valley & Stamm intersection at three times the base rate. Crash severity at these intersections is significantly higher than crash severity at other similar intersections.

3. Lack of active transportation connectivity. The project area has a number of notable gaps in active transportation facilities. Sidewalk gaps exist on Garrity Boulevard, Stamm Lane, and Happy Valley Road, and no bicycle lanes exist within the project area. This is in spite of several contributors to active transportation demand, including a bus route along Garrity Boulevard, St. Alphonsus Medical Center, and low income residential housing just to the south of the project area.

Strategic Objectives

Safest Transportation System

☒ Reduction in injuries and fatalities related to distracted driving ☒ Reduction in injuries and fatalities to impaired driving

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- ☐ Increase in seat belt use
- ☒ Reduction in fatalities
- ☒ Impact of corridor-safety initiatives and improvements
- ☒ Reduction in serious injuries

Mobility Focused Transportation

- ☐ Increase in Idaho gross domestic product
- ☐ Increase in jobs and business revenues
- ☒ Increase in the efficiency in which goods are transported
- ☒ Reduction in travel times for commuting commerce, recreation, and tourism

Implement Innovative Practices

- ☒ Improvement in performance measures
- ☒ Increase in customer satisfaction
- ☐ Reduction in costs through innovation process improvement and technology

Develop Employees

- ☐ Effectiveness of the departments leadership
- ☐ Reduction in Turnover
- ☐ Increase in employee productivity
- ☐ Total employee compensation compared to similar markets
- ☐ Individual performance plans linked to the department's strategic goals
- ☐ Progress toward the desired organizational culture

Scope of Work

5. Environmental Considerations

Project Need		
Primary Need	**Secondary Need**	
Safety	☒ Capacity	☐ Safety
	☐ Deficient-standards	☐ System Linkage
	☐ Deficient-structurally	☒ Traffic Flow
	☒ Enhancement	☐ Other _____
	☐ Maintenance	

Anticipated Major Environmental Deliverables				
EE/Cat Ex	EA/FONSI	EIS/ROD	Navigable Waters	Storm water
Yes, Cat Ex ITD Approval	☐	☐	☐	☐

Cultural	☒ Archaeological and Historic Survey Report
	☐ Determination of Adverse Effect Report
	☐ Field Survey and or Test Investigations
	☐ Memorandum of Agreement
	☐ Mitigation

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Noise Air Quality and Hazmat	☐ Air Quality Report ☐ Barrier Analysis ☐ Haz Mat Phase 1	☐ Modeling ☒ Noise Report
Section 4F	☒ Section 4f Deminimus ☐ Section 4f Evaluation Including Alternatives Analysis	
Miscellaneous	☒ Environmental Justice Report ☐ FAA Airspace Intrusion ☐ LWCF Recreation Areas 6f Lands Report	☐ Prime Farmland Report ☐ Visual Impact Report
Wetlands Stream Alteration	☐ Delineation ☐ Field Survey ☐ Mitigation	☐ Mitigation Plan ☐ Permit Application ☐ Wetland Report (Jurisdictional Determination)
Species and Habitat	☐ Biological Assessment ☐ Wildlife Migratory Birds Mag-Ste Fisheries	☒ No Effect Report
Floodway Floodplain	☒ Field Survey ☐ Floodplain Encroachment Permit App ☐ Floodplain Encroachment Report	☐ Sole Source Aquifer Packet ☐ Floodway Encroachment Report
Environmental Narrative	An environmental scan was conducted to support a future funding application package(s) for the project. The scope of the environmental scan included desk-top reviews of Land Use, Cultural Resources, Section 4(f) Properties, Biological Resources, Wetlands, Noise, Environmental Justice and Neighborhood Services, and Hazardous Materials. The project area is highly urbanized, with no adjacent designated open space.No sites were listed in the NRHP database within or adjacent to the project area.There are no parks, recreational areas, or wildlife/waterfowl refuges in or near the project area. One threatened species (slpckspot peppergrass) and no endangered species under the Endangered Species Act may occur or may be affected by the project. However slickspot peppergrass is typically found in sagebrush steppe habitat. The proposed project is located in a developed/urbanized area; habitat for slickspot peppergrass does not exist in the proposed project area.The desktop survey did not reveal any potential wetlands in the project area (Google Earth 2017). The area is developed and consists of landscaping, often bermed, along the perimeter of the roadway. The project will be adding through-traffic lanes and a traffic noise analysis will likely be required. Iit appears that the City and the census tracts within the project area are home to larger populations of minorities and those below poverty level than Canyon County or Idaho as a whole. In addition, a mobile home community is present on the south side of Stamm Lane within the project area. The need for Phase 1 environmental site assessments will depend, in part, on the preferred alternative selected. The two fuel stations on Garrity Boulevard and the automobile repair shop on Stamm Lane may have impacts on road widening activities.The project area contains no National Priority List sites or CERCLA sites. No sites within the project area were subject to corrective action or were listed as TDS facilities under RCRA. One RCRA site is located south of the project area on Garrity Boulevard. The facility is listed as an antique restoration business and RCRA information has not been updated for the site since 2000. No violations were reported at this facility. IDEQ database information indicates there are two underground storage tank (UST) sites within the project area associated with the fueling stations on Garrity Boulevard.	

6. Design Standards

Crash History			
Crash Base Rate **See Safety Analysis**	Spot Locations that Exceed Base Rate Garrity south of Stamm, Garrity @ Flamingo, Garrity@Stamm, Happy Valley @ Stamm	Crash Rate with Project Limits **See analysis**	Identify HALs (High Accident Locations) Garrity south of Stamm, Garrity @ Flamingo, Garrity@Stamm, Happy

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			Valley @ Stamm

Design Data

Design Exception Anticipated	Pavement Width Proposed	Traffic Signals	Railroad Crossing
		☒ Yes ☐ No	☐ Yes ☒ No

Pavement Width Existing	Pavement Width Existing Standard	Proposed Design Vehicle	Design Year
			2040

Posted Speed	Design Speed	Traffic ADT Present	Traffic ADT Future	Traffic DHV Present	Traffic DHV Future
		Garrity - 33,000	Garrity - 46,000	3,400 @ Garrity/Flamingo	5,000 @ Garrity/Flamingo

Project Standards

Project Standards	Other Comments
AASHTO	

Additional Design Data - Development Phase

Proposed Structures

Proposed Maximum Super Elevation	Vertical Clearance (Rdwy/Q50)	Existing Bridge Sufficiency Rating	Rail Type

Minimum Curve Radius Proposed	Deck Width (c-c)	Deck Width (o-o)	Design Load

Additional Design Data

Maximum Grade Existing	Maximum Grade Proposed	Minimum Curve Radius Existing	Clear Zone Fill	Clear Zone Cut

Minimum LOS Existing	Minimum LOS Proposed	Access Control Existing	Access Control Proposed

Traffic Signals

Existing Location	Proposed Location (Milepost)	Type of Controller	Type of Warrant
Garrity/Flamingo, Garrity/Stamm, Happy Valley/Flamingo, Happy Valley/Stamm	NA		

Railroad Crossing Protection

Existing Location (Milepost)	Proposed Location (Milepost)	Type of Protection	Type of Warrant
NA	NA	NA	NA

Design Standards - Development Phase

Project Oversight	Design Exception District Engineer Approval Date
Select	Select

Design Exception FHWA Approval Date if on NHS	Design Exception Committee Date if Applicable
Select	Select

7. Funding and Cost Summary

Phase	Fiscal Year	Amount
Select		
Select		
Select		
Select		
Select		
Select		

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Select		

8. Resource Plan and Constraints

Project Constraints		
Scope Constraint Choose an item.	Schedule Constraint Choose an item.	Budget Constraint Choose an item.
Project Constraints Narrative		

Resource Plan	
Project Design Services	Choose an item.
Narrative	

9. True Minimum Milestones

Task WBS	Task Name	Actual Start	Actual Finish	Baseline Start	Baseline Finish
3.20.Z20	CHARTER APPROVAL	Select	Select	Select	Select
3.30.Z30	DESIGN APPROVAL	Select	Select	Select	Select
3.30.Z34	PRELIMINARY DESIGN REVIEW	Select	Select	Select	Select
3.30.Z36	ENVIRONMENTAL DOCUMENT APPROVAL	Select	Select	Select	Select
3.30.Z38	HEARING COMPLETE	Select	Select	Select	Select
3.40.Z41	SITUATION & LAYOUT APPROVAL	Select	Select	Select	Select
3.40.Z42	INITIATE R/W PURCHASE PROCESS	Select	Select	Select	Select
3.40.Z43	R/W CERTIFIABLE	Select	Select	Select	Select
3.40.Z48	AGREEMENTS COMPLETE	Select	Select	Select	Select
3.40.Z49	FINAL DESIGN REVIEW	Select	Select	Select	Select
3.50.Z50	PS & E SUBMITTAL	Select	Select	Select	Select
3.60.Z55	PROJECT AWARD	Select	Select	Select	Select
4.10.Z75	CONTRACT COMPLETION DATE	Select	Select	Select	Select
4.10.Z80	PROJECT CLOSEOUT COMPLETE	Select	Select	Select	Select
4.20.Z60	CONSTRUCTION START	Select	Select	Select	Select
4.20.Z70	CONSTRUCTION COMPLETION	Select	Select	Select	Select

10. Alternatives Analysis

Title	Location	Description
Memo:Traffic Improvement Alternatives Analysis for Stamm Lane/Flamingo Boulevard (February 5, 2016)		The City of Nampa analyzed and assessed the impacts of two improvement alternatives for area (Alternatives 1 and 2).

Use this template to create your charter without going into the PSS.

Pre-Concept Report:Happy Valley/Stamm/Garrity/Flamingo Traffic Improvements		The City of Nampa analyzed and assessed the impacts of a new alternative (Alternative 4). Alternative 4 was identified as the prefered alternative by the City of Nampa.

11. Design Exceptions

Title	NHS	District Engineer	District Engineer Approval	District Engineer Approval Date
	☐		☐	Select
Committee Approval Date	FHWA Name		FHWA Approval	FHWA Approval Date
Select			☐	Select

12. Change Requests

Title	Request Date	Request No.	Request Description	
	Select			
Reason for Change	Impact to Schedule, Scope, Budget		Impact to Resources, Risks, Quality	Request Results Select
Request Comments				
Title	Request Date Select	Request No.	Request Description	
Reason for Change	Impact to Schedule, Scope, Budget		Impact to Resources, Risks, Quality	Request Results Select
Request Comments				
Title	Request Date Select	Request No.	Request Description	
Reason for Change	Impact to Schedule, Scope, Budget		Impact to Resources, Risks, Quality	Request Results Select
Request Comments				
Title	Request Date Select	Request No.	Request Description	
Reason for Change	Impact to Schedule, Scope, Budget		Impact to Resources, Risks, Quality	Request Results Select
Request Comments				
Title	Request Date Select	Request No.	Request Description	
Reason for Change	Impact to Schedule, Scope, Budget		Impact to Resources, Risks, Quality	Request Results Select
Request Comments				

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13. Lessons Learned

Title	Project Type Select	Project Phase Select
What Worked Well	What Could Be Done Differently	
Action Plan		
Title	Project Type Select	Project Phase Select
What Worked Well	What Could Be Done Differently	
Action Plan		
Title	Project Type Select	Project Phase Select
What Worked Well	What Could Be Done Differently	
Action Plan		
Title	Project Type Select	Project Phase Select
What Worked Well	What Could Be Done Differently	
Action Plan		
Title	Project Type Select	Project Phase Select
What Worked Well	What Could Be Done Differently	
Action Plan		
Title	Project Type Select	Project Phase Select
What Worked Well	What Could Be Done Differently	
Action Plan		

14. Issues

Title	Owner	Assigned To	Status Select	Priority Select	Due Date Select
Discussion					
Resolution					
Title	Owner	Assigned To	Status Select	Priority Select	Due Date Select
Discussion					
Resolution					

Use this template to create your charter without going into the PSS.

Title	Owner	Assigned To	Status Select	Priority Select	Due Date Select
Discussion					
Resolution					

15. Risks

Title	Owner	Assigned To	Status Select	Exposure	Due Date Select
Description					
Mitigation Plan					
Title	Owner	Assigned To	Status Select	Exposure	Due Date Select
Description					
Mitigation Plan					
Title	Owner	Assigned To	Status Select	Exposure	Due Date Select
Description					
Mitigation Plan					